ENVIRONMENTAL ASSESSMENT

for the

ALTHOUSE-SUCKER
LANDSCAPE MANAGEMENT PROJECT

EA # OR117-07-02

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
GRANTS PASS RESOURCE AREA

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BUREAU OF LAND MANAGEMENT
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EA COVER SHEET

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1.0 Purpose and Need

Introduction

The Althouse-Sucker Landscape Management Plan Environmental Assessment (EA) will analyze the impacts of proposed forest management activities on the human environment in the Althouse-Sucker Planning Area. The EA will evaluate a range of alternatives, assessing regulatory compliance and efficacy in meeting project area needs. The information will provide the decision maker, the Grants Pass Field Manager, with current information to aid in the decision making process. It will also determine if an environmental impact statement (EIS) needs to be prepared or if a Finding of No Significant Impact is appropriate.

This EA conforms and tiers to the following documents:

- *Final Supplemental Environmental Impact Statement and Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (Northwest Forest Plan FSEIS 1994 and ROD 1994);
- *Final-Medford District Proposed Resource Management Plan/Environmental Impact Statement* and *Record of Decision* (EIS 1994 and RMP/ROD 1995);
- *Final Supplemental Environmental Impact Statement: Management of Port-Orford-Cedar in Southwest Oregon* (FSEIS 2004 and ROD 2004);
- *Final Supplemental Environmental Impact Statement and Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and* Guidelines (FSEIS 2000 and ROD 2001) and amendments or modifications as of March 21, 2004;
- *Medford District Integrated Weed Management Plan Environmental Assessment (1998*) and tiered to the *Northwest Area Noxious Weed Control Program* (EIS 1985); and

In addition to the documents cited above, project planning drew from information and recommendations from the following:

(1) *Althouse Creek Watershed Analysis* (February 2005);
(2) Lower Sucker Creek Total Maximum Daily Load and Water Quality Management Plan (April 2002); *Sucker Creek Water Quality Management Plan* (March 1999); and
(3) *Sucker Creek Watershed Analysis* (January 2007).

1.1 Project Location

The Althouse-Sucker Planning Area is located 8 miles east of the city of Cave Junction. The project area lies in the Sucker Creek 5th field watershed and the Althouse Creek 5th field watershed (Appendix A - Maps).

The BLM manages approximately 10,483 acres of the 30,395-acre planning area, which is a checkerboard pattern of public and private ownerships. Of the 10,483 acres of BLM-administered

lands, 6,983 acres are lands revested from the Oregon and California Railroad and Coos Bay Wagon Road Grant Lands and 3,500 acres are public domain (PD) lands. The planning area includes 6,341 acres of matrix land allocation, designated as Southern General Forest Management Areas (SGFMA). Riparian reserves (2,651 acres), Late Successional Reserves (LSR) (1,492 acres), and a spotted owl Critical Habitat Unit (CHU) (1,492 acres) also occur in the planning area. Approximately 320 acres is in the Brewers Spruce Area of Critical Environmental Concern/Research Natural Area (ACEC/RNA).

1.2 Need for Action

The BLM has a statutory obligation under Federal Land Policy and Management Act (FLPMA), which directs that "[t]he Secretary shall manage the public lands in accordance with the land use plans developed by him under section 202 of this Act when they are available . . ." The Medford District's Record of Decision and Resource Management Plan (ROD/RMP June 1995) guides and directs management on BLM lands.

Sustained Yield of Forest Products: One of the primary objectives identified in the RMP is to implement the Oregon and California Railroad and Coos Bay Wagon Road Grant Lands Act of 1937 (O&C Act). The Act directs the secretary of Interior to manage lands revested from the Oregon and California Railroad and Coos Bay Wagon Road land grants for permanent forest production under the principal of sustained yield. The purpose of the Act is to provide a permanent source of timber supply, protect watersheds, regulate stream flow, and contribute to the economic stability of local communities and industries. The Act established that 50% of the timber revenue generated from these lands be given to the county governments.

The need for harvest treatments in the Althouse-Sucker Planning Area is to meet the direction in the Medford ROD/RMP to provide a sustainable supply of timber that would trend toward a forest composed of stands representing a variety of structures, ages, sizes, and canopy configurations (ROD/RMP, p. 192). There is a need to accomplish harvest on sustained yield basis in the Althouse-Sucker area to supply timber revenues to support Josephine County's services as well as provide forest products for small and commercial businesses that will help maintain stability of local and regional economies.

Forest Stand Health and Vigor:
There is a wide distribution and diversity of plant series and seral stages within the project area. Fire exclusion has resulted in overcrowded stands and undesirable species composition relative to historical stand conditions. They are approaching or at a level of stand density where competition-related mortality becomes significant.

Density-dependent mortality, crown recession, reduced individual tree vigor, shading of large hardwoods, and exclusion of new regeneration are evident in those forest stands where tree densities are high. Highly competitive and shade tolerant species, such as tanoak, have moved into stands historically dominated by conifers or non-tanoak hardwoods. Areas that historically supported pine and oak species have lost vigor and presence through encroachment by shade tolerant and/or sprouting hardwood. Similarly, Ponderosa and Jeffery Pine and Douglas-fir plant series have decreased and are at risk of being replaced by Douglas-fir/Tanoak dominated stands.

Fuel Hazard Reduction: The RMP (p. 91) directs the BLM to modify fuel profiles to reduce potential fire ignition and spread and to reduce the risk of high intensity, stand replacing fire.

In the Althouse-Sucker area ninety-two percent of the project area classifies as high and extreme fire hazard rating. Ninety-six percent of the project area lies in the Wildland Urban Interface (WUI) and Communities at Risk (CAR). WUI areas are located where homes and other structures are adjacent to natural or undeveloped areas. The proximity of these structures to wildland fuels makes them susceptible to wildfire. The need for fuel reduction is to protect resources and communities by reducing fine, ladder, and aerial fuels.

Riparian Reserves: The RMP, through the Aquatic Conservation Strategy (RMP p. 22), requires the maintenance and restoration of aquatic ecosystems. Management directions include applying silvicultural treatments to restore large conifers in riparian reserves (RMP p. 23) and to restore channel complexity.

Upper Sucker Creek is a tier 1 key watershed and was identified as a high potential for increasing fish productivity (RMP p. 50). Many streams with high aquatic habitat potential have become simplified and therefore, have a reduced capacity to provide quality habitat. Dense riparian stands have decreased health and vigor, resulting in increased time to develop large tree structure for wildlife, stream shade, and future instream wood. These conditions are compounded by an increase of fuel loading, reducing available resources to trees and increasing risk of a stand-replacing fire. There is a need to restore health and vigor to riparian stands and increase channel complexity through placement of instream structures.

Migration barriers, due to culverts, limit the availability of aquatic habitat. Some natural-surface roads have poor drainage that can lead to erosion and increased sediment in nearby streams. Road maintenance and decommissioning are needed to improve connectivity and to reduce chronic sediment input to the stream systems.

Late Successional Reserves: The East Illinois Valley/Williams-Deer Late Successional Reserve (LSR) is located along the northeast boundary of the project area. Stem density is high in previously managed stands, inhibiting progression toward late-successional forest conditions. Fire suppression and the resulting high fuel loading have further altered the LSR from its historical condition.

1.3 Purpose of Actions

The purpose of the EA is to analyze the effects of the proposed alternative actions. The purpose of the project is to implement the Medford District Record of Decision (ROD)/Resource Management Plan (RMP). Any action alternative to be given serious consideration as a reasonable alternative must meet the objectives provided in the RMP for projects to be implemented in the planning area. The actions must also address the needs identified in the project area.

The extent to which each alternative achieves the identified objectives, or purposes, will be considered when evaluating and selecting a course of action among the alternatives; therefore, these purposes are also described as decision factors. Purposes for the Althouse-Sucker Landscape Management Plan include:

1. Produce a sustainable supply of timber and other forest commodities on matrix lands to provide jobs, contribute to community stability (RMP p. 38) and provide timber receipts to Josephine County by offering a timber sale with 1.5 to 6.5 Million Board Feet.

   The silvicultural prescriptions would follow those adapted by the RMP (Appendix E, p. 179) for managing conifer forests on matrix land. Treatments would include regeneration harvest, commercial thinning (density management and forest restoration), and selection harvest.

2. Design a timber sale project that is economically practical (RMP Appendix E, p. 180).

3. Reduce natural and activity-based fuel hazards to protect resources and local communities through methods such as prescribed burning, mechanical or manual manipulation of forest vegetation and debris, removal of forest vegetation and debris, and combinations of these methods (RMP p. 91).

4. Manage riparian reserves to restore and maintain the ecological health of watersheds and aquatic ecosystems (RMP pp. 22, 26).

5. Protect and enhance the late-successional reserve through silvicultural and non-silvicultural treatments that are beneficial to the creation of late-successional habitat (RMP p. 32).

6. Restore the vigor, resiliency, and stability of forest stands to restore the ability of stands to respond to other management and natural disturbances (RMP p. 62).

1.4 Issues and Concerns

A variety of issues and concerns were raised during project scoping by interested individuals, groups or by BLM's interdisciplinary team. In this EA, an issue is something unique to the project area that may need particular consideration and may contribute to defining a particular action alternative.

Pertinent issues identified through the scoping process are listed below. These issues were used to formulate alternatives, identify appropriate design features, or analyze environmental effects. In some cases, an issue was initially considered by the planning team and then eliminated from further analysis because it was not within the scope of the project or did not meet the purpose and need. These are summarized in Appendix G. The pertinent planning issues are:

- Port-Orford-cedar root disease (*Phytopthera lateralis*) is present in the watershed and could spread to uninfected sites.

- Provide work opportunities for local communities and contractors.

- The project area contains a key watershed, is listed by ODEQ as water quality limited, and provides domestic water and core coho habitat. Concerns were raised that forest thinning, logging (particularly tractor yarding), and road construction/maintenance could adversely effect hydrologic flow, increase erosion, and modify stream channel habitats.

- Unique serpentine plant communities may be impacted by logging, roads, and fuel reduction.

- Visual Resource Management (VRM): The BLM lands in the project area are classified as VRM III and IV. Some of the BLM proposed projects would be visible to residents and tourists in the area.

- Late-successional Forest Habitat Connectivity: Timber harvest and road building could reduce late-successional forest connectivity.

- A portion of the project area is located within a designated Northern Spotted Owl (NSO) critical habitat unit (OR-72). Activities associated with timber harvest have the potential to affect nesting, roosting, foraging, and dispersal habitat.

- Noxious Weeds: There is the potential for the spread and introduction of noxious weeds through harvest and heavy equipment operation.

- Fire danger may increase from residual logging slash and reduced canopy cover.

2.0 Proposed Actions and Alternatives

Introduction

The EA Interdisciplinary Team developed three action alternatives to meet the purpose and needs identified in Chapter 1. In addition, a "No Action" alternative is presented to represent current conditions and trends and form a baseline for analysis. The No Action alternative also serves as a reference point in discussing project activity effects. All project activities incorporate Project Design Features (PDFs) designed to reduce or eliminate potential project effects.

The team developed a range of alternatives (Table 1, Appendix A –Maps, Appendix B) based on the purpose and need of the project, existing environmental conditions, and public participation. Through the scoping process, the public provided comments that were considered by the interdisciplinary team and incorporated into alternative development. Those alternatives and comments considered but eliminated from further analysis are found in Appendix F.

2.1 Alternative 1: The No Action Alternative

The "no-action" alternative is defined as not implementing any aspect of the action alternatives. Defined this way, the no action alternative serves as a baseline or reference point for evaluating the

environmental effects of the action alternatives. Inclusion of this alternative is done regardless of consistency with the Medford District RMP and without regard to meeting the purpose and need.

It should be pointed out the no action alternative is not a "static" alternative. It is implied that the present environmental conditions and trends will continue. This would include trends, such as vegetation succession and consequent terrestrial and aquatic habitat changes, increases in fire hazard, and deteriorating road conditions.

2.2 Action Alternatives —Alternatives 2, 3 and 4

Alternatives are presented and organized by "types of action" (*e.g.*, vegetation treatments, road actions, riparian restoration treatments, fisheries enhancement, etc.). The action alternatives under each resource differ with regard to their specific objective or emphasis. Alternative 4 incorporates several activities described under Alternatives 2 and 3. The stand level objectives in Alternative 4 are consistent with those identified in Alternative 2 and 3. The team examined Alternative 4 to assess full potential of forest management options offering more flexibility to meet the purpose and need, adapt to wildlife buffers, and effects analysis results. The assessment also provides the potential cumulative effects of implementing the full suite of proposed activities. Further, Alternative 4 provides the greatest level and flexibility of potential areas for stewardship contracting.

Table 1 summarizes the vegetation treatments and acres for each action alternative. Appendix A and B display treatment locations and unit details, respectively.

Table 1. Vegetation Treatments

Primary Vegetation Treatment	Treatment Acres		
	Alternative 2	Alternative 3	Alternative 4
Commercial Thinning (CT)/Group Selection (GS)	518	0	518
CT/Modified GS	0	590	0
CT	0	46	0
Density Management/Understory Reduction	0	402	397
Fuel Hazard Reduction	949	1,696	1,555
Structural Retention (Regeneration Harvest)	600	150	600
Variable Canopy Thinning/Young stand Development (includes 187 acres in LSR)	0	701	701
Jefferey Pine and White Oak Restoration	0	1,441	1,441
No Treatment	6,711	3,752	3,566
Total Acres	**8,778**		

2.2.1 Actions Common to All Alternatives

Proposed activities described in this section are incorporated into all action alternatives. Treatments and acres are common to all alternatives.

a. Post Harvest Vegetation and Fuel Treatments

Objective: Post harvest fuel treatments are intended to reduce potential increases in fuel hazard due to the buildup of harvest generated slash and residual small high density trees. Further, reducing high density small diameter trees seeks to reduce competition and improve growing conditions for the residual stand.

Proposed Treatment: Activity fuels would be treated in ***all*** units proposed for treatment in mid and older seral stage stands and in identified young stands. To reduce competition for water and nutrients, the main stems of selected suppressed smaller trees and within the drip line of larger trees would be cut. Suppressed trees judged to be unlikely to recover and thrive following harvest, as well as damaged residual saplings and pole size (typically <6") trees, would also be severed.

Initial Fuel Reduction: Understory vegetation would be thinned using manual and mechanical techniques to the desired tree densities and stocking levels. Species diversity would be maintained by selectively slashing hardwoods, conifers, and shrubs and by reserving specified species. Leave vegetation would be spaced 15-40' apart. Wider spacing would be used for larger leave trees or for species, such as pine or oak, which prefer open conditions with the healthiest and most vigorous trees retained. Slash created from the selective slashing treatment, including harvest activity slash, would then be handpiled and burned (HP/B). It can be expected that ≤10% of each individual pile would not be consumed leaving pile "rings" and that ≤5% of the piles on the site would not burn resulting in scattered pockets of surface fuels remaining on site. To remove these fuels and achieve our desired surface fuel conditions (a fuel model 8 or 9), a light underburn would be implemented as part of the initial treatment on select units (Appendix B) within the 1-2 years after the handpiles are burned.

Maintenance Underburning: Frequent, low intensity underburns would then be used to maintain the site in low fuel hazard condition. Frequency of underburns would be based on vegetation responses, vegetation types, and other natural disturbances, such as wind throw and ice/snow damage or wildfire. It is estimated that maintenance burning throughout the project area would be on a 7-15 year rotation. Prior to the maintenance underburn, the cutting of approximately 90% of madrone (and some oak) resprouts (one to three stems on each plant would be retained) may be done.

b. Forest Product Contribution

All units proposed for harvest, fuel reduction, or forest development treatments would be available for Special Forest Products (SFP), stewardship contracting, biomass utilization, and small sales (e.g., poles, merchantable trees, fuel wood, burls). SFP harvesting/collection would be consistent with stand treatment and silvicultural objectives.

Objectives: Special forest products and stewardship contracting offer potential treatment methods to accomplish ecological objectives as well as to diversify economic opportunities to local communities and contractors. A second objective is to provide opportunities for innovative methods to utilize woody material.

Proposed Action:

Stewardship Contracting

Under all action alternatives, units or portions of units identified for harvest that are not economically feasible to treat under timber sale contracts may be treated under stewardship contracting or small sales. There are no specific actions identified for stewardship contracting. Rather, stewardship contracting offers an opportunity to treat units defined in young stands, older seral stands, and fuels, and to obtain ecological services. On average, less than 5,000 board feet (mbf) per acre would be removed.

Special Forest Products and Biomass Projects

Harvesting/collection could occur before or after the primary stand treatment. Estimates show that a minimum of five tons per acre of biomass could be available for removal. Where appropriate, biomass removal would be performed by low level aerial cable yarding systems that offer one end log suspension for at least 80% of the turns. Equipment of this type would generally be used for removing biomass 200' above or below roads with slopes of greater than 35%. Material removed would generally be small diameter and would be removed in its entirety, usually whole tree yarding.

On slopes less than 35%, low impact ground-based equipment would be used. Main skid roads would be greater than or equal to 75 feet apart with a maximum trail width of 6 feet. With larger equipment, 150' spacing would apply. These designs would limit the extent of soil exposure and displacement to 20% and 12%, respectively. Additional designs to minimize soil compaction and soil displacement include:

- Operating over slash.
- Whole tree yarding with one end suspension to prevent ruts.
- Use of existing skid trails/roaded surfaces.

In Riparian Reserves, ground-based extraction would be limited to existing skid trails and roads.

c. Tartar Gulch Quarry Development

Objective: Provide a material source for proposed road improvement projects. The quarry would also provide rock for future needs.

Proposed Action: The existing quarry is located in the T40S R7W SE ¼ of Section 4. The northeast end of the quarry would be expanded by 80' x 100' with a face height of 35'. Activities would include: expanding the existing clearing limits, drilling, blasting, excavation, and rock crushing. The proposed expansion would produce 6,000 cubic yards. Expansion would occur as material is needed.

d. Instream and Riparian Restoration

Objectives:

- Improve aquatic habitat and connectivity by increasing structural complexity and culvert replacements.
- Reduce high fire hazard in riparian reserves.
- Improve riparian vegetation conditions and functions via thinning to: 1) Increase crown ratios, 2) Decrease stand densities, 3) Increase structural and species diversity, 4) Promote conifer seedlings, 5) Maintain long term connectivity corridors for terrestrial wildlife, and 6) Increase long term large wood recruitment potential.

Proposed Actions:

Riparian Reserve Widths: Table 2 displays BLM Riparian Reserve widths for the project area. With the exception of instream wood placement and felling riparian trees into the creek, a 50' no treatment buffer would be applied to all streams and springs.

Table 2 Riparian Reserve Widths

Stream Type	Riparian Reserve Width
Fish-bearing streams	330' (2 site potential tree heights)
Perennial streams & springs and intermittent streams	165' (1 site potential tree height)
Unstable or potentially unstable areas	Extent of unstable or potentially unstable area

Riparian Thinning and Fuels Reduction: Vegetation treatments within the riparian reserves, would include thinning, brushing, hand piling and burning, and under burning in early, mid, and mature seral stands (Appendix B).

Approximately 489 acres are proposed for thinning. Thinning would be prescribed in riparian reserves that exhibit high density, poor crown ratios, and poor conifer seedling regeneration. Thinning would be accomplished by cutting understory trees and retaining 50-60% canopy closure. No treatment areas within units would continue to provide dense understory habitat. Suppressed trees with low vigor and poor crown ratio would be removed while leaving the largest, healthiest trees.

Approximately 272 acres are proposed for fuels hazard reduction. Fuels reduction within riparian reserves would include brushing, hand piling and burning, and underburning. Direct ignition would not occur within the no-treatment zones, but may encroach into the no-treatment zones, simulating naturally occurring, low intensity ground fire.

Approximately 247 acres are proposed for Young Stand Management. Young Stand Management within Riparian Reserves would include thinning and brushing.

Large Wood Placement: Five to ten wood-boulder jams would be constructed in the main stem and side channel of Althouse Creek (40S-7W-9 and 15). Jams would be stabilized using large key pieces of wood with additional stability provided by the boulders.

Additionally, riparian trees would be girdled or felled toward the stream by hand crews using chain saws. Trees targeted for selection would be from the understory, maintaining primary shade to the creek. These riparian reaches currently have fully stocked riparian zones, many dominated by small diameter trees, and lack large overstory trees as well as large instream woody structure. Twenty stream reaches in the Althouse and Sucker would be treated including: Althouse Creek; Blind Sam Gulch; Number 7 Gulch; Yeager Creek; Sucker Creek; Little Grayback Creek; and unnamed tributaries in T40S R7W sections 1, 3, 8, 9, 10, 11, 12, 15, and 17; and T39S R7W sections 12, 13, and 35.

Fish Culvert Replacement: Three culverts on fish bearing streams would be replaced with open bottomed (natural stream bed) culverts. The existing culverts are undersized, nearing the end of their lifespan and are impediments to fish passage. Two of these culverts are located on Road 39-7-21 in section 16 over Bear Creek, a tributary to Sucker Creek. A third culvert would be replaced on #7 Gulch, a tributary to Althouse Creek. This is a Forest Service road, FS 4703, but the culvert is located on BLM in T40S R7W section 15.

Excavators would be used to remove culverts, excavate footings, fill scour pools, and to place fill material over the new culvert. Heavy equipment would be restricted to staying outside of the channel to the greatest extent possible. Vegetation growing in fill material surrounding the existing culverts and at the toe of the fill where new footings would be located would be removed. To avoid bank scour at culvert inlets and outlets, banks may be armored with rocks.

Instream equipment use would be limited to when the channel is either naturally dry or dewatered. In-channel work, when water is flowing, would be in accordance with National Marine Fisheries Service (NMFS) August 8, 2001 programmatic biological opinion, Oregon Division of State Lands and U.S. Army Corps of Engineers Removal-Fill Permit requirements, unless otherwise approved by a BLM fisheries biologist. Activities would strive to maintain preconstruction downstream flow conditions.

Construction would occur between June 15 and September 15. An exemption may be approved under limited circumstances. During construction, road closures are anticipated. When the road is not closed, traffic delays would be approximately one hour. Roads could be closed for up to 10 days. During closure periods, signs would be installed informing users of the closure period and detour routes.

e. Noxious Weed Treatments

Objective: The treatments aim to reduce the spread of noxious weeds currently existing in the project area and prevent establishment of noxious weeds on soils disturbed by project activity. Treating noxious weed sites prior to ground disturbing activities, such as road maintenance or timber harvest, can reduce the risk of spread. Post activity treatments would further reduce noxious weed establishment potential.

Proposed Treatment: Known noxious weed populations in the project area would be treated with methods analyzed in the Medford District Integrated Weed Management Plan and Environmental Assessment (USDI 1998). Treatments would primarily consist of herbicide application, hand pulling, and mechanical cutting. Treatments of existing road side noxious weeds in the project area adjacent to proposed activities would occur prior to implementation, to the extent practicable. Noxious weed treatments would occur for three years after activities as practicable. Monitoring would occur to assess treatment success, as well as identify any new sites that would need treating the following year. Where native vegetation is sparse adjacent to the treated site, native grass seed and mulch may be spread to reduce the chance of noxious weeds reinfesting that site.

Large or widespread populations of Himalayan blackberry, St. Johns wort, bull thistle, and other established noxious weed species would not receive treatment unless they are isolated patches or are invading or threatening to unique resources. Currently, there is no effective method to control large populations. This strategy would treat the smaller outlying populations to prevent large population establishment.

2.2.2 Older Seral Stage Stand Treatments —Alternatives 2, 3 and 4

Three alternatives for managing mid and mature seral stage stands are presented. The proposed treatments apply to matrix lands and have been developed according to site conditions and focus of each alternative. The treatments differ in acreage and prescription, reflecting the emphasis or objective of each. Table 1 displays treatment type and acres by alternative; Appendix B displays unit details of treatment and acres. Appendix A displays treatment locations.

Alternative 2

Objectives: Alternative 2 emphasizes timber volume per acre and increases long term stand growth by reducing stem densities from all canopy layers and tree size classes. Project area diversity would be maintained through variable canopy density and RMP prescribed reserves within the project area (e.g., Riparian Reserves, spotted owl reserves, LSR, animal and plant species buffers, and the Brewer's Spruce ACEC).

Proposed Action: Vegetation treatments and harvesting in older seral stage stands would follow the Southern General Forest Management Area (SGFMA) silvicultural prescription in the RMP (pp. 192-194). Proposed treatments include:

Commercial Thinning/Group Selection (CT/GS) - The primary purpose of this prescription is to widen the spacing of residual trees to promote the growth and structural development of the remaining stand. Suppressed, intermediate and dominate trees would be removed to increase individual tree growth and accelerate seral stage progression of stands.

Crown diameters of the healthiest trees would be used to determine spacing between retained trees with a goal of relative density (RD) of 35% for stands in the Douglas-fir, White-fir and Douglas-fir/Tan-oak series and RD of 25% for stands in a pine series or pine association. This prescription will include group selections to encourage the growth of existing Douglas-fir reproduction and to retain shade intolerant ponderosa pine and sugar pine in mixed conifer stands. Group selection is an

uneven-aged silvicultural system in which a small group of trees ranging from one-half to three acres in size would be removed within larger stands and regenerated. Regeneration would occur naturally or through planting to ensure prompt reforestation. The resultant openings would vary in size, shape, and distribution. Canopy cover within units would be variable; treatments retain 20% cover in pine group selection, 40% in thinned conifers, and 80+% in no treatment areas.

Structural Retention for Stand Regeneration (SR) - This stand treatment would increase the growth of the existing understory trees or regenerate a new understory with natural seeding and/or tree planting. Stands with an overstory stand age >120 years and that have a poor annual stand growth rate would be selected for this treatment. This prescription retains a minimum of 40 % canopy cover at the stand level in Douglas-fir/Tanoak and White-fir series and a 25 % canopy cover in the pine and oak species. Commercial thinning alone would not provide the desired increase in productivity, thus the SR. SR retains 16-25 large green conifers (>20"DBH) per acre across the natural range of diameters present in the stand. Trees >6" DBH would be removed between the trees selected for retention. Two large hardwoods per acre would be retained. Following harvest, the site would be prepared through slashing, hand pile and burning, and planting to meet stocking standards.

Douglas-fir/Tanoak series stands that contain an established and competitive tanoak component would be managed for less than 16-25 large conifers per acre. The prescription would retain 9-16 large trees per acre. Approximately 305 acres would be treated with this prescription. In these stands, tanoak has suppressed conifer establishment and growth. Following harvest, these stands would receive site preparation activities (slashing, handpile-burning, under burning) to reduce understory tanoak density.

Alternative 3

Objectives: This alternative is designed to provide commercial harvest volume, while retaining a denser canopy closure with a more complex forest structure. Through the various silvicultural treatments, the alternative seeks to maintain habitat characteristics for late successional dependent species. Through multiple treatment types, the alternative also aims to provide opportunities for a variety of special forest products.

Proposed Actions:
Commercial Thinning (CT) - The primary purpose of this prescription is to widen the spacing of residual trees in order to promote the growth and structural development of the remaining stand. Suppressed trees, intermediate and dominate trees would be removed to increase individual tree growth and accelerate seral stage progression of stands. Diameters of the healthiest trees would be used to determine spacing between the retention trees to achieve an average relative density of 35% with variations between 30 and 40%. Canopy cover within units would range from 40 to 60%.

Commercial Thinning/Modified Group Selection (CT/ModGS) - This prescription would apply the same CT treatment defined above with the exceptions that relative densities will range from 25 to 35%. This prescription would also include modified group selections to reduce competition of shade intolerant pine and oak species in mixed conifer stands. Spacing of the residual trees would use the crown radius of the healthiest dominant and co-dominant trees to achieve an average relative density of 35% for stands in the Douglas-fir, White-fir and Douglas-fir/Tan-oak series and 25% for stands in a pine series or pine association. Canopy cover within units would be variable; treatments

retain approximately 20% cover in pine and oak group selection, 40% in thinned conifers, and 80+% in no treatment areas.

While there would be variable canopy cover within units, 40% canopy cover would be maintained at the unit scale. One-hundred and sixty acres would maintain a 60% canopy cover for wildlife habitat protection (Appendix B). An additional 14 acres would retain more trees to reduce potential visual effects.

Modified Group Selection (Mod GS) – This would be used in combination with commercial thinning of the surrounding area. This treatment removes those trees (usually Douglas-fir) that are competing with vigorous pines and non-tanoak hardwoods. It favors and retains the larger vigorous ponderosa and sugar pine that have a 30% or greater live crown ratio and is intended to increase pine survival and to encourage pine seedlings. Between one and five vigorous hardwood trees per acre would be selected for retention. Long term survival of large hardwoods, such as black oak, pacific madrone, white oak, canyon live oak, maple, or tree form tanoak, would be encouraged by removing competing conifers. On sites especially suited for hardwood dominance, >5 hardwoods would be left per acre. In these situations, selected hardwoods would be included in the conifer spacing pattern.

Density Management/Understory Reduction (DM/UR) - DM/UR prescription targets areas associated in the Douglas-fir/Tan-oak and Douglas-fir series. This treatment is prescribed for older seral stands that may provide multiple forest products (i.e., poles, sawlogs, firewood, special products) or opportunities for restoration (i.e., prescribed burning, planting, etc.) Densities in these older seral stands are highly variable; some have a continuous overstory canopy while others are more patchy with high densities in the mid and lower tree layers. In areas with a continuous canopy, removal would occur primarily from below (the smallest diameter trees) to achieve a target canopy closure of 60%. Where overstory closure is <60%, the prescription retains the most vigorous large trees in patches and thins the lower and middle tree layers to accelerate development of a multi-layered structure.

Restoration Thinning (RT) - RT would be applied where oaks and pines predominate. Typically the oldest individuals are oaks and pines, with a younger cohort of low vigor Douglas-fir. On these drier sites, vigorous pines and oaks would be the preferred leave species. Leave basal areas would be fairly low (60 to 80 ft^3/acre) in order to restore the site to a pine/oak savannah condition. Once restored, maintenance underburning would maintain the site. No other thinning is anticipated in these stands because the low site productivity is prohibitive to timber production.

Structural Retention for Stand Regeneration (SR) - The treatments remain the same as described under Alternative 2. Alternative 3 treats fewer acres. Treatments would include 57 acres that retain less than 16 trees per acres (appendix B) following the same rational provided under alternative 2.

Alternative 4

Alternative 4 incorporates silvicultural treatments described in Alternatives 2 and 3 to assess full potential of forest management options, offering flexibility to meet the purpose and need, adapt to wildlife buffers, and effects analysis results. The alternative also provides the potential cumulative effects of implementing the full suite of proposed activities. Further, Alternative 4 provides the

greatest level and flexibility of potential areas for stewardship contracting. The stand level objectives are consistent with those identified in Alternatives 2 and 3.

2.2.3 Fuel Hazard Reduction—Alternatives 2, 3 and 4

Objective: The objective of fuel reduction work in the Althouse-Sucker Project Area includes protecting lives and property and reducing the risk of losing resources to large fires. Fuel treatments in the East IV/Williams-Deer Late-Successional Reserve(LSR) (NE edge of the project area) seek to protect LSR habitat and adjacent residents.

All three action alternatives propose proactive fuel hazard reduction treatments. Alternative 2 emphasizes fuel hazard reduction treatments in the wildland urban interface (WUI) areas, as well as LSR protection and enhancement. Alternatives 3 and 4 also include BLM acres with high and extreme fire hazard ratings.

Proposed Treatments: Treatments would include reducing surface fuels and standing live fuels by removing small trees and flammable brush. In all instances where the "home ignition zone" of a residence or structure on adjacent private land extends on to BLM, consultation would be done with the land owner to identify any special fuel treatment work necessary to reduce the wildland fire threat to the structure / residence.

The fuel treatments proposed (Appendix B) reflect the current best judgment regarding fuel hazard reduction based on site conditions, fuel loads, and proximity to communities. Proposed treatments may be adjusted based on post-harvest review of conditions and on considerations of site specific physical, biological, and social features at the time of review. Species diversity would be maintained by selectively slashing hardwoods, conifers, and shrubs.

Treatment Descriptions

Initial Fuel Reduction - Understory vegetation would be thinned using manual and mechanical techniques to the desired tree densities and stocking levels. Slash created from the selective slashing treatment, including harvest activity slash, would then be handpiled and burned (HP/B). It can be expected that ≤ 10% of each individual pile would not be consumed, leaving pile "rings" and that ≤ 5% of the piles on the site would not burn, resulting in scattered pockets of surface fuels remaining on site. To remove these fuels and achieve our desired surface fuel conditions of low fuel hazard, a light underburn is implemented as part of the initial treatment on select units (Appendix B) within the 1-2 years after the handpiles are burned.

Maintenance Underburning - Frequent, low intensity underburns would be used to maintain the site in low fuel hazard condition. Frequency of underburns would be based on vegetation responses, vegetation types, and other natural disturbances, such as wind throw and ice/snow damage or wildfire. It is estimated that maintenance burning throughout the project area would be on a 7-15 year rotation. Prior to the maintenance underburn, the cutting of approximately 90% of madrone (and some oak) resprouts (one to three stems on each plant would be retained) may be done.

Slashing (SL). Understory vegetation density would be reduced by cutting and spacing of conifers <8" dbh and hardwoods <12" dbh. Retained vegetation would be spaced 14-45' apart. Within this

range, wider spacing would be used for larger leave trees or for species, such as pine or oak, which thrive in less dense conditions. Vegetation diversity would be obtained by maintaining species that occur at low frequencies in the stand (i.e., Pacific yew, pine, vine maple). Untreated vegetation groups ranging in size from 1/10 to two acres would be retained.

Selective Slashing LSR Treatment (SL LSR) - Understory vegetation density would be reduced by cutting and spacing vegetation that is <8" DBH for conifers and <8" DBH for hardwoods. Conifers >8" DBH and most hardwoods >8" DBH would be retained. Conifers would be thinned to a 1½ times crown radius spacing (4-45 ft. spacing range) based on crowns of 1" – 8" DBH trees. Trees with largest and best-formed crowns would be selected as leave trees regardless of defect or disease. Spacing variance is plus or minus 25%.

A minimum of ¼- to ½-acre no-treatment areas (10% or more of the entire stand) would be untreated to further facilitate diversity. Buffers, hardwood areas, chinquapin patches, rocky outcrops, wet areas, and areas with large woodrat nests would contribute to or serve as these leave areas.

Species diversity would be retained by maintaining hardwoods, conifers, and shrubs. All maple species, dogwood, pacific yew, Port-Orford cedar, alder, Vaccinium ssp (except evergreen), willows, and serviceberry would be reserved, regardless of spacing (i.e., not included in spacing or considered leave trees).

Hand Piling and Burning (HP/B) – HP/B reduces hazardous slash buildup that results from other vegetation treatments and is typically used when underburning is not possible due to heavy fuel loads. Sticks 1-6" diameter and longer than two feet would be piled by hand. The piles would be burned in the fall or winter when the risk of fire spread (scorch or mortality) to nearby residual trees and shrubs is reduced. Some material may be removed from the site in the form of poles or firewood. The handpiles would remain on site until dry enough for complete combustion (cured). It is expected that handpiles would be burned in the first winter or early spring following the construction of the piles. Exceptions to this would be if piles did not have enough time to cure, unseasonably dry winter / spring conditions, or atmospheric conditions not conducive for adequate smoke management.

Understory Burning or Underburn (UB) – UB is prescribed burning where residual trees and shrubs are present. The objective is to reduce dead and down woody material, live and standing dead vegetation, such as shrubs and small trees in the understory and live and dead branches close to ground level. Understory burning is conducted throughout the year when fuel and weather conditions permit. Typically, burning occurs between fall and spring. Summer or early fall burning is less common, but can be feasible to meet resource objectives and when risk of fire escape can be mitigated.

Underburning is conducted using hand ignition methods and drip torches as the primary ignition device. Fire would be applied to the unit in a strip head fire ignition technique. Fire intensity is controlled by adjusting the distance between strips, the time between strips, and the number of strips ignited at one time. Fire intensity desired is site specific based on the desired conditions of the site, vegetation type and size, and fuel loadings. Most underburns require a control line, or fire line, around the burn area. Existing natural and human made control lines, such as roads, would be utilized as much as possible to minimize impacts. Handline is the most common barrier and would

be constructed where other barriers are absent using chainsaws and handtools. Water bars would be used on slopes exceeding 10% and frequency would be based on slope. Handlines would be allowed to rehabilitate naturally as it is expected they would be utilized during the maintenance underburn.

Broadcast Burning (BB) – BB is prescribed in areas with little to no forest stand present. Generally, it is used in grass and shrublands for ecological and fuel reduction purposes. Broadcast burns are conducted using hand ignition or aerial ignition.

Pruning (PR) - Ladder fuels are live and dead branches close to ground level that allow fire to climb into the overstory. These lower limbs may be pruned close to the bole to a height of 6-12' from the ground. Pruning is primarily used on road side vegetation with control problems (e.g., power lines) or near boundary perimeters. Pruning slash would be hand piled and burned. No pruning would occur in riparian reserves.

Alternative 2

Alternative 2 focuses fuels treatments in the WUI and along ridge tops that have strategic importance in wildfire suppression (Table B-2). Fuel hazard reduction work would be implemented on approximately 761 acres. In addition, 188 acres of the East IV/Williams-Deer Late-Successional Reserve (LSR) would be treated in the CAR only.

Alternatives 3 and 4

Alternatives 3 and 4 treat in the WUI, strategic areas, and areas with high and extreme fire hazard ratings (Appendix A; Appendix B). Treating in strategic areas, as well as in high fuel hazard areas, provides fuel reduction and protection to a greater percentage of the project area in the event of a wildfire. Alternative 3, 4 treats approximately 1,696 and 1555 acres (Table 1). Additionally, within the LSR, 105 acres along roadsides and within previously managed stands located within the CAR boundary would be treated.

Alternative 4 achieves the same objective, but treats 141 fewer acres in the high hazard condition. Location and treatment type of the included acres are identical to Alternative 3; acres treated in the LSR remain the same as Alternative 3.

2.2.4 Variable Density Thinning/Forest Development—Alternatives 3 and 4

Objectives: Recently managed stands are experiencing intense competition from brush and hardwoods. Variable Canopy thinning seeks to reduce stand densities, promote species diversity, and maintain vigorous crowns. Competing vegetation in stands less than 50 years would be cut in order to accelerate growth, promote stand differentiation, and maintain the non-tanoak hardwood component for future stand diversity.

Proposed Action: Sugar pine, ponderosa pine, Jeffery pine, and shade intolerant hardwood species would be promoted and or retained based on plant association or site specific natural vegetation composition and structure. All maple species, dogwood, Pacific yew, Port-Orford cedar, alder,

willows, and serviceberry would be reserved, regardless of spacing. Prescribed fire (pile burning) and slashing methods would be applied in portions of stands that exhibit extreme hardwood and/or brush dominance. Non-tanoak hardwood sprout clumps would be thinned to the single largest stem.

Surplus trees and brush would be cut or girdled. Hardwood stems not selected as leave trees and all surplus trees up to 10" DBH would be cut. All tanoak <12" dbh and most brush would be cut. Tree spacing would be variable, depending on existing crown radius. Conifers and hardwoods would be thinned to twice the crown radius spacing; tree crowns of vigorous and well-formed conifers would be selected for spacing and retention. Due to the variability in tree crown radius, which determines spacing, trees per acre would range from 40 to 500 trees. Canopy closure would also be variable with 40-60% canopy cover within 200' of roads, transitioning to 60-80% cover beyond 200'.

Following activities, fuels (slash) in these stands would be hand piled and burned within the CAR. Outside the CAR, project slash treatment would be determined by the level of fuel hazard, wildfire risk, and resource values. All acres may not be treated. Other options include lop and scatter or removal of slash as poles or firewood.

2.2.5 Wildlife Habitat Restoration and Enhancement — Alternatives 3 and 4

Objective: The objective is to reintroduce fire and thin vegetation to increase presence and persistence of plant communities suppressed due to vegetation encroachment. Treatments aim to improve habitat suitability through reinvigorating and maintaining chaparral, Jeffrey pine, and oak woodlands.

Treatments also seek to improve habitat connectivity through riparian corridor development. Fuel reduction and thinning small diameter vegetation would improve the health of the riparian areas by reducing fuel loads while maintaining at least 60% canopy cover for wildlife connectivity and for late-successional dependent species.

Proposed Actions: *Jeffery pine treatments* include 1,153 acres of thinning, hand piling and burning, and under burning treatments to reduce encroachment of Douglas-fir, incense cedar, and shrubs (e.g., ceanothus and Manzanita). Decadent brush would be targeted for removal, as would all conifers except vigorous pine and large limbed, open grown Douglas-fir. Appendix B (JP Restoration) displays treatment locations.

White oak woodland treatments include 52 acres of a combination of thinning, hand piling and burning, and underburning. Decadent brush would be targeted for removal, as would small oaks (≤ 8"DBH) and encroaching conifers (≤ 8"DBH). Cut material would be piled and burned when necessary and/or disposed of by underburning. Hardwoods with the largest diameters and canopies would be retained, as would vigorous pine. Untreated oak woodland islands of 25 to 35' in diameter would be retained and spaced approximately 50-100' apart. In addition to islands, moister microsites, often found on north aspects or in land form depressions, would also remain untreated. These moist sites historically would have had less frequent fire compared to surrounding areas and would likely have contained larger, more mature shrubs.

Thinning and fuel treatments would be staged over multiple years. The last and on-going phase would be maintenance treatments, such as prescribed fire, to sustain desired fuel and stand conditions. Appendix B (WO Restoration) displays treatment locations.

Connectivity: Wildlife corridor treatments focus on mid and mature mixed conifer stands within large areas of serpentine influenced habitat. These mixed conifer stands are riparian stringers that provide connectivity and dispersal within areas of low canopy cover. Selective slashing and hand pile and burning treatments would be implemented to improve and maintain the function of these wildlife corridors. Some suppressed and intermediate trees in the smallest diameter classes may also be removed.

Approximately, 65 acres would be treated and maintained in the following mixed conifer stringers:

- 40S-7W-17 (001A)
- 40S-7W-03 (005)

2.2.6 LSR Young Stand Management — Alternatives 3 and 4

Objective: The objective is to expand the existing late-successional forest within the LSR by speeding the trajectory of adjacent, previously managed younger stands towards late-successional habitat. Thinning and brushing seek to blend forest structures and to accelerate multi-layered stand development. Incremental canopy thinning would also be used in stands to increase vigor of shade intolerant hardwood species.

Proposed Action: The young stands within the large LSR would receive an ***Incremental Canopy Thinning Treatment with Gap Formation*** on 187 acres**.** Stands treated would be approximately less than 50 years old. Canopy cover reduction would be graduated in intervals of approximately 200 feet. Maximum canopy cover retention would be 60-80%, and the minimum, near roads, would be 40%. A minimum of 10% of the entire stand would be untreated to facilitate diversity. Buffers, hardwood areas, chinquapin patches, rocky outcrops, wet areas, and areas with large woodrat nests would contribute to or serve as these leave areas.

Under this prescription, 3 -10% of the stand would be in openings, in the form of ¼ to ½ acre gaps distributed throughout the unit. Pre-existing small openings experiencing encroachment would be treated to restore open patches. Gap creation would occur around shade intolerant tree species. Retained species would represent those found in the unit's dominant plant association. Appendix B (LSR Young Stand) displays treatment locations.

2.2.7 Roads and Transportation Management - Alternatives 2, 3 and 4

Objectives:
The objectives are to minimize permanent road construction, improve road drainage, and maintain existing roads at levels consistent with the planned long term use of the roads. The proposed road work is intended to improve road drainage to reduce chronic erosion and sedimentation. New roads would be constructed to meet multiple resource management objectives and to allow access for

harvesting and transporting logs. The proposal also seeks to reduce road densities where possible and consistent with the anticipated long term resource management needs.

Proposed Actions:

Road maintenance and Renovation– Common to Alternative 2, 3 and 4

Roads treated would be those used to implement the proposed actions. Proposed road maintenance, renovation, or decommissioning is outlined in Appendix C. Approximately 23 miles of existing road would be upgraded/renovated to reduce erosion and sedimentation. Road drainage would be improved, and deteriorated surfacing would be replaced with crushed aggregate. Additional drainage structures, such as culverts or drain dips, would be installed on existing roads to improve drainage.

Prior to harvest activities, selected road surfaces and ditch lines would be bladed. To reduce maintenance generated sediment from entering streams, ditches would not be bladed 75' within live streams, unless necessary to protect culvert/road stability. Other maintenance activities would include cleaning catch basins, brushing near pipe inlets and outlets, and removing vegetation along roadsides to improve site distance.

Where Road 39-7-21 crosses BLM lands, vegetation would be treated to reduce roadside fuels. Trees would be pruned and brush thinned 25' uphill and 50' downhill from the road edge. Vegetation would be cut, not pulled, unless necessary for noxious weed control. Where roads cross riparian reserves, trees greater than 12" DBH would be retained for shade. Riparian species, such as willow, alder, Oregon ash, big leaf maple, vine maple, and dogwood would be favored for retention. Low growing trees or shrubs that hang over perennial streams would not be cut. All leave trees would be pruned to half the tree height or 12', whichever is less, leaving a crown ratio of at least 50%. In areas where the road crosses private lands, coordination with land owners would occur to reduce roadside fuels within the BLM easement rights-of-way.

To increase driver safety, road side hazard trees would be cut and removed along 35 miles of roads crossing BLM lands. Hazard trees in riparian reserves would be felled and left in place as large woody debris.

Road Construction – Alternatives 2, 3, and 4

Alternatives 2 and 4 would construct 1.01 miles of new permanent roads, 2.31 miles of temporary roads, 5 helicopter landings, and open 1.1 miles of existing temporary spurs (Appendix C, Table C-2). New roads would be designed to BLM standards. The road subgrade would be outsloped, 14' wide, and native surfaced. Road grades would not exceed 15%. The roads would be constructed to allow access for harvesting and transporting logs. After all project work is completed, the new roads would be water-barred, barricaded, and placed in a maintenance level 1, closed status. Temporary roads would be obliterated after use by pulling the fill material and clearing debris into the road prism and re-contouring the ground slopes. Existing temporary roads would be water-barred, scarified, seeded and mulched, and barricaded.

Alternative 3 would consist of constructing 0.56 miles of new permanent road construction, 2.14 miles of temporary roads, opening 0.6 miles of existing spur roads and five helicopter landings. The road subgrade would be an outsloped, 14' wide, native surfaced road plus curve widening and turnouts. Road grades would not exceed 15%. The roads would be constructed to allow access for

harvesting and transporting logs. After all project work is completed the new roads would be water-barred, barricaded, and placed in a maintenance level 1, closed status. Temporary roads would be obliterated after use by pulling the fill material and clearing debris into the road prism and re-contouring the ground slopes. Existing temporary roads would be water-barred, scarified, seeded and mulched, and barricaded.

Road Decommissioning —Alternatives 3 and 4

Approximately 5.0 miles of roads would be decommissioned to reduce sedimentation and road density. Selected roads determined to have no future management use would be water barred, seeded with native species, mulched, or planted to reestablish vegetation (Appendix C). Cross drains, culverts and fill slopes in stream channels and potentially unstable fill areas would be removed to restore natural hydrologic flow. Exposed soils would be covered with mulch to reduce sedimentation. Roads would be closed with a barricade or gate. These decommissioned roads would not be maintained in the future. Road decommissioning would be completed when the roads are no longer necessary for treatments proposed under this project.

Easements

BLM is pursuing reciprocal agreements and easements to access project units. Specifically, BLM seeks access into the southern portion of T40S, R7W, Section 9 and T40S, R7W, Section 8 W1/2 of the NW1/4.

If acquired, road drainage would be improved on existing roads. An existing 60'x 180' helicopter landing would be improved and utilized under Alternative 3.

2.3 Project Design Features

Project design features (PDFs) are included in the proposed action for the purpose of reducing anticipated adverse environmental impacts that might stem from project implementation. Unless otherwise noted, PDFs apply to all action alternatives.

2.3.1 Port-Orford Cedar

Port-Orford-cedar in the project area would be managed according to the May 2004 BLM POC-FSEIS/ROD. Mitigation measures would be implemented if uninfected POC are in, near, or downstream of the activities (USDA-USDI 2003).

- Prior to entering a POC area or leaving a *Phythophthora lateralis* (PL) area, all heavy equipment would be washed according to Management Guidelines in the Port-Orford Rangewide Assessment (USDA-USDI 2003)
- When feasible, operations would be limited to the dry season/dry conditions in infected and uninfected areas.
- When feasible, work would be done in uninfected areas prior to conducting work in infected areas.
- Water used for road and prescribed fire operations would be from uninfested water sources or treated with the appropriate levels of Clorox® as described in the POC-FSEIS/ROD (p. 62).

- Clorox® bleach would be added after tanks have been filled and are away from waterways.
- Access and egress routes and parking areas would be designated by BLM.

2.3.2 Logging Systems

All Systems

- All harvested trees would be limbed (≥ 3" diameter limbs) prior to yarding to reduce damage to the residual stand and minimize soil disturbance.

- All logging and hauling would generally be restricted between Oct. 15th to May 15th for erosion control. Dates may vary depending on weather, road surface, and soil moisture.

- There would be no cable yarding landings within riparian reserves. All natural surface landings constructed during the logging operation would be decompacted to a minimum depth of 18", seeded with native grasses, and mulched with native or weed free straw upon completion of harvest activity and before the onset of the rainy season. Landings that would be used in the future would not be decompacted.

- There would be no landings within 150' of streams or springs. In riparian reserves, trees would be directionally felled toward skid roads pre-approved for use. No new skid trails would be constructed within the riparian reserves. Priority for skid trail selection would be those that have not recovered from previous use. Site restoration treatments would be applied after yarding has been completed and would include: ripping/decompacting, water barring, seeding, tree planting, and/or blocking as needed.

- In unstable and potentially unstable areas, only fuel reduction activities would occur.

Tractor Yarding

- To reduce ground disturbance and soil compaction, yarding tractors would be limited to the smallest size necessary. Tractors would be equipped to obtain one end log suspension during skidding and would be restricted to approved skid trails spaced 150' apart.. Existing skid trails would be used when possible. Tractors would be restricted to slopes <35%. Tractors would not be used when soil moisture content at a 4-6" depth exceeds 25% by weight.

- Skid roads would be water barred as appropriate for slope and soil type. Main tractor skid trails would be blocked where they intersect haul roads and would be decompacted and water barred. Skid roads would be used only during the dry season. If a skid road in a riparian reserve is used for more than one season, it would be winterized (water barred, covered with debris, etc.). In areas proposed for planting (Appendix B), ripped decompacted roads would also be planted. Other areas would be allowed to revegetate naturally.

Cable and Helicopter Yarding

- Cable corridors would be located away from draws and would be water barred as needed

based on the slope and soil type.

- All landings would be constructed and used in the same season if possible. If they are to be left over winter, the landings would be mulched to prevent erosion. There would be no helicopter landings within riparian reserves. All landings, including fill slopes, would be located away from headwalls, draw bottoms and adjacent draw side slopes. All natural surface landings constructed during the logging operation would be decompacted after use, except landings on rocky ground or those planned for future use. Landings would be seeded with native grasses; mulched with native, weed free straw; or covered with slash following harvest and before the onset of the rainy season.

2.3.3 Special Status Botanical Species

- Minimum 20' radius no disturbance buffer for Special Status Botanical Species (actual size determined on a case by case basis because of differing habitat requirements and existing habitat conditions). A seasonal restriction from March through June may be used instead of a buffer for large (> 1acre) populations of *Erythronium howellii*.
- Survey and Manage botanical species would receive a no disturbance buffer that would be consistent with management recommendations for that species.
- Trees would be directionally felled away from all no disturbance buffers.
- Rx burns would occur during cooler and moister weather conditions in units that contain Special Status Botanical species and Survey and Manage Botanical species.

The following project design criteria (PDC) for T&E listed species (*Fritillaria gentneri* and *Lomatium cookii*) are provided in the FY04-08 Rogue River/South Coast Biological Opinion:

(1) Buffer sizes: a minimum of 25' radius from the population boundary (a site or the outer edge of a polygon encompassing the population). No activity within the buffer outside the dormancy period. Buffers can be treated manually during the dormancy period (September – February).
(2) Known occurrences can be treated (burning, hand brush/tree removal, sowing adapted native grasses, etc.) during the dormancy period if the net result improves habitat for the species.
(3) No tree falling into or yarding through buffered sites.
(4) Do not locate anchor trees within known sites.
(5) Construction of new landings would be at least 300' from known sites.
(6) Proposed logging road location, including temporary haul roads, would be surveyed and populations protected by a minimum 100' radius buffer. Use of existing roads within 100' of occurrence is allowed.
(7) Firewood collection would not be permitted within buffers. Road segments close to known occurrences may need to be closed to prevent incidental impacts.
(8) Cut materials must be piled outside the buffers.
(9) No tree planting or mechanical scalping in or within 75'of the buffer edge (100' from occurrence) so as to maintain more open habitat.
(10) No heavy equipment (dozers, machine masticator, excavators, etc.) within known sites.

2.3.4 Noxious Weeds

- All heavy equipment, including brushing machinery, would be pressure washed to remove all dirt and debris prior to entering BLM lands and when moving from infested to non-infested areas within the project area. This includes a thorough cleaning of the undercarriage in a designated cleaning area. Cleaning areas would be subsequently monitored for infestation and weeds would be treated.

- Haul truck turn-arounds would not be constructed in known noxious weed populations (BLM map to be provided).
- Equipment and material would not be stored in known weed populations (BLM map to be provided).

- Temporary roads off of permanent roads would not be constructed through known weed sites when possible.

- Roadsides disturbed by project implementation (culvert and road shoulder work) would be re-vegetated after implementation.
- Roads to be decommissioned would be treated for noxious weeds prior to decommissioning and revegetate, as necessary, after decommissioning.

- Seed and straw used for restoration, replanting of bare soil, and post treatment throughout the project area would be native species and weed free to prevent the further spread of noxious weeds. All seeding would be contingent on seed availability.

2.3.5 Wildlife

- Work activities that cause disturbance above ambient noise levels (hauling, chainsaws, helicopters) would not take place within ¼ mile (1/2 mile line-of-site) from an active bald eagle nest between January 1 and August 31.

- Work activities that cause disturbance above ambient noise levels would not occur from March 1 to June 30 within specified distances of known spotted owl sites (within ¼ mile of chainsaw activities, quarry operations other than blasting, and helicopter operations; within 1 mile for unmuffled blasting). These seasonal restrictions may be waived if non-nesting is determined through BLM surveys. If any new owls are discovered during harvest, activities would stop until mitigation options can be determined.

- Burning operations would not take place within 0.5 miles of active bald eagle nests between January 1 and August 31.

- Pile, underburning, broadcast burning, and site preparation would not occur between March 1 and June 30 within ¼ mile of known spotted owl sites. This seasonal restriction may be waived if non-nesting is determined through BLM surveys.

- Work activities that cause disturbance above ambient noise levels would not occur from February 1 to July 15 within ½ mile of known peregrine falcon nest sites. Seasonal restriction for blasting or helicopter activities would not occur within 1 mile of known sites from February 1 to August 15.

- Meadows and natural openings would be buffered with a 100' no commercial harvest buffer (pre-commercial thinning, hand piling, and burning would be allowed).

- Maintain all snags, except those that need to be felled for safety reasons. Those snags felled for safety reasons would be left on-site.

- Where feasible, snag patches (6 or more snags) would be buffered by one half to one site tree height to protect the snag patch from damage during logging operations.

- Maintain existing large coarse woody debris (CWD) to the greatest extent possible from disturbance during treatments.

- Known Red tree vole sites would be buffered in accordance with management recommendations in effect at the time of the decision. Trees would be directionally felled away from these buffers.

- Known Del Norte salamander sites would receive a one site-potential tree or 100' horizontal distance (whichever is greater) buffer. Within the site and its surrounding buffer, a minimum 40% canopy closure would be maintained and any activities that would directly disrupt the surface talus layer would be avoided. Partial harvest within a buffer may be possible if a minimum 40% canopy closure can be maintained; in such cases, tree harvest must be conducted using helicopters or cable systems to avoid compaction or other disturbance of talus. Prescribed burning in buffers would occur only when temperatures are at or below freezing to avoid direct mortality to salamanders. Trees would be directionally felled away from these buffers.

- Mine adits occupied by Townsends big-eared bat would receive a 250' no harvest buffer.

2.3.6 Fire and Fuels Management

- Prescribed burning would be consistent with the Oregon Department of Forestry's Smoke Management Plan and the Department of Environmental Quality's Air Quality and Visibility Protection Program. Additional measures to reduce smoke emissions would include rapid mop-up, burning with lower fuel moisture in the smaller fuels to facilitate quick and complete combustion, burning with higher fuel moisture in the larger fuels to minimize consumption and burn out time, and covering hand piles to permit burning during the rainy season when atmospheric mixing and smoke dispersal are more likely.

- Drip torches would not be filled within 150 ft. of streams.

- *Patrol and mop-up* of burned areas would help prevent reburning or fire escape. A helicopter with water bucket may be used during mop-up to aid in extinguishing larger burning fuels and internal reburning in islands of unburned fuels.

- *Mechanical chipping* - Disposal of slash near unsurfaced roads, roads designated for decommissioning, operator spurs and landings may include mechanically chipping and spreading wood chips on the road surface and adjacent land. The material would be used to cover disturbed soils to help minimize erosion. A chip depth of 2" or less would allow seedlings to grow through the chip layer. Chip placement would not inhibit ditch and culvert drainage.

2.3.7 Roads - Construction, Improvement, Decommissioning, and Closures

- All temporary spur roads would be constructed and obliterated in the dry season. Roads proposed for decommissioning that are needed to support the prescribed burning/fuel reductions would be scheduled after burning is complete. When roads would be used for more than one season, temporary roads or roads slated for decommissioning would be winterized and treated for erosion control (water barred, seeded, mulched, etc.). Temporary road closure barriers would be placed to discourage wet season use prior to decommissioning.

- All new road construction would be done at the minimum standard appropriate to the intended long term use of the road. Single lane roads shall be built to a traveled way width of 14 feet plus curve widening.

- All roads used during the wet season, October 15 through April 15, shall be surfaced with at least 4" of crushed aggregate unless weather is unseasonably dry.

- Thinning would be favored over removal along roads and any removal of vegetation would not occur through pulling out the vegetation by the roots.

- *Dust Abatement*: Dust created from log hauling would be abated as necessary to reduce driving hazards and protect the fine materials that bind the road surface rock, thus increasing road longevity. Dust abatement may include the application of water, lignin, or reduced vehicle speed.

- Road side hazard trees that need to be felled in Riparian Reserves or the LSR would be left on site, unless sufficient amounts of coarse woody debris are already present in the stand.

2.3.8 Cultural Resources

- Known cultural sites and site areas would be avoided. Areas that require protection would be buffered with flagging prior to project implementation. No treatment would occur in the buffered areas. No fire line construction, prescribed burning, or hand piling/burning would occur within the boundaries of the recorded cultural resources.

- Any archaeological or historical artifacts or remains discovered during operations would be left intact and undisturbed; all work in the area would stop immediately and the area archaeologist would be notified immediately. Commencement of operations shall be allowed upon clearance by the Field Manager.

- An additional cultural resource survey may be required in the event the project location is changed or additional surface disturbing operations are added to the project after the initial survey.

2.3.9 Visual Resources Management

The project area consists of VRM Class III and Class IV lands. Class III objectives are to manage lands for moderate levels of change to the characteristic landscape. Management activities may attract attention but should not dominate the view of the casual observer.

- Use irregular clearing shapes.
- Mimic size and shape of existing openings or meadows in the characteristic landscape.
- Feather/thin the edges of cleared areas to reduce strong lines of contrast and appear more natural. Retain a mix of tree/shrub sizes and species along edges.
- Retain some large crowned trees and a variety of tree sizes and shapes to ensure that the resulting visual canopy does not distract from the surrounding landscape.
- Feather and scallop edges of openings around legacy trees.
- When multi-layered canopies occur adjacent to the road, leave dominant trees in each canopy layer to aid visual screening.

3.0 Environmental Consequences

Introduction
Only substantive site-specific environmental changes that would result from implementing the proposed action or alternatives are discussed in this chapter. The following were found not to be affected by the proposed action or alternatives: Areas of Critical Environmental Concern (ACEC), Native American religious concerns, prime or unique farmlands, flood plains, and wilderness.

The Environmental Effects portion of this chapter provides the analytical basis for the comparisons of the alternatives and the reasonably foreseeable environmental consequences to the human environment. Impacts can be beneficial, neutral, or detrimental. This analysis considers the direct impacts (effects caused by the action and occurring at the same place and time), indirect impacts (effects caused by the action but occurring later in time or offsite), and cumulative impacts (effects caused by the action when added to other past, present and reasonably foreseeable future actions on all land ownerships). The temporal and spatial scales used in this analysis may vary, depending on the resource being affected.

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the "environmental analysis required under NEPA is forward-looking," and review of past actions is required only "to the extent that this review informs agency decision-making regarding the proposed action."

The CEQ stated in this guidance that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment inherently includes the effects of past actions. The CEQ guidance specifies that the "CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions." Following review of the guidance and examining the proposed project, the team found that an exhaustive listing of past projects and speculation on the effects of each would not provide needed data to make an informed decision.

Information on the current environmental condition is comprehensive and more accurate for establishing a baseline condition for a cumulative effects analysis than attempting to establish such a starting point by adding up the effects of individual past actions. Unlike current conditions, past actions and perceived effects can no longer be verified by direct examination.

When encountering a gap in information, the question implicit in the Council on Environmental Quality regulations on incomplete and unavailable information was posed: is this information "essential to a reasoned choice among the alternatives?" While additional information would often add precision to estimates or better specify a relationship, the basic data and central relationships are sufficiently well established that any new information would not likely reverse or nullify understood relationships. Although new information would be welcome, the team did not identify any missing information as essential for the Decision Maker to make a reasoned choice among the alternatives.

The planning team weighed the scientific evidence offered through public comments, as well as that gathered by each resource specialist. Environmental consequences of each alternative were

analyzed utilizing the best scientific data available, knowledge of on-the-ground conditions, and professional expertise of each member of the planning team.

Watershed Overview/History

The following overview provides a context in which to analyze the effects of the Althouse-Sucker Project Area. This summary of the watershed and the future foreseeable actions provides a 'big picture' look at the watershed, puts the project into perspective, and allows for comparison of the action alternative with the no action alternative (existing conditions).

Fifth Field Watersheds: The Althouse-Sucker Project Area lies in two 5th field watersheds—the Althouse Creek Watershed (29,264 Acres) and Sucker Creek Watershed (62,544 acres). BLM manages 10,500 acres (11%) within the two watersheds. Within the BLM managed lands, 6,700 acres are revested Oregon and California (O&C) railroad lands.

Approximately 3,300 acres are classified as unsuitable (*i.e.*, nonforest or poor site) for commercial forest production and have been withdrawn from the commercial land base. Of the remaining 7,200 acres, 38 percent is allocated to Deer Creek Late Successional Reserve (LSR), and/or Riparian Reserves for wildlife/fish species and water quality protection.

Of the remaining land base in the two watersheds, 57,940 acres (63%) are managed by the Forest Service. The remainder is in private, state, or county ownership (26%).

Watershed Analysis Reports: The Althouse Creek Watershed Analysis (2005) and the Sucker Creek Watershed Analysis (2007) describe the events that contributed to the current condition such as early hunting/gathering by aboriginal inhabitants, mining, road building, agriculture and water diversions, wildfire, and timber harvest.

Sucker Creek Watershed: Harvest on BLM lands began in the mid-1950s, peaked in the 1970s, and declined in the 1990s. Since 1950, a total of 3,000 acres have been harvested on BLM lands, representing 4% of the watershed. Of the 3,000 acres harvested, 276 have been harvested since 1990. Approximately 1,300 acres were even-aged harvest (clear-cut, overstory removal, seed tree, etc.) and the rest are a varied mix of partial cuts (1,700 acres).

On Forest Service lands, approximately 12,000 acres have been harvested since 1950; approximately 800 acres have been harvested since 1990 with 68 acres treated since 2000. The forest service acre summary overestimates the acres treated across the landscape as many units were treated twice (e.g. Shelterwood cut followed by partial cuts). The forest service treatments and acres accurately reflect past history but the total acres over estimates the spatial extent of treatments.

Althouse Creek Watershed: Harvest on BLM lands began in the mid-1950s, peaked in the 1970s, and declined to approximately 40 acres in the 1990s. Since 1950, approximately 1,900 acres have been harvested on BLM lands, representing 6% of the watershed. Prescriptions included a varied mix of partial cuts (1,100 acres) and even-aged harvest (799 acres).

On Forest Service lands, approximately 4,960 acres have been harvested since 1950; approximately 760 acres have been harvested since 1990. Similar to Sucker Creek, the acres do not accurately

reflect the spatial extent of treatments as many acres were treated more than once and thus, double counted.

Foreseeable Actions: Both the BLM and the U.S. Forest Service are planning young plantation thinning within the Althouse-Sucker watersheds. BLM proposes to treat 194 acres in young stands, reducing fuel loading and canopy bulk density. The Forest Service is planning 1,886 acres of thinning in stands 80-years old and less, 300 acres of fuels reduction treatment, and 200 acres of pre-commercial thinning. Further, BLM proposes to improve aquatic habitat in Sucker Creek through instream placement of large wood and boulders. Private industrial lands are expected to continue with rotational harvest.

The Western Oregon Plan Revisions, although reasonably foreseeable, are still in process and subject to change based on public comments and subsequent administrative remedies. They, therefore, provide insufficient information for meaningful consideration at this time. It is not the intent of the planning or NEPA processes to recalibrate all analyses of existing plan implementation actions whenever a new planning effort begins consideration of a broad array of management guidelines and alternative allocations at the programmatic scale. (see *NAEC v. Kempthorne*, 457 F.3d 969, 979-80 (9th Cir. 2006) finding it lawful to consider the cumulative effects in the later broad-scale planning analysis).

Additionally, the purpose of this current proposal is to implement the existing Medford Resource Management Plan (RMP). This EA has been prepared to determine if any significant environmental effects of the proposal are substantially greater than what has already been analyzed in the existing RMP's programmatic EIS. The EIS associated with the current Western Oregon Plan Revision effort contains a cumulative effects analysis that incorporates these implementation actions (projected to occur under the existing plan as the "No Action" alternative and possible ongoing actions carried forward into the action alternatives), in a manner appropriate to the land use planning scale. The Western Oregon Plan Revision EIS therefore serves as the appropriate vehicle for analyzing the cumulative effects of each land use alternative's management scheme. Any potentially cumulative effects of this proposal at the programmatic level that would be relevant to the proposed plan revision will be considered in that process.

3.1 Hydrology, Soils, and Riparian

3.1.1 Affected Environment

Hydrology

The project area lies in the Althouse and Sucker Creek watersheds which flow into the East Fork of Illinois River. The mouth of Althouse Creek is roughly a quarter mile upstream of the mouth of Sucker Creek. The Althouse Creek 5th field Watershed boundary is the same as the 6th field watershed boundary and is divided into 17 7th field drainage areas. The project area contains the lower and middle 6th fields of Sucker Creek 5th field Watershed. In this case, each 6th field subwatershed would be treated individually for analysis purposes unless otherwise stated.

The project area is a rain-dominated hydrologic system, receiving 56-78 inches of precipitation annually (predominantly from October through March), with some snow at higher elevations. Both 5th field watersheds have higher precipitation upstream of the project area on Forest Service lands,

and the upper reaches are part of the few watersheds in the Siskiyou Mountains with a substantial snowpack and cold water flow (USDA, Forest Service. 1996 and USDA, Forest Service. 1997).

Sucker Creek currently has one active stream gauge, but there were two stream gauges in the Sucker Creek watershed — up and down stream of Little Grayback Creek. Maximum peak flows generally occur in December, January, and February. The Sucker Creek gauge upstream of Little Grayback Creek (section 25) was operated from 1941 through 1965. The maximum streamflow of the recorded period was 4,400 cubic feet per second (cfs) on January 18, 1953. The minimum streamflow ranged from 17-20 cfs. Sucker Creek below Little Grayback Creek (section 24) operated from 1965 through 1991. The maximum streamflow of the recorded period was 6,140 cfs on January 16, 1974. The minimum streamflow ranged from 13-15 cfs.

Althouse Creek currently has no active stream gauges. There was a station near Holland, Oregon from 1947 until 1953 and another station near Kerby from 1938 to 1941. Stream flow in the tributary streams fluctuates with the seasonal precipitation variation. Maximum peak flows generally occur in December, January, and February. The maximum streamflow of the recorded period was 17,500 cfs on December 22, 1964. The minimum streamflow was 17 cfs on December 1, 1941. The USGS stream gauge near Holland on Althouse Creek recorded high peak flows from near 750 cfs (November 22, 1946) to 2,680 cfs (December 22, 1953); low summer flows were 4-6 cfs.

Within the project area approximately 5% and 19% of Althouse Creek and Sucker Creek, lie within the transient snow zone (TSZ; 3,000-4,500 feet). The TSZ is the area likely to receive rain directly on snowpack due to alternating cold and warm fronts. As a result, peak stream flows commonly occur during the winter in response to rain-on-snow storms. Peak flows of record, such as the 1964 and 1974 flood events, resulted from rain on snow events. Canopy openings within the TSZ may alter the magnitude of peak flows during rain-on-snow events due to depositional increases in snowpack (Troendle and King 1985).

Thirty years after harvest of the TSZ, Troendle and King (1985) found that peak flows appeared to be returning to pre-harvest levels. The Oregon Watershed Assessment Manual 1999 (OWAM) provides a graph to assist risk-assessment of forestry-related impacts during rain-on-snow events based on the percent of the watershed within the TSZ and the percent of TSZ area in an open condition; that is, those with less than 30% crown closure (OWAM 1999, p. IV-11). The OWAM method of assessing risk to peak flows provides sufficient analysis to assess impacts to beneficial aquatic uses at a general and broad scale.

In these watersheds, the primary human disturbances that potentially affect the timing and magnitude of peak flows include: roads, soil compaction (due to logging and agriculture), vegetation removal (timber harvest and conversion of sites to agricultural use), and rural development.

BLM calculated acres of harvest openings (those with roughly less than 30% canopy closure) through Change Detection analysis using OSU satellite coverage (Table 3). Change Detection is a GIS computer program that identifies and measures forest openings using satellite photos. Satellite photos used in the process were produced periodically for a 30 year period with the last photo taken in 2002. Areas that exist in a naturally or otherwise long term open condition, such as meadows,

natural brush fields, and pasture lands, were not included as forest openings. Change detection produced data subdivided by 7th field drainages.

All 7th field drainages within the 5th field watersheds were analyzed at a conservative level (i.e., assuming all openings were in the TSZ) as a first screen to determine if further, more detailed analysis was necessary. Additionally, although hydrologic recovery of harvest stands has been observed near age 30, the assessment did not account for recovery that would show a reduction of open areas. The assessment assumes that timber harvesting created all the openings between 1972 and 2002.

Twenty percent of a 7th field drainage area in openings (created in 30 years) was used as a conservative threshold in this first screen of Change Detection. The OWAM graph (Oregon Watershed Assessment Manual. 1999, Figure 3, p. IV-11) indicates that "Potential Risk" of peak-flow enhancement range from 25-35% of the watershed within TSZ openings. After the initial analysis, any 7th field drainages that exceeded the 20% opening threshold within the project area went through a finer detail analysis in which the acres of openings were determined to be inside or outside the TSZ.

Table 3. Percent of Watersheds in Forest Openings

5th Field Watershed	Range of % Harvest Openings in 7th Field Drainages	Percent of 5th Field Harvest Openings
Althouse Creek	0 – 20.7	8.7
Sucker Creek	0 – 31.1	7.3

The 20.7% and 31.1% openings were detected on Forest Service (FS) managed small drainages of less than 1,000 acres. In Althouse Creek, Number Eight Gulch drainage has 20% harvest openings or more on FS land. All other 7th field drainages were less than 20%, ranging from 0 to 14.7%. For Sucker, there are three drainages that are 20% harvest openings or more on FS land, Elkhorn Creek, Lower Grayback Creek, and White Rock Creek. All other 7th field drainages were less than 20%, ranging from 0 to 18.0%. While presented as openings these percentages do not represent on-the-ground conditions as 10-30 years of recovery has occurred; rather they are indicators of management created openings in forest stands since 1972. Collectively without incorporating stand recovery, harvest openings in the Althouse Creek and Sucker Creek 5th field Watersheds, as determined through Change Detection, are 8.7% and 7.3 %, respectively.

There have been no new openings on Forest Service (1/24/07 Pers. Comm. Don Bellville, USFS) or BLM lands since 2002. Considering the small percentage of openings and no recovery factor included, there is a very low probability of peak flow "enhancement" on streams during rain-on-snow events under existing conditions.[1]

Timber harvest (vegetation removal) has also been linked to increases in water yield due to a decrease in evapotranspiration and interception (Satturlund and Adams 1992). However, based on

[1] The graph, adapted from the Washington State Department of Natural Resources (1991) Interim Rain-on-Snow Rules, delineates low risk of peak flow enhancement from potential risk of peak flow enhancement with peak flow increases at 8-10% (the lower boundary of detectability [Oregon Watershed Assessment Manual. 1999]).

literature findings regarding the relationship between timber harvest and stream flow volume, water yield changes in Althouse and Sucker Creek 5th field Watersheds are negligible given the low percentage in openings and recovery time since most past regeneration harvest. Stormflow response in small basins is affected primarily by hillslope processes; while in larger basins, it is primarily in response to the geomorphology of the channel (Robinson et al. 1995). Jones and Grant (1996) documented significant hydrologic recovery 6 years following clear cutting; while Harr et al. (1979), found hydrologic recovery of vegetation in 25-30 years. Change Detection analysis indicates that the majority of the clear-cut open areas within both 5th field watersheds were created prior to 1991, prior to adoption of the NWFP and the RMP (86.2% of Althouse 5th field watershed area openings and 72.6% of Sucker Creek 5th field Watershed area openings).

Existing roads may modify storm flow peaks by reducing infiltration on compacted surfaces, allowing rapid surface runoff into stream channels via culverts, or by intercepting subsurface flow and channeling it more directly into streams (Trombulack.1999; Wemple et al. 1996; Harr et al. 1975; and Ziemer 1981). Currently, there are approximately 118.5 miles of roads in the project area part of the Althouse Creek watershed occupying 1.9% of that part of project area. There are approximately 179 miles of roads in the project area part of the Sucker Creek watershed, occupying 2.4% of that part of the of the project area. Jones and Grant (1996) and Jones (2000) found no statistically significant increases in peak flows attributed to roads when roads occupied 6% of the basin. Similarly, Wright (1990) and Ziemer (1981), found no changes to the hydrograph when roads occupied 5% of the basin. Road effects on peak flows were detectable when at least 12% of a small watershed was seriously compacted by road building and tractor operations (Harr et al. 1975. Accordingly, elevated peak flows in the project area within Althouse and Sucker watersheds due to compacted road surfaces are very low; routing of water from roads is only observable at the local site level.

Other compacted surfaces have the potential to affect stream peak flows, although they are highly variable in recovery due to time since implementation (1950s through the 1980s), local equipment techniques, slopes, and soils. Harr et al. 1976, found measurable changes of peak flows when 12% of a small watershed was compacted by road building and ground based logging. In this case, the extent of roads and other compacted surfaces does not approach 12%, see Table 6 below.

Sediment

Roads are a major source and routing mechanism of sediment (Anderson 1971; Trombulak. 1999; Luce and Black 2001), but road density correlates poorly to sediment yield; sediment usually originates from a few poorly-constructed roads. High rates of sediment production from road surfaces occurs over the years immediately after construction and diminish rapidly (Fredriksen 1970; Megahan and Kidd 1972), providing the roads were properly built and maintained. Performing road maintenance, such as cleaning ditches, can cause increases in sediment production because it removes any vegetation that might hold sediment and breaks up any armoring that might have occurred (Luce and Black 1999). A field observation found Road 40-7-18.1 routing water and eroding the road bed, thus, routing sediment off of the road prism.

Sediment routing off roads is particularly a concern when the sediment is carried into streams. This can occur at points where roads cross streams. However, the degree that this occurs in the project area is not known due to variability in timing, location in relation to streams, and variability of road drainage systems.

One channel indicator of fine sediment input to streams is embeddedness in the streambed. High embeddedness is defined as >30 % of fines covering cobbles in riffles. Approximately 20% of field-surveyed BLM stream reaches in the Althouse Creek watershed and 4% in the Sucker Creek watershed showed high embeddedness. Mechanisms that may lead to sediment stored in tributary channels include: accelerated erosion of stream channels, instream and near stream mining, road-building, and near-stream timber harvest methods employed in the 1960s through 1980s, yarding of timber through streams, and use of ground-based equipment within riparian areas. Logging slash and some coarse woody debris present in the stream channels provides structure to sort substrate, store fine particles, encourage deposition on the floodplain, and scour pools (Keller et al. 1995). As a result, sediment can be slowly released from tributaries in pulses during high flow events, though large wood recruitment in Althouse tributary streams is limited. Currently, there is an improving trend throughout the project area, as these streams slowly work through the deposit of sediment and debris and the implementation of the NWFP which reduced harvest, improved road building practices, and implemented riparian buffers.

Stream Channel

Stream channels on BLM land in the project area are predominantly steep A and Aa+ Rosgen type streams with armored bed and banks (Table 4). These streams tend to be very stable and confined with no defined floodplain. They are also not sensitive to disturbance and have a high recovery potential. A few type B stream reaches were found. Type B channels are stable with some narrow floodplain margins. Very few of the surveyed reaches are Rosgen C streams, which have broad, well-defined floodplains. C channels are more common in the lower valley bottom reaches of the watersheds on private land. C channels are susceptible to destabilization, with the vegetation being a controlling influence on the channel condition. Sucker Creek has limited in-stream wood and stream complexity, resulting in a low pool/riffle ratio. Althouse Creek has moderate complexity and pool/riffle ratio. There is a lack of large mature conifers or hardwoods on private lands, particularly along agricultural lands. Consequently, poor riparian and channel conditions on private land are expected to continue.

Table 4. Rosgen Stream Types on BLM Land

Watershed	% of Stream Reaches	Stream Type
Althouse	96	A and Aa+
	3	B
	1	C
Sucker	79	A and Aa+
	15	B
	5	C

Given the channel types, degradation to streams on BLM-administered land is low.

Based on aerial photo interpretation, much of the lower broad valley bottom part of the watersheds is stream type C or has been straightened due to floodplain reclamation and mining,

Riparian/Water Quality

Stream surveys were conducted on BLM lands within the project area. Past timber harvest practices included little to no buffers for stream channels. Riparian areas are spatially disconnected due to a patchwork pattern of timber harvest units, resulting in discontinuity of dispersal corridors. Implementation of the RMP (USDI 1995) with corresponding adherence to ACS objectives has

generally led to an upward trend in riparian health over the past decade. According to 1997 surveys, the outer riparian zone on private lands in lower Sucker was composed completely of small trees (ODEQ 1999).

Mining is responsible for the greatest reduction of stream shade on the main stem of Sucker Creek (ODEQ 1999). Althouse Creek also had extensive mining activity, supporting over 1,000 miners along 10 miles of its length for perhaps ten years in the 1850's (McKinley and Frank 1996). Agricultural development is also a factor in both watersheds as riparian forests in the valley bottom have been cleared for production of crops.

Sucker Creek to River Mile (RM) 17.9 was 303(d) listed due to high summer temperatures. In July 1998, a Water Quality Management Plan (WQMP) was completed for Upper Sucker Creek Watershed by a team of specialists from USFS, BLM, and ODEQ. The plan proposed a Total Maximum Daily Load (TMDL) that was approved in 1999 (ODEQ. 1999). Likewise, the remaining lower part of the Sucker Creek Watershed was the subject of a second WQMP with TMDL. BLM, Oregon Departments of Agriculture, Forestry, and Transportation provided input. The Lower Sucker Creek TMDL and WQMP were approved in 2002 (ODEQ.2002). Sucker Creek and its listed tributaries were delisted in 2002. The TMDL's were set for reduced solar load that requires an increase in average shade to the stream water surface of Sucker Creek and listed tributaries by increasing stand height and density. This will take 23 to 70 years for varying stream widths and stream side vegetation conditions. Sucker Creek and its tributaries are not currently 303(d) listed under any other category. Althouse Creek is currently 303(d) listed due to high summer temperatures from river mile 0 to 18.

Solar radiation is the primary factor affecting stream temperature (USDA, USDI 2005). Removal of streamside vegetation results in decreased stream shade, thus increasing solar radiation input into surface waters. Past management practices in the Althouse Creek and Sucker Creek Watersheds (see Environmental History) included removal of merchantable riparian vegetation during timber harvest.

While Althouse Creek is listed for warm water temperatures due to a lack of shade, on BLM managed lands shade values were below 90% on only one reach, the mainstem. Given the high stream width on the mainstem shade improvement is expected to increase by no more than 7%. All other tributary areas had shade values greater than 90% (ODEQ 2002). ODEQ considers shade recovery at 80%.

For the Sucker Creek tributaries, the greatest loss of shade is due to harvest of trees in the riparian areas. However, forest stands along all streams on BLM-administered land generally contain trees of sufficient size to provide a future source of shade and large woody debris.

Soils

Typical soils as mapped in the SCS Soils Survey (1983) on BLM in the project area are presented in Table 5.

Table 5. Soils and Their Key Features

Symbol (6F/7F is two Symbols)	Name	Texture (Top/Subsoil)	% Slope, No. or So. (N,S)	Key Feature(s) and Notes *Productivity* *DF Site Index* *Low* *< 70-85* *Moderate* *86-120* *High* *120-130+*
6F/7F	Beekman-Colestine complex	v. gravelly loam/ v. gravelly loam	50-80, N/S	20-40" deep, high erosion hazard (bare soil), v. gravelly surface, moderate productivity
20F/21F	Cornutt-Dubakella complex	v. cobbly clay loam/ex. cobbly clay loam	35-55, N/S	40-60" deep/20-40 inches, moderate productivity/v. low on Dubakella (see 28/29F), in Althouse part
28F/29F	Dubakella-Pearsoll complex	v. cobbly clay loam/ex. cobbly clay loam	35-75, N/S	20-40" deep/10-20 inches, v. low productivity (non-forest), in Althouse part, serpentine soils
44F/45F	Jayar	v. gravelly loam/ ex. gravelly loam	35-70, N/S	20-40" deep, high erosion hazard (bare soil), moderate productivity, mostly in Sucker part
48F	Josephine	gravelly loam/ clay loam	35-55, N	40-60" deep, high erosion hazard (bare soil), gravelly surface, high productivity, mostly in Althouse part
58F	Pearsoll-Rock outcrop complex	ex. stony clay loam/extremely cobbly clay	20-60	10-20" deep, ex. low productivity (non-forest), in Althouse part, serpentine soil
72F	Speaker-Josephine	gravelly loam/ gravelly clay loam	35-55, S	20-40" deep, high erosion hazard (bare soil), gravelly surface, moderate productivity, mostly in Sucker part

Soil Productivity

Soil compaction reduces plant growth rates and thus, soil productivity. Therefore, detrimental compaction indicates loss of productivity. Based on aerial photo interpretation, field observation, and past stand management history, an estimated 1,821 acres (8% of the project area, due to ground based logging and roads) in the project area show evidence of detrimental compaction (Table 6). Tractor logged areas are comprised of recovering skid trails, assuming an 80-year recovery time as projected from Froehlich, H.A. and D.H. McNabb.1983 and non-recovering road surface. Ground-based yarding in the 1960s and 1970s was generally open to "loggers' choice"; therefore typically, compaction occurred over 25-30% of each logged stand. For post 1970's tractor logging, skid trail routes on BLM land were designated to limit the area of compaction and disturbance. Total existing compacted area due to tractor logging is estimated at 5% of the project area (6% of the Althouse Creek watershed and 5% of the Sucker Creek watershed portions of the project area).

Table 6. Total Compaction in Project Area

5th Field Watershed (Part of Project Area)	Project Area Roaded Compacted Acres*	% Compacted of Project Area in Roads *	% Compacted of Project Area by Ground Based Yarding**	% Compacted of Project Area
Althouse	287	2	6	8
Sucker	434	2	5	7
Total Project Area	721	2	6	8

* Rounded to nearest whole number.
**These estimates are based on aerial photo interpretation of ground based logging patterns in the project area incorporated with recovery periods.

Soil organism activity can affect forest productivity (Stark, J.M. 1997). Specifically microbial activities assimilate nitrogen to plant-available forms. This finding supports an ecosystem perspective on productivity that the process of providing basic soil nutrients to forest vegetation is dependent on beneficial soil microbial populations, such as ectomychorrizae. Soil organic matter is a reservoir of nutrients that ectomychorrizae convert to forms usable by plants. Field observations of past Althouse and Sucker harvested stands indicate that beneficial microbial populations are present, especially in units greater than 15 years old. Rapid growth of young stands with an understory of developing hardwoods and brush indicate soil productivity has been maintained in past harvest units.

3.1.2 Environmental Consequences

The following discussion describes effects to relevant soils/hydrology characteristics for each alternative. Concerns identified through the scoping process include: soil productivity, erosion and sedimentation, flow alteration, riparian function, and water quality.

Alternative 1 (No Action)

Under this alternative, current trends as described above would remain unchanged. Riparian stands with high tree densities and low vigor would continue to grow slowly, taking extensive time (long term scale) to develop components of mature stand structure. Also channel processes would continue to maintain poor habitat conditions from a lack of large in-stream wood. Even though the BLM-administered lands generally have trees of sufficient size, the lack of instream structure due to past riparian harvest would continue for approximately 80 years. The lack of thermal refugia in the lower elevation reaches would continue.

High potential for wildland fire would continue, posing a risk to the aquatic environment from delivery of sediment, loss of riparian vegetation, or expansion of large openings in the TSZ. Within the Sucker Creek watershed, the greatest concern of fire in the TSZ, at the 7th field level, is in the Little Grayback drainage where the TSZ occupies greater than 80% of the drainage area. In the

event of a wildfire, erosion and compaction rates would likely increase due to the creation of fire breaks with bulldozers, reducing soil productivity. Roads with poor drainage would continue to route water and sediment to creeks. Riparian zones with high tree densities and low structural diversity would continue to develop slowly into mature stands. Channel conditions would continue to be simplified for 50-80 years from the lack of structure, such as LWD and boulders.

Alternatives 2, 3, and 4

All action alternatives propose treatments within the lower parts of Althouse Creek and Sucker Creek 5th field Watersheds. This portion of the analysis examines the possible short and long term effects from the proposed actions on soil, water and riparian resources.

Hydrology

Peak flow increases correlate to increases in open areas within forest stands (see discussion above under **Affected Environment**).

All vegetation and fuels treatments, except structural retention, would maintain the current seral stage and would preserve a mix of overstory and understory vegetation; open areas would not be created. Therefore, these activities would not hinder the hydrologic recovery process and the current improving trend would continue. At the site level, vegetation removal would result in a slight short term increase in soil moisture, but project design features (e.g., waterbarring, see Chapter 2), would prevent negative effects beyond this level by limiting routing mechanisms to streams and restricting use of skid roads to the dry season. Therefore, there would be no added effects to current peak flows at the 7th field level.

Ziemer (1981) tabulated data from 174 storms from 1963 through 1975. From these studies, only those peaks within the smallest flow class increased after selective logging. In addition, the largest changes in the peak streamflow after logging were found to be from the first storms after lengthy dry periods. These first rains and resulting streamflow are usually small and geomorphically inconsequential to streams in the Pacific Northwest under marine climatic influence as these flows do not scour channel bed/banks or transport sediment. The large peak flows, which tend to modify stream channels and transport most of the sediment, usually occur during mid-winter after the soil moisture deficits have been satisfied in both the logged and unlogged watersheds.

For this project, structural retention (SR) treatment is considered open for purposes of analysis even though some canopy is retained through retention of 9-24 large trees. Analysis was completed at the 7th field drainage area scale.

Under Alternatives 2 and 4, harvest would create 281 acres of new openings (SRs) spread out in the Althouse part of the project area. Maximum increase in openings within a 7th field drainage area would be an additional 19.7% in two portions of Althouse Creek watershed, with small frontal streams that feed into Democrat Gulch and Althouse Creek (0151, 0166). These are not in the TSZ. The two 7th field drainages are small (228 and 585 acres respectively) frontal drainage areas. These frontal drainage streams are very small and steep. The specialist anticipates no measurable effect, because the drainages are very small, not in the TSZ, green tree retention, hardwood retention and riparian buffers. Additionally, they are very small drainages with little contribution of flow to the receiving stream. Further, they are Rosgen A streams which are stable with armored bed and banks; therefore, not susceptible to channel modification.

For the Sucker part of the project area, 317 acres of new openings (SRs) would occur under Alternatives 2 and 4. The largest increase in openings within a 7th field drainage area would be an added 7.2 %. This is within the Sucker Creek below Nelson Cr, above the Bear Creek 7th field drainage area (0230). This SR would also be located in the TSZ. Due to the low level of canopy openings and riparian buffers, there would be no changes to stream flows.

Under Alternative 3, the area of SRs proposed is less (148 vs. 598 acres) than for the other two action alternatives. The largest opening in Althouse Creek 7th field watershed is similar to Alternatives 2 and 4, 19.7% (see discussion above). The largest opening at the 7th field drainage scale in the Sucker watersheds under Alternative 3 is 3.1% in. This is located in the Bear Creek 7th field drainage (0430).

Research indicates that in a small watershed, 25-30% openings are the point where increased peak flows can be detected (see discussion above under **Current Conditions**). Concerning all percentages of new openings described above for all alternatives, none of the action alternatives would create openings that would approach these levels of new openings at the 7th field scale. Therefore, no increase in measurable peak flows is anticipated from existing condition.

Table 7. Maximum New Forest Openings for All Alternatives

Alternative	Watershed	Added Openings (acres)	Max % of 7th Field Drainage Added Opening	Increase in Openings (%) of 7th Field WA Drainages other than Max% & 0%
2	Althouse	115 and 45	19.7% (0151 & 0166)	0.5 – 7.0%
	Sucker	114	7.2% (0230)	1.2 – 6.6%
3	Althouse	45	19.7% (0166)	1.6 & 1.7%
	Sucker	76	3.1% (0430)	1.5%
4	Althouse	115 and 45	19.7% (0151 and 0166)	0.5 - 7.0%
	Sucker	114	7.2% (0230)	1.2 – 6.6%

Table 7, above, also shows that for all other 7th field drainages in the project area, the percent of additions of openings would be less than 8%.

Sediment

Based on the peak flow and soil erosion analyses, sedimentation of stream channels is not anticipated. While ground-disturbing activities, such as burning and log yarding, would minimally increase surface disturbance in the short term, project design features (PDF's) and proposal limitations (reserves, riparian areas, vegetation retention) would prevent stream bank disturbance and discourage routing of water and sediment to streams. Implementation of PDFs (e.g., waterbars on skid roads, riparian buffers) would ensure that the erosion would not be routed to streams. Consequently, the current improving trend of stream channels would continue in both the short and long term. Any erosion from ground disturbance would be localized and would not affect off-site conditions.

Road maintenance and renovation activities in the project area and along the unpaved haul routes would result in a short-term increase in sediment production. Luce et al. (2001) observed an 87% decrease in erosion and sediment transport from roads in two years following road maintenance activities. A long term (5+ years) reduction in sedimentation and altered flow routing would be expected following road drainage improvement and decommissioning. Road ditch cleaning would not occur within 75 feet of stream crossings, reducing potential delivery of sediment to the channel system. The short term inputs may create isolated pockets of fine sediment deposition immediately below (5 to100 feet) culverts. During high flows, the introduced sediment would become an immeasurable fraction of the system sediment load and would not be detectable at downstream locations. Road maintenance, renovation, or decommissioning would reduce the potential for sediment reaching streams over the long term by improving drainage and reducing the risk of wash-outs during flood events.

Roads, Landings, and Quarry - Alternatives 2 and 4, propose to construct 1.01 miles of new roads, 2.31 miles of temporary roads, 5 helicopter landings, and open 1.1 miles of existing temporary spurs.

- All temporary roads would be obliterated to match natural contours and if needed for more than one season, erosion and drainage control measure (PDFs) would be taken. Therefore, no sediment to streams is anticipated from both temporary road proposals.
- PDFs for all proposed landings cover erosion and sediment control and placement out of Riparian Reserves. Therefore, no sediment to streams is anticipated from proposed landings.

New roads would be constructed with outslopes and water dips, designed to dissipate water routing. All new roads are proposed to be constructed on stable ridge-top or sideslope locations outside of Riparian Reserves. It is likely that a small amount of sediment will be generated from the new roads, but routing of runoff carrying sediment to streams is not likely because: a) a lack of routing mechanism to streams; and b) existing vegetation and debris from road sides down into riparian buffers will catch the runoff, allowing infiltration and settling of sediment before it would reach the stream.

There are two temporary roads proposed within Riparian Reserves:

- Road 40-7-8 is a proposed temporary road that would cross an intermittent stream and would be obliterated following use. This road would be located in the upper drainage above a ditch and pond. The ditch and pond would catch surface water draining from the crossing. Therefore any possible effects of sediment, temperature, LWD or changes in flow from reaching fish habitat would be mitigated.
- Road 40-7-3A is an existing temporary spur road that crosses an intermittent stream. It is currently overgrown with alder at the crossing. There would be no through traffic during reconstruction. It would be decommissioned (water-barred, scarified, seeded and mulched) after its use. This would eliminate surface flow routing from the road. The stream channel configuration would be restored by removal of road fill material. No effects to water quality or hydrology is expected from this action.

The location of the road segments and the temporary nature of the spur roads along with BMPs and PDFs would minimize concentration of runoff flows or sediment delivery to stream channels. Therefore, there would be no changes to gravel or pool quality.

Hauling of timber can produce fine particles by grinding road rock or native material. Fines created from hauling during dry conditions may result in a pulse of sediment delivered to streams during initial runoff but would be undetectable against the natural sediment regime. Ground surface that is typically well vegetated and covered with debris would prevent fine particles from reaching streams. Also, the majority of crossings are in small headwater streams that flow intermittently. Fine particles created by timber hauling traffic typically are not evident in runoff water during the second wet season after hauling. Road maintenance and renovation would reduce sediment leaving road surfaces from existing conditions because of improved drainage distribution and added protection at critical sites.

In addition, quarry development proposal is outside of the Riparian Reserve. It would not add sediment to the stream.

Water Quality

Alternatives 2, 3, and 4 propose thinning and fuel reduction activities in some Riparian Reserves. No activity would occur within 50 feet of the stream. The Riparian Reserves identified for treatment have high stocking levels with consequent reduced stand resiliency and low structural diversity. In Riparian Reserves that are overstocked, the proposed thinning would benefit water quality and aquatic conditions by enhancing the growth of residual trees and promoting evenly-mixed age classes (USDA, USDI 2005, p.25).

Within Riparian Reserves, the 50-foot no treatment buffer on each side of streams would maintain current conditions in the primary shade zone. Outside of the no treatment buffer (secondary shade zone), canopy closure would be maintained at 50% or greater. To protect riparian site conditions, the Northwest Forest Plan Temperature TMDL Implementation Strategies (USDA, USDI 2005) recommends that vegetation treatments not reduce canopy cover below 50%. Additionally, thinning in the secondary shade zone (outside the 50-foot buffer) has been found to have no effect on temperature or relative humidity microclimate when stands were thinned down to 50% canopy cover (Emmingham et al. 2002).

Soil Productivity

Five helicopter landings would generate 1.5 acre of compaction as two would be decompacted following use. Vegetation treatments (commercial harvest, stewardship/biomass treatment) via tractor or other ground-based equipment (with PDFs required) would occur. Based on skid road width of 10 feet and spacing of 150 feet apart average compaction for all tractor units would be less than 8 percent. Under Alternatives 3 and 4, 1.3 miles of existing road at 20 feet wide are proposed for decommissioning in the Key Watershed (sections T40S-R8W-1 and 13). No new road construction is proposed in the Key Watershed. Table 8 displays compaction estimated from tractor logging road construction, road decommissioning (compaction reduction), and stewardship/biomass utilization.

Table 8: Net Added Compaction in Acres and % of Project Area in each Subwatershed

Part of Project Area	Alternative 2 Acres/%		Alternative 3 Acres/%		Alternative 4 Acres/%	
	Logging	Stew./Bio.	Logging	Stew./Bio.	Logging	Stew./Bio.
Althouse	37/ 0.2%	66/0.4%	55/ 0.4%	48/0.3%	55/ 0.4%	46/0.3%
Sucker	19/ 0.1%	46/0.3%	10/ 0.1%	71/0.4%	20/0.1%	71/0.4%

Pile burning, in all alternatives for treatment of activity fuels and fuel treatments, would leave bare soil areas on less than 10% of the treated area. Bare soil conditions would be discontinuous, with the surrounding unburned ground preventing concentrated runoff. This disturbance would be localized and thus, have no effect on off-site conditions. Therefore, very low, immeasurable rates of erosion would occur as a result of this treatment. It is expected that one year after treatment grasses, forbes, understory plants, and forest litter would return. Additionally, fuel treatments would occur over a ten-year period, distributing activity over time.

Ground-disturbance from use of cable corridors, tractor skid roads, and helicopter landings would expose mineral soil, but PDFs (such as waterbarring skid trails and cable corridors) would disperse any surface flow and prevent erosion-causing concentrated flow energy. Therefore, due to the scale, PDFs and seasonal restrictions, soil productivity loss from erosion is not likely.

Concerning biological productivity, in SR units, there may be a net reduction in surface organic layers after fuels treatment. This would be due to the loss of vegetation that would otherwise generate litter and small woody debris. With reduction of organic matter accumulation, there may be a small reduction in population numbers of beneficial soil organisms, which may result in a minimal reduction in productivity (estimated at < 2%; however, there is no known research that quantifies such effects on plant growth). However, observations of past clear-cuts of typical growth rates of planted conifers with understory of hardwoods and brush, suggest little to no loss of soil productivity.

For all CT units (with and without group selections), soil productivity loss is not likely. With subsequent piling and burning, low intensity underburns and/or biomass removal sites would retain a mix of hardwoods and conifers, which would continue to develop organic duff layers, forest litter, and course woody debris at similar rates as they are currently. Collectively, these forest components support beneficial mycorrhizae, bacteria, and fungi to maintain and provide nutrients (Stark, J.M. 1997) and soil structure for long term site productivity

Riparian

The Riparian Reserves identified for treatment have high stocking levels with consequent reduced stand resiliency and growth rates. The sufficiency Analysis for Stream Temperatures (USDA, USDI 2003) states that in overstocked Riparian Reserves, thinning will benefit water quality and aquatic conditions.

Stream turbidity in the project area would not be measurably adversely affected by proposed actions, as project design features (including no treatment buffers) would prevent stream bank disturbance and discourage routing of water and sediment to streams. Further, proposed fuel treatments would reduce fire hazard in the project area and lessen the intensity of a wildfire if one

were to occur; therefore, the risk to the aquatic environment from delivery of sediment and loss of riparian vegetation would be reduced.

Cumulative Effects to the 6th and 5th Field Watersheds

Table 9. Cumulative Effects After Proposed Management Actions

6th Field Subwatershed	Action Alternatives	Parameter	Existing Level of Cumulative Effect	Cumulative Effect Level After Action	Rationale for Cumulative Effects Determination
Althouse Creek (all 7th field drainage areas in project area)	2, 3, & 4	Peak Flow	None Measurable (Existing openings + proposed would be < 25% for all 7th field drainages, see table below)	None Measurable	% Openings after action below measurable threshold; hydrologic recovery is sufficient; compacted area and road % are moderate; limited routing mechanisms to streams.
		Sediment	Moderate (Fine sediments observed in stream surveys)	Moderate, no change (except short term addition of few fines from roads)	Channel morphology and substrate distribution unaffected; long term, improving trend on upper tributaries would continue on BLM.
		Stream Temperature	303(d) listed	Same as existing	Primary shade zone would be protected; improving trend would continue on BLM.
		Stream Turbidity	Moderate	Moderate, no change	Improving trend on tributaries would continue.
		Soil Productivity	Moderate (8% Compacted area)	Moderate (9% Compacted area, Local Reduction)	A very slight increase in compaction would minimally decrease productivity at the site level.
Lower Sucker Creek	2, 3, & 4	Peak Flow	None Measurable	None Measurable	% Openings after action below measurable threshold; hydrologic recovery is sufficient; compacted area and road % are moderate; limited routing mechanisms to streams.
		Sediment	None Measurable	None Measurable (except short term addition of few fines from roads)	Channel morphology and substrate distribution unaffected; long term, no changes in streams.
		Stream Temperature	Off 303(d) list under TMDL	No Change	Primary shade zone would be protected; improving trend would continue, following TMDL.

6th Field Subwatershed	Action Alternatives	Parameter	Existing Level of Cumulative Effect	Cumulative Effect Level After Action	Rationale for Cumulative Effects Determination
Middle Sucker Creek	2, 3, & 4	Stream Turbidity	Unknown (Observations indicate Low turbidity)	No Change	Long-term there would be no increases.
		Soil Productivity	Moderate (7% compacted area)	Moderate (7-8% Compacted area, Local Reduction)	A very slight increase in compaction would minimally decrease productivity at the site level.
		Peak Flow	None Measurable	None Measurable	% Openings after action below measurable threshold; hydrologic recovery is sufficient; compacted area and road % are moderate; limited routing mechanisms to streams.
		Sediment	None Measurable	None Measurable	Channel morphology and substrate distribution unaffected; long term, no changes in streams.
		Stream Temperature	Off 303(d) list under TMDL	No Change	Primary shade zone would be protected; improving trend would continue.
		Stream Turbidity	Low	Low	Long-term there would be no increases.
		Soil Productivity	Low (≤5% Compacted area)	Low (≤5% Compacted area)	A very slight increase in compaction would minimally decrease productivity at the site level.

Table 10 displays all 7th field drainage areas in which there are proposals that may create openings. Maximum openings under all alternatives are listed.

Table 10 Current Openings and Maximum Added Openings Under Althouse Sucker

6th Field Subwatershed	7th Field Drainage Area	Current Openings (Acres/ %)	Maximum Added Openings (Acres/%)	Total Openings (Acres/%)
Althouse Creek	0145	80Acres/10.2%*	13Acres/1.7%	93Acres/11.9%
	0148	101Acres/11.6%	61Acres/7.0%	162Acres/18.6%
	0151	17Acres/2.9%	115Acres/19.7%	115Acres/22.6%
	0166	9Acres/3.9%*	45Acres/19.7%	39Acres/23.6%
	0169	215Acres/3.6%*	32Acres/0.5%	247Acres/4.1%
	0175	48Acres/1.8%*	15Acres/0.6%	62Acres/2.4%

6th Field Subwatershed	7th Field Drainage Area	Current Openings (Acres/ %)	Maximum Added Openings (Acres/%)	Total Openings (Acres/%)
Lower Sucker Creek	0415	144Acres/15.0%	63Acres/6.6%	207Acres/21.6%
	0430	330Acres/13.3%*	76Acres/4.3%	408Acres/16.4%
Middle Sucker Creek	0224	265Acres/15.0%*	46Acres/2.6%	211Acres/17.6%
	0227	135Acres/9.1%*	18Acres/1.2%	153 Acres /10.3%
	0230	165Acres/10.5%*	101Acres/6.4%	266Acres/16.9%

*Visual estimate of 2005 Aerial Photos, others are GIS measured.

Both 5th field drainage networks in the project area are separate and hydrologically disconnected from one another. Each system contributes exclusively to East Fork of the Illinois River. There are no measurable additions to hydrologic cumulative effects at the 7th field scale. Soil productivity, see above, would have a minimal reduction due to small additions of compaction. This would only be measurable at the site and 7th field level. Since post project cumulative effects remain at pre-project ranges at the 7th field scale, the project would not generate cumulative effects to the 6th field subwatershed and 5th field watersheds or for the East Fork of Illinois River.

3.2 Vegetation

3.2.1 Affected Environment

Overview/Stand Descriptions/Disturbance History

There is a wide distribution and diversity of plant series and seral stages within the Althouse-Sucker Project Area. Forests stands on BLM in the Althouse and Sucker Watersheds are a result of past harvest history (EA p. 28-29) and subsequent regrowth. As a result forest stands in the watershed are comprised of early (825 acres Sucker and 727 acres Althouse), mid (1,958 acres Sucker and 1,504 acres Althouse), and mature (2,606 Sucker and 1,946 acres Althouse) seral stands.

In general, mature stands are 80 to 180 years old. Mid-seral poles, generally 60 to 80 years old, pervade the area as independent stands and cohorts and crowd many older individuals/cohorts. Young or early forests are a result of clear-cut and some partial cut logging over the past 40 years. Mid-seral cohorts seem to be the result of both fire suppression and logging in the first half of the twentieth century. The older mature and old growth strata are likely initiates from nineteenth century disturbances – most likely fire.

The dominant conifers are Douglas-fir and sugar pine, followed by ponderosa pine, Jeffery pine, and incense cedar. The major hardwoods are tanoak, blackoak, whiteoak, chinquapin, and madrone with some riparian areas having alder and maple. Tanoak brush can be quite dense on the cooler, wetter aspects. Significant wet areas exist in T 40S R7 W Sections 11 and 3, while dry pine meadows are interspersed throughout the project area. These pine meadows have significant amounts of buckbrush and overly dense young conifers. Drier stand aspects and ridges appear to have been more open and pine-dominated in the past, and are now stocked with predominantly mid-

seral Douglas-fir poles. This brush and Douglas-fir invasion of pine meadow and dry stand aspects has consequently reduced grasses and other forbs associated with more open conditions.

Fire exclusion has resulted in overcrowded stands and undesirable species composition relative to historical stand conditions. Density-dependent mortality, crown recession, reduced individual tree vigor, shading of large hardwoods, and exclusion of new regeneration are seen in these forest stands where tree densities are high. Highly competitive and shade tolerant species, such as tanoak, have established in stands historically dominated by conifers or non-tanoak hardwoods. Areas that historically supported pine and oak species have lost vigor and presence through encroachment by shade tolerant and/or sprouting hardwood. Similarly, ponderosa and Jeffery pine and Douglas-fir plant series have decreased and are at risk of being replaced by Douglas-fir/ Tanoak dominated stands.

Historical records analyzed in Watershed Assessments indicate the percentage of Douglas-fir/tanoak plant association has increased in both watersheds. Douglas-fir/tanoak dominated sites in both watersheds have a heavy understory of tanoak, preventing more light dependent species, such as ponderosa pine, sugar pine, and Douglas-fir, from regenerating and thriving in the mid-level understory.

Plant communities (associations) with the same climax dominants are referred to as plant series. The Jeffrey pine series, for example, consists of associations in which Jeffrey pine is the climax dominant (Atzet and Wheeler 1984). The Sucker Creek watershed contains at least four major plant series: Douglas-fir, Douglas-fir/tanoak, white-fir, and riparian/hardwood. Port Orford-cedar (POC) is a minor component of the forested landscape in both watersheds. POC root disease has infected stands in the watershed. An isolated Brewer spruce stand is found in the upper reaches of Little Grayback Creek. The Althouse Creek Watersheds contain at least four major plant series: Douglas-fir, Douglas-fir/tanoak, Jeffrey pine, and white oak.

Changes in aspect, slope, soil type, and past disturbances (wildfire, insects, disease, and logging) affect forest structure and the type of tree species present. These landscape changes result in a mosaic of forest conditions. This mosaic includes different levels of canopy closure, shifting tree species dominance, and varying tree age and size classes.

In stands where non-tanoak hardwoods dominate the middle layer, they occur as clumps or a widely scattered stand component. Hardwoods represent an early drought-tolerant seral tree component. Competition between adjacent trees and high conifer canopy closure has reduced the vigor and increased the mortality of many of the large hardwood trees.

Many forest stands in the project area are overstocked. At least 60% of the forest stands are approaching or at a level of stand density where competition related mortality is occurring. As trees compete for limited water, nutrients, and growing space, they become slow growing, stressed, and more susceptible to mortality from insects, forest pathogens, and drought.

3.2.2 Environmental Consequences

Alternative effects to vegetation are organized by treatment type. Following the No Action Alternative, potential effects from Alternatives 2, 3, and 4 are discussed under the treatment prescriptions.

No Action

Within the project area fire exclusion has created conditions favorable to increased Douglas-fir/tanoak establishment, resulting in abnormally high stocking densities. Once established, these trees develop into the stem exclusion phase. During the stem exclusion phase, understory vegetation is shaded out, crowns recede, height growth is enhanced, and suppression-induced mortality begins in the all tree size classes. Stands at high densities reach the stem exclusion phase faster than low density stands. Stands remain in the stem exclusion phase until mortality to the overstory creates canopy openings and structural complexity begins to develop (understory reinitiation phase). Therefore, stand level complexity will eventually be attained through insect and disease attack, windthrow, and tree decadence but only if major stand replacement events do not occur.

Lack of disturbance in fire-adapted systems, such as those found in the project area, has resulted in higher stocking densities than the site is capable of maintaining. With no-action, stands will continue to have low individual tree vigor, reduced understory vegetation, and increased fuel loadings from suppression-induced mortality and litter fall. Higher levels of insect and disease infestation/infection are expected. These conditions are considered outside the range of natural variability for the Douglas-fir and Tanoak plant series. Once outside the range of natural variability, ecosystem stability, biological diversity, resilience and ecosystem health is reduced (Atzet and Martin 1991).

In the no-action alternative, abundance of shade intolerant species such as pine and black oak would be reduced due to lack of regeneration opportunities and large tree mortality. Regeneration of these ecosystem components would continue to be limited by lack of canopy gaps (light to the forest floor) and high duff/litter layers. The longevity of large pre-fire exclusion pines and black oaks would be shortened by competition from post-fire exclusion vegetation. The major impact of no-action to this community is continued shrub decadence, reduction of native grass and forb abundance/diversity, and reduction of overstory tree vigor from higher stocking levels. Thus, stand diversity in terms of species abundance and vertical structure would continue to be reduced.

Alternatives 2, 3, and 4

Restoration Thinning

Table 11. Acres Proposed for Restoration Thinning

Restoration Treatments by Alternatives			
Vegetation Treatment	Treatment Acres		
	Alternative 2	Alternative 3	Alternative 4
Jeffrey Pine Restoration	0	1,153	1,153
Restoration Thinning	0	107	107
Restoration Thinning-CAR	0	129	129
White Oak Restoration	0	52	52

Alternative 2: There are no restoration thinning prescriptions proposed in Alternative 2(Table 11). Similar to the No Action, the downward trend of vigor of the plants within the plant series would continue.

Alternatives 3 and 4: Treatments would reduce shrubs and young tree encroachment into the Jeffrey pine, oak and pine savanna habitats. Reducing the shrub component would decrease fuels, creating defensible positions against wildfires, as well as create open space to restore grass species. Treating the ecotone edges would effectively transition an abrupt edge of competing shrub, grass, forbs, and tree species to a wider area of plant diversity.

Commercial Thinning and Density Management

Table 12 displays commercial thinning (CT) and density management (DM) treatment acres. Under **Alternatives 3 and 4.** Both CT and DM/UR reduce vegetation density. However, DM coupled with understory reduction treatments would maintain a higher canopy retention between 40% to 60%. DM is most often applied where multiple canopy strata exist and a wider range of stand structure is present, than found in units prescribed for CT.

Table 12. Commercial Thinning and Density Management

Commercial Thinning and Density Treatments by Alternatives			
Vegetation Treatment	Treatment Acres		
	Alternative 2	Alternative 3	Alternative 4
Commercial Thinning (CT)/Group Selection (GS)	518	0	518
CT	0	46	0
CT/Modified GS	0	590	0
Density Management (DM)/Understory Reduction (UR)	0	402	402

The main objective within these stands is to improve individual tree and stand health. Thinning within these units would reduce stocking levels by removing the suppressed crown class trees and increasing the spacing of the intermediate and dominant/codominant crown classes. Remaining trees would have crown ratios greater than 35% and would be the better formed trees. Ponderosa pine, sugar pine, incense-cedar, and Douglas-fir would make up the preferred leave species. Large (greater than 20″ DBH), healthy ponderosa and sugar pine would be favored over equally healthy Douglas-fir. The crowns of the retained pines would have a minimum crown ratio of 35%, needles should be dark green, crown tops should be pointed (not rounded), and there should be no evidence of resin flow from the upper boles. The residual crown closure of these stands would range within 40-60 percent.

Group Selections and the combination of Group Selection with Commercial Thinning would open the canopy to allow growing space and resources (water, light, nutrients) for younger trees (pines and DF) and planted trees to have an opportunity to grow. No more than 20% of the unit would receive group selections. Most stands contain more than one species. Group Selections would be

irregularly spaced. Growth patterns of mixed stands vary greatly, depending on environmental conditions. The group selections and current gaps in the forest they expand on would vary in size, shape and distribution. They are centered on existing reproduction, large pine, or areas with intense brush competition. A light thinning on the southeast side of the groups encourages reproduction growth within the group opening. The treatments would create areas that blend species and multiple canopy layers, while providing needed growing space for conifer reproduction and bordering overstory trees.

Modified group selection and Group Selection in Combination with Commercial Thinning targets areas that contain hardwood and pine that are experiencing encroachment that is limiting the growth and vigor. Modified group selections, in combination with commercial thinning, increase tree growth response by allowing more light and growing space to selected large oaks, madrones, and individual pines.

In density management, commercial thin, group selection or modified group selection units, mature forest characteristics would be retained or encouraged through multiple canopy layers, species diversity, multiple age classes, and stand connectivity. There is no change in stand age because trees in all canopy strata and age classes remain. Rather, the treatment reduces stand density. Similarly, there are no anticipated changes in seral stage classification. Additionally, the reduction of stand densities, with associated fuel treatments across the landscape, would lower the probability of a stand replacement fire. Therefore, due to the increased growth rate and reduced fire risk, future commodity potential would be enhanced and protected.

Under Alternative 3, 160 acres out of the 590 proposed would be thinned to a target canopy closure of 60%. Thinning to 60% would increase individual growth rate, but growth response is not expected to be as high as thinning to 40%. There would be fewer choices for tree selection that would increase growing space. There would be fewer opportunities to improve pine stands that are being encroached upon by Douglas-fir.

Following treatment, stands would be composed of healthy trees of all species and diameter classes. Large healthy ponderosa pine trees have been retained to insure their continued presence in the stand. Species composition would be dominated by Douglas-fir, followed by smaller amounts of ponderosa pine, sugar pine, incense cedar, and large hardwoods. Vertical and biological diversity is present through the retention of trees of all age and size classes. Special status species may occur within the stands and would be buffered and protected. These patches would provide for additional within-stand structural diversity. To further provide structure and diversity, all stage 1 and 2 snags greater than 20" DBH would remain for wildlife, future CWD, and structural diversity. The estimated range of canopy closure would be between 40 and 60%. CWD is present and provides conditions favorable for nutrient recycling, soil mychorrizae, and the development of nitrogen-fixing bacteria. Large (greater than 12″ DBH), healthy hardwoods (madrone and black oak) would remain as a scattered stand component. Removal of competing trees would provide the necessary top light required for the continue growth of these trees.

Regeneration Harvest

<u>Alternatives 2, 3, and 4</u>

There are two levels of Structural Retention (SR) being used for stand regeneration in this project (Table 13). Treatments are based on local stand conditions. The high retention SGMFA, 16-25 large trees per acre (TPA), would be applied where development of young conifers are not limited by intense tanoak resource competition. It is being used on lower site class lands where higher canopy levels aid in shading brush (i.e., ceanothus) out and ameliorate harsh site (i.e., temperature) conditions.

Table 13. Acres of Regeneration Harvest by Alternative

Stand Regeneration Treatments by Alternatives			
Vegetation Treatment	Treatment Acres		
	Alternative 2	Alternative 3	Alternative 4
(SR) Regeneration Harvest with 16-25 large tree retention	293	97	294
(SR) Regeneration Harvest with 9-16 large tree retention	305	0	306
(SR) Regeneration Harvest with VRM attributes	0	53	0

The lower retention level of 9-16 large trees per acre is utilized where competition from tanoak is preventing conifer development and growth. Given tanoaks ability to thrive in diffuse light conditions, retaining 16-25 trees per acre creates ideal conditions for tanoak development, intensifying the competition to young conifer development. In addition, the low light levels presented by leaving a higher level canopy reduce the success of establishing conifer seedlings and subsequent conifer understory. Through retention of both individual trees and groups of conifers, remaining tress would have growing space and adequate light to develop a conifer dominated understory necessary for future mature conifer stands.

Maintenance of competing brush species would be necessary under both retention levels. Development of a vigorous conifer stand is expected, after maintenance brushings, as evident in adjacent units that are fully stocked with healthy conifers. Research (Harrington, T.B. 1989; Harrington, T.B., J.C. Tappeiner, and T.F. Highes. 1991; Tappeiner, J.C., and P.M. McDonald. 1984; and Harrington, T.B. 1994) found that Douglas-fir in a shaded environment displayed diminished growth rates and reduced vigor.

Under Alternative 3, all SR units retain more than 16 large trees per acre. Units 40-7-9 002B, 40-7-3 001J, 39-7-11 016 contain tanoak that is limiting conifer growth and development. Retention of greater than 16 large trees per acre would present difficulties to establish and grow a new conifer stand. Alternatives 2 and 4 retain less than 16 large structural trees per acre.

Also under Alternative 3, prescriptions in T40S-7W- Section 9 applied additional design features to reduce visual contrast. Leave trees would be arranged so straight lines are avoided. Additionally, full crowned conifers and hardwoods would be intermixed with leave patches to provide a more

broken pattern to the canopy openings. This would result in a higher stand canopy closure and a reduction of volume harvested.

Under all action alternatives, Douglas-fir, sugar pine, ponderosa pine, incense cedar, and hardwood species would be the preferred leave species. Healthy codominant and dominant ponderosa pine, sugar pine, incense cedar, and hardwood species would be favored over Douglas-fir, where available. Leave trees would range from the largest, full crowned, healthy trees to trees with small crowns.

Preharvest snags would remain, as would healthy or cull green trees greater than 20″ DBH to meet snag and CWD requirements. At a minimum, 2 to 4 large hardwoods per acre greater than 12″ DBH would be reserved for wildlife and stand diversity.

Special status species may occur within the stands. These species would be buffered and protected. These buffer patches would provide additional within-stand structural diversity.

Changes to Seral Stage

Regeneration harvest changes seral stage from mature to early seral stage classification (Table 14). However, a portion of the existing forest structure retained. Emphasis is placed on growing a new stand of trees for future wildlife use and timber production. The table below shows the total change possible by alternative if all acres proposed for regeneration harvest are selected. It is expected that this change would be less due to untreated areas (i.e., riparian, botany, and red tree vole buffers). Currently on BLM, there are 2,827 and 3,367 acres of late-successional forest in the Althouse and Sucker creeks, respectively. Assuming the maximum harvest, SR treatments would occur on less than 1% of the watersheds. Following maximum treatment in Althouse Creek, 2,546 acres, representing 67% of BLM land, would maintain late-successional forest; Sucker Creek would maintain 2,996 acres of late-successional forest, representing 61% of BLM land.

Table 14. Changes to Forest Seral Stage

Change from *Late-Successional Forest Classification of BLM Forest Land to Early Seral Stage						
	Alt2		Alt 3		Alt 4	
	Althouse	Sucker	Althouse	Sucker	Althouse	Sucker
SR (Regeneration Harvest)	281	317	72	78	281	371
% Reduction of Late Successional Forest on BLM Forest land	9.9%	9.4%	2.5%	2.3%	9.9%	9.4%
Existing Condition Althouse: 2,827 acres of 3,757 acres of BLM is in Late-Successional forest (75 % of BLM)						
Existing Condition Sucker: 3,367 acres of 4,965 acres of BLM is in Late-Successional forest (68% of BLM)						
*Late-Successional Forest defined as forest stands greater than 80 years						

Variable Canopy Thinning – Alternatives 3 and 4

Variable canopy thinning on 514 acres are proposed under Alternatives 3 and 4. Variable canopy thinning would promote the development of structurally diverse stands. Management is intended to increase structural heterogeneity. The distribution of trees and canopy layers would be non-uniform. Variability in tree spacing and density would produce a mosaic of structures within stands. Thinning intensity varies widely between no removal to gap formation (Carey 2003). Areas of lower canopy retention would promote the development of a patchwork where intermediate-canopy trees can be released. Variable density thinning would maintain structural diversity in managed stands.

Cumulative Effects: At the project scale, after the proposed treatments are implemented, the vegetative diversity would be high at both plant series and stand conditions. Overall, forest health and resiliency would be greater across the project area with a decreased potential for stand density mortality due to insects and disease. The potential for forest loss due to severe wildfire would diminish. Species representation across the project area would be better maintained into the future by increasing forest resiliency.

The thinning and fuel reduction treatments would decrease the time for seral stage progression to occur from mid to mature seral stages. This is primarily due to a combination of retention of forest structure complexity and improved growing conditions. Although to different degrees based on level of treatment, each alternative would result in distribution, abundance, and species composition for the different vegetation types that more closely approximates the dynamic forest ecosystem existing prior to fire suppression. Untreated areas intermixed with treated areas would maintain landscape diversity and habitats.

Currently, 75% of BLM land within the Althouse watershed classifies as late successional; in Sucker Creek, 68% of BLM land classifies as late successional forest. At the maximum, the project would reduce late-successional forest on approximately 281 and 317 acres in the Althouse and Sucker Creek watersheds, respectively. It is expected that due to plant and wildlife buffers treatments would be less. Following the maximum treatment, BLM lands would maintain late-successional forest on 66% and 59% in the Althouse and Sucker Creek watersheds, respectively. Combined, the 598 acres represents 0.7% of the watersheds.

Treatments in previously managed stands would reduce fuel loading and vegetation density. As a result, the previously managed stands would increase in vigor with reduced competition, decreasing time to mature stand development. Private land would continue to be harvested on a rotational schedule, maintaining their land in the early- to mid seral stand conditions.

All action alternatives propose fuel reduction and reintroduce fire into the ecosystem. As a proactive forest health and fuel reduction project, the Althouse-Sucker Project, in combination with the other planned projects in the watershed contribute to a greater degree of forest diversity and structure, and vegetative resiliency in the watershed. As a result, all action alternatives would reduce wildfire hazard at the stand and at the larger project scale. While SR may increase fire hazard following treatment, the project design including post harvest fuel reduction activities would reduce the future potential fire hazard. Therefore, fuel reduction activities in combination with forest thinning would reduce the potential for resource loss due to fire and insects.

3.2.3 Port-Orford Cedar (POC) and the Potential Spread of POC Root Disease

The Althouse-Sucker Landscape Management Project is within the natural geographical range of POC. (June, 2002 draft of *The Range Wide Assessment of POC).* POC is present within the project area. The only prescribed harvest where POC root disease, *Phytophthora lateralis,* is present is within the riparian areas in T40S., R7W., Section 9 009.

No Action

There would be no harvest or stand treatments. The rate of spread of Port-Orford cedar root disease would be gradual.

Alternatives 2, 3 and 4

Harvest and hauling, etc. have been shown to spread Port-Orford cedar root disease. The POC risk key was used to determine appropriate management recommendations. When all of the project design criteria regarding POC are applied, the risk for spreading POC root disease from land treatments in the project area is negligible.

Port-Orford cedar in the project area would be managed according to the May 2004 BLM POC-FSEIS/ROD. Mitigation measures would be implemented if uninfected POC are in, near, or downstream of the activities (USDA, USDI 2003).

- Prior to entering a POC area, or leaving a *Phythophthora lateralis* (PL) area, all heavy equipment would be washed according to Management Guidelines in the Port-Orford Rangewide Assessment (USDA, USDI 2003).
- When feasible, operations would be limited to the dry season/dry conditions in infected and uninfected areas.
- When feasible, work would be done in uninfected areas prior to conducting work in infected areas.
- Water used for road and prescribed fire operations would be from uninfested water sources or treated with the appropriate levels of Clorox® as described in the POC-FSEIS/ROD (p. 62).
- Clorox® bleach would be added after tanks have been filled and are away from waterways.
- Access and egress routes and parking areas would be designated by BLM.

3.3 Fire and Fuels

3.3.1 Affected Environment

Agee (1993) has described the fire regime in southwest Oregon as moderate or mixed severity, which includes a mixture of stand replacement and low severity fires with fire return intervals that range from 0-115 years. Historic fire return intervals in the Althouse-Sucker Project Area range from 0-100 plus years, with 72% of the area having intervals of less than 50 years (Atzet et al. 2004). Fire regimes provide a historical perspective of fire regimes prior to the era of fire exclusion,

and also provide an indicator of natural processes that contributed to current forest vegetation and structure. Thus they are useful in characterizing conditions across a project area and landscape.

The vegetation in the Althouse and Sucker Creek watersheds have been shaped over the millennium with frequent surface fires and mixed fire severity. Ninety-nine percent of the project area is represented by the following fire regimes.

Fire Regime 1: 0-35 years, Low Severity (47 % of project area). Typical climax plant communities include: ponderosa pine, Jeffery Pine, pine-oak woodlands, dry Douglas-fir sites, and low elevation grasslands usually located within the valley bottoms. Large stand-replacing fire can occur under certain weather conditions, but are rare events (i.e., every 200 years).

Fire Regime 3A: <50 years, Mixed Severity (25 % of project area). Typical plant communities include mixed conifer and eastside Douglas-fir. Most fires are lower severity. This regime usually results in heterogeneous landscapes. Large, stand-replacing fires may occur, but are usually rare events. Wetter and cooler north and east aspects, riparian zones, and the higher elevations within the project area, fall within this fire regime

Fire Regime 3B: 50-100 years, Mixed Severity (27% of project area). Typical plant communities include well drained western hemlock; warm, mesic grand fir, particularly east of the Cascade crest; and eastside western red cedar.

The Althouse Creek and Sucker Creek watersheds have not experienced large wildfire activity (100 acres or more) in over six decades. Therefore, throughout the project area, vegetation is uncharacteristically dense due in part to fire exclusion. Crown fire, particularly in mixed conifer forests has been of paramount concern in southwest Oregon due to the threat to life, property, and wildlife habitat from large-scale unpredictable wildfires. Hardwood and brush species, along with a litter of ground fuels, have provided a ladder for wildfires to consume the conifer overstory.

There are also areas of young and medium aged stands due to logging activities over the years. Many of the plantations would experience fire behavior similar to a shrub fuel model described below. Most of the medium and young aged stands are dense and over crowded, which create a forest with continuous fuels of various height, called ladder fuels.

Eighty-nine percent of the project area falls within the Wildland Urban Interface (WUI), defined as the area where structures and other human development meet or intermingle with undeveloped wildland (USDA, USDI 2001).

Fire Behavior Fuel Models

Most of the project area consists of shrub or timber group fire behavior fuel models (USDI 2005; USDI 2007). The timber fuels types that are mostly represented in the Althouse-Sucker project area resemble fuel models 8, 9 and 10. The shrub and brush groups closely resemble fuel models 4, 5, and 6. The shrub and timber fuel models are characterized as:

Shrub Group
Fire Behavior Fuel Model 4 - Intense, fast spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs,

six feet tall or more, are typical candidates. Besides flammable foliage, dead woody material in the stands contributes significantly to fire intensity. A deep litter layer may also hamper suppression efforts.

Fire Behavior Fuel Model 5 – Fire is generally carried in the surface fuels composed of litter cast by the shrubs, grasses, and forbs. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost completely cover the area. Young, green stands with no dead wood are also included in this group.

Fire Behavior Fuel Model 6 – Fuels are shorter and less dense than in fuel model 4, and therefore, require moderate winds, greater than eight miles per hour to carry fire. Fire will drop to the ground at low wind speeds or at openings in the stand.

Timber Group
Fire Behavior Fuel Model 8 - Slow burning ground fuels (twigs, needles, leaves) with low flame lengths are generally the case, although the fire may encounter small "jackpots" of heavier concentrations of fuels creating “flare ups”. Only under severe weather conditions, do the fuels pose a threat to initiate intense fire conditions. Closed canopy stands of short-needled conifers or hardwoods that have leafed out support fire in the compact litter layer.

Fire Behavior Fuel Model 9 - Fires run through the surface faster than in fuel model 8 and have a longer flame length. Both long-needle pine and hardwood stands are typical. Concentrations of dead, down woody material would cause possible torching, spotting, and crowning of trees.

Fire Behavior Fuel Model 10 - Fires burn in the surface and ground fuels with greater intensity than the other timber litter types. Stand development in the absence of fire disturbance creates a large load of heavy down, dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more likely to occur, leading to potential fire control difficulties (Anderson 1982).

Fire Hazard

Fire Hazard - Fire hazard ratings help prioritize fuel treatments. These ratings are based on vegetation type, fuel arrangement and volume, and condition of fuels and location; all are determinants of the potential for spread of a fire and the difficulty of fire control. Missed fire intervals, caused in part by decades of successful fire suppression, have created areas of dense vegetation, increasing the fire hazard.

The lowest portion of a tree crown and its relationship to the surface fuels are known as crown base height. When considered at the stand level, the lowest portion of the canopy and its relationship to the surface fuels is known as canopy base height (CBH) and is critical in the initiation phase or “torching” of crown fire events. The fuel volume in the upper strata of the vertical fuel layer is canopy bulk density (CBD).

Based on the fire hazard rating, canopy base height, and canopy bulk density, the potential for a large fire to occur is moderate to high across the project area. The hazard condition (Table 15) in the

project area reflects the history of fire exclusion and past clear cuts during the 1980s and 1990s that never received follow up fuel treatments.

Table 15 : Fire Hazard Ratings for the Althouse-Sucker Project Area

Fire Hazard Rating	BLM Lands (acres)	Percentage of Acres in each Category
Low	659	6%
Moderate	4,746	45%
High	5,088	49%

Data from Althouse Creek (2005) and Sucker Creek (2007) watershed analyses.

Fire Risk

Fire risk reflects the probability of ignition in the project area due to lightning or humans. Wildfires in the watershed have occurred predominately from mid-July through much of October, due to low relative humidity, low precipitation, and high ambient temperatures.

Although numerous fires have burned within the Althouse Creek and Sucker Creek watersheds, only one large fire (100 acres or more) has occurred since 1945 and none have occurred on BLM lands in those two watersheds in over 62 years. In 2002, the 499,965-acre Biscuit Fire burned to within 7 miles of the Althouse-Sucker project area, which indicates that there is the potential for large fires in the vicinity due to similar vegetation types and fuel loadings.

Table 16 below displays the fire risk rating of the BLM lands in the Althouse-Sucker project area.

Table 16. Fire Risk Ratings for the Althouse-Sucker Project Area

Fire Risk Rating	BLM Lands (acres)	Percentage of Acres in each Category
Low	1,695	16%
Moderate	6,012	57%
High	2,788	27%

Data from Althouse Creek (2005) and Sucker Creek (2007) watershed analyses.

3.3.2 Environmental Consequences

Method

In 2006, 8 plots were assessed based on surface fuels and stand information using a fuels modeling program (FMA+). From this information, canopy base height (CBH) and canopy bulk density (CBD) were determined for the stand. Wind speed data was collected from the Illinois Valley OR Remote Area Weather Station (RAWS) during a 6-year period from 2000-2006. The highest daily wind speed for each year was recorded during the 100-day fire season (July 15 to October 22) and averaged over the 6-year period. The Illinois Valley RAWS was used because it is the closest one to the Althouse-Sucker project area.

Current canopy and surface fuels information are then combined with historic weather and environmental conditions to estimate current crown fire potential. From the results of the FMA+ assessment, the change in fire behavior is modeled with the effects of the activities proposed in the action alternatives from the EA. Existing fire behavior is then compared to potential post treatment fire behavior (Pers. Comm. Martin 2006).

Alternative 1: No Action

Under the No Action Alternative, the trend of unnaturally dense vegetation, heavy ground fuels, and over stocked stands would continue(McKelvey et al. 1996), increasing fire hazard. Surface fuels would continue to increase due to tree mortality in dense stands, as higher levels of insect and disease mortality are expected. CBH would continue to decrease due to understory density increases, increasing the potential for crown fire initiation. CBD would continue to rise, increasing the potential for active crown fire events. The shift to more shade tolerant species would also continue within dense overstocked stands.

Based on vegetation, fuel profiles and climate data the FMA+ program show that on average, with no fuel reduction treatments during a 100-day fire season, there would potentially be: 31 days that would support active crown fires; 46 days that would support passive crown fires; 19 days that would support surface fires; and 4 days of no fire activity (Martin and Gonzales 2006). There are, on average, four days of the fire season when fuels are too wet to burn in a wildfire situation.

Alternative 2, 3 and 4

Alternative 2 would treat fuels on 949 acres and 188 acres in the LSR; all are within the Wildland Urban Interface (WUI) boundaries. Alternative 3 would treat fuels on 1,696 acres, 105 acres in the LSR, 84% within the Wildland Urban Interface (WUI) boundaries. Alternative 4 would treat fuels on 1,555 acres, 105 acres in the LSR, 86% within the Wildland Urban Interface (WUI) boundaries.

Stand Level

Stand level treatments, and thus effects, are similar for each alternative. All alternatives focus on the WUI, reducing fire hazard around homes and communities.

There has been concern that forest thinning does not reduce fire hazard. In the Althouse-Sucker project area, stands would be thinned to varying degrees, opening tree canopies, reducing crown bulk densities, and increasing crown base height. An increase in solar radiation on the forest floor may increase surface temperatures, decrease fine fuel moisture, decrease relative humidity, and increase surface wind speeds compared to untreated stands (Odion et al. 2004; Omi et al. 2002); thus, increasing fire hazard *if surface fuels are left untreated*. The Sierra Nevada Ecosystem Project Report (1996) addressed the effects of timber harvest, primarily clear-cuts on fire hazard (p.4): "Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other human activity *if not accompanied by adequate reduction of the fuels*" [emphasis added]. Past timber harvest activities often did not include the treatment of fuels generated by logging. As proposed in this project, treating activity fuels removes those fuels responsible for creating high fire hazard. All activity fuels would be treated as soon as possible (within 6-18 months), given prescribed burning weather, safety, and air quality constraints. Although ladder fuels have been reduced, a wildfire in a unit with residual logging slash would

exhibit flame lengths and fire line intensities that would make direct attack tactics difficult and would result in a high level of mortality to the overstory vegetation.

The proposed thinning treatments would reduce overall fuel loading and maintain or improve multi-aged stand structure and would not result in even-aged stands that Odion et al. (2003) suggest resulting in increased fire severity. Fuel hazard reduction included in the proposed action is specifically designed to reduce the risk of crown fire by reducing overall fuels and increasing the canopy base height (CBH). Furthermore, density-induced mortality would decrease, reducing the dead fuel component.

Criteria used to determine fuel treatment needs include field reconnaissance and professional judgment considering stand density, presence of ladder fuels, fuel accumulation, and proximity to communities at risk (CAR) or wildland urban interface (WUI) areas. Fuel hazard reduction included in the proposed action is specifically designed to reduce the risk of crown fire by reducing overall fuels and increasing the CBH. Furthermore, density-induced mortality would decrease, reducing the dead fuel component.

Initial Fuel Reduction: Slashing. Forest thinning greatly reduces the potential for surface fires transitioning to crown fires. Reducing canopy fuels and eliminating ladder fuels will decrease the probability that a crown fire will initiate and spread (Omi and Martinson 2002; Scott and Rhinehardt 2001; and Stephens 1998).

Initial Fuel Reduction: Hand Pile Burning. Hand pile burning is conducted in the late fall through early winter when surface and ground fuels are wet, greatly reducing the spread of surface fire. As a result of these wet burning conditions, it can be expected that ≤10% of each individual pile would not be consumed; leaving pile "rings" and that ≤5% of the piles on the site would not burn resulting in scattered pockets of surface fuels remaining on site. These residual fuels would be reduced with subsequent underburning treatments. Hand piles are generally burned the following fall or winter after they are constructed. However, piles would not be burned if piles do not have enough time to cure or if air quality objectives could not be met. In these situations, the piles would remain on site for one full burning season. Although ladder fuels have been reduced, a wildfire in a unit with hand piles present would exhibit flame lengths and fire line intensities that would make direct attack tactics difficult and result in a high level of mortality to the overstory vegetation.

Maintenance Underburning: It is estimated that maintenance burning throughout the project area would be on a 7-15 year rotation in areas classified as fire regime 1, and on a 10-30 year rotation for areas within fire regime 3A. Smoke emissions would be localized and below health hazard standards due to low fuel loadings. Mortality to the residual stand would be minimal (<5%), as fire line intensities would be low. Maintenance underburns would be scheduled to retain desired CBH, reduce ladder fuels, and reduce surface fuels as vegetation grows back and timber litter accumulates.

For all alternatives proposed treatments and maintenance underburning within the unit would change the fire behavior in treated areas due to increased CBH and the removal of ladder fuels. Using the same weather data, post EA treatment FMA+ program runs were done. Potential active crown fire days were reduced to 14 days, passive crown fire days reduced to 32, surface fires changed to 50 days of the fire season, and no fire days remained at 4.

Project Area
All alternatives focus on the WUI, reducing fire hazard around homes and communities. At the project scale, the difference in alternatives is the amount of total acres treated. Fuel hazard reduction activities would occur in strategic locations, such as interface areas, along roads, and ridge tops. These areas offer opportunities to directly attack fires, reducing the size of fires and protecting communities. They also create areas to safely back-burn during indirect attack strategies. Alternatives 3 and 4 also treat high hazard areas outside of the WUI. Therefore, a greater number of acres would shift from high hazard to low, protecting forest resources and wildlife habitat from potential high intensity wildfire. Treated stands also provide a greater number of acres for utilizing direct fire suppression tactics, which typically results in smaller fire size.

In the LSR, Alternative 2 proposes treating more acres, resulting in a greater number of acres with reduced understory competition for improved forest health and vigor. Further, fire hazard on approximately 80 more acres in the LSR would be converted to low fire hazard.

However, each alternative proposes to treat only a fraction of the watershed. Because only a fraction of the watershed would be treated, the risk of wildfire would remain high across the watershed. Treatment benefits would primarily occur within treated stands and would reduce fire size in instances where fires burn into defensible space located at strategic points.

Cumulative Effects

Fuel Reduction and Fire Behavior
Given the fact that fire hazard is high through much of the project area and a large wildfire (>100 acres) has not occurred in 60 years, the chance of a large, intense wildfire is likely over the next 10-20 years. Further, with more people living adjacent to public lands and population trends increasing in Josephine County, fire risk would continue to increase.

The proposed fire hazard reduction treatments of Alternatives 2, 3 and 4 would reduce fuel loadings, increase CBH, and reduce CBD. This would result in a substantial reduction to fire hazard and associated loss to values at risk.

Both the BLM and the U.S. Forest Service are planning young plantation thinning within the Althouse-Sucker watersheds. BLM proposes to treat 194 acres of young stand, reducing fuel loading and canopy bulk density. The Forest Service is planning 1,886 acres of thinning stands 80 year old and less, 300 acres of fuels reduction treatment, and 200 acres of pre-commercial thinning. Each activity would compliment BLM fuels reduction activity to reduce fire hazard.

3.4 Cultural

3.4.1 Affected Environment

Prior to Euro-American settlement in the 1850s, indigenous groups inhabited the region of what is now the Sucker-Althouse Creek project area. The planning area is located within the homelands of the Confederated Tribes of the Siletz and the Confederated Tribes of the Grand Ronde. The traditional area of the Siletz and Grand Ronde Tribes encompasses the north bank of the Rogue River and the entire area of the Illinois River watershed.

In 1851, the discovery of gold at the mouth of Josephine Creek coupled with a large influx of Euro-American migration, brought about tremendous changes to the area in and around the Illinois Valley. By 1853, gold miners were hard at work using hydraulic mining methods, altering large stream courses along Sucker, Althouse, and other tributaries of the Illinois River.

The upper Illinois Valley gold fields were soon known, collectively, as "Sailors Diggings". Entire towns sprang up overnight. The mineral resources of the Illinois Valley played an important role, not only for settlement of the valley, but in the social, economic, and governmental needs of the region.

Previous archaeological research in the project area includes two BLM management survey projects. Total acreage previously surveyed under these projects is 60 acres.

In the fall of 2006, BLM conducted and completed cultural resource surveys in the Sucker-Althouse project area. The surveys located three new sites and one isolate. The new sites located are historic and relate to early mining activities in the region. In addition, one prehistoric cultural resource site was located.

3.4.2 Environmental Consequences

Proposed management activities with the potential to effect cultural resources include timber harvest, fuels treatments, and road construction.

Alternative 1: No Action

The current level of cultural resource site protection would be maintained. However, under this alternative, fuel loads would continue to increase, placing certain cultural resources at risk due to the increased potential of a wildland fire.

Alternatives 2, 3 and 4

Effects of the proposed projects on cultural resources are common to Alternatives 2, 3 and 4. Ground-disturbing activities resulting from timber harvest and road construction have the potential to destroy cultural resource sites. Project design features for cultural resource site protection consists of felling trees away from the site and placing a protection buffer around the site boundary within which no activities would be permitted. Therefore, the cultural resource site would be protected and there are no anticipated direct effects.

Additionally, fuels reduction prescriptions could have an affect on cultural resource sites. In particular, some historic sites containing wood features are at risk of ignition. All recorded cultural resource sites in proposed fuels treatment areas would be protected by placing a flagged buffer around the site perimeter; therefore, there are no anticipated effects.

While protection buffers prevent direct effects to cultural resources, the reduction of vegetation through timber harvest, thinning, and fuels treatments may increase site visibility, which potentially could lead to vandalism and looting of cultural sites. BLM annually monitors recorded cultural sites; and if looting or vandalism is evident, law enforcement is notified.

Cumulative Effects

Vegetation removal and fuel reduction would reduce the chance of wildfire disturbance to sites, but may increase site visibility. Effects from increased visibility are uncertain as human behavior is unpredictable. However, through routine monitoring, the district would identify signs of vandalism and appropriately contact law enforcement for corrective measures.

While not quantified, past and current mining activity has damaged cultural resource sites. The assessment assumes cultural site disturbance on private lands due to development, mining, and timber harvest. Within the Althouse-Sucker project activity areas, all known cultural sites and those identified during project implementation would be protected. Therefore, this project would not add to past, current, or future cultural resource disturbances.

3.5 Wildlife

3.5.1 Affected Environment

Several wildlife related issues associated with the Althouse-Sucker Project area have been identified which are addressed in this section. These key issues are:

1) Forested stands are naturally fragmented by serpentine influenced soils and edaphic vegetation communities.
2) A portion of the project is within a designated spotted owl critical habitat (CHU OR-72), which provides important east-west and north-south intra-provincial connectivity.
3) Threatened and Endangered (T&E) wildlife species and their habitat are located within the project area.
4) Survey and Manage species and their habitat are located within the project area.

Impacts to wildlife from the proposed actions are measured by changes to stand structure in different habitat types. Effects to species are linked to the changes in acres and stand structures within the habitat types.

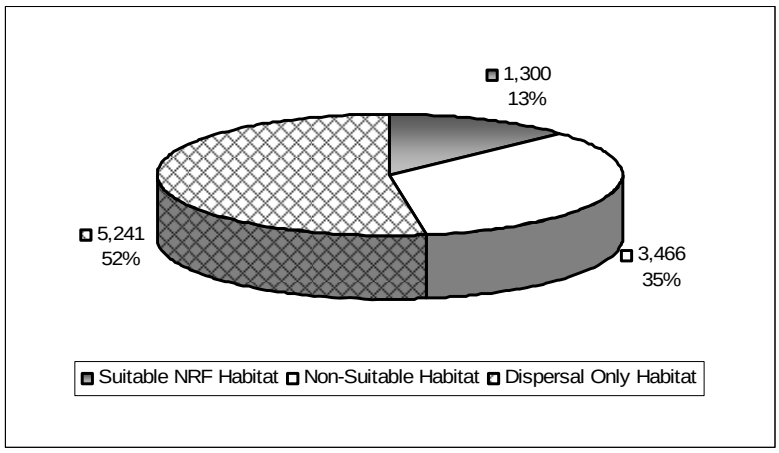
Habitats within the project area include: riparian, early seral forest, mid-seral forest, late-successional forest, rock outcrops/talus, snags, and down wood. Chappell and Kagan (2001) describe upland habitats within southern Oregon as southwest Oregon Mixed Conifer-Hardwood Forest. Only federally listed, Survey and Manage, Bureau Sensitive, or Bureau Assessment species known or suspected to be present within the project area and impacted by the proposed actions are addressed in this EA. Appendix D provides additional information on special status species known or suspected to occur within the Grants Pass Resource Area.

<u>Threatened and Endangered and Candidate Species</u>

Northern Spotted Owl (Federally Threatened)
Northern spotted owls (NSO) are closely associated with old forests for nesting, foraging, and roosting throughout most of their range (Forsman et al. 1984; Carey et al. 1990; and Solis and Gutierrez 1990). Spotted owl habitat within the project area was typed utilizing the McKelvey

rating system, which has six levels of habitat classification (See Appendix D). Suitable spotted owl nesting, roosting, and foraging habitat (NRF) is classified as McKelvey rating 1 and 2 and represents our best internal method to classify late-successional forest habitat. NRF habitat is characterized by forested stands with older forest structure, multiple canopy layers, and a canopy closure of 60 percent or greater. The best quality NRF habitat has large old trees with cavities, broken tops or mistletoe platforms, large branches, dead standing and fallen decayed trees, and multiple canopies of shade tolerant hardwoods and conifers that support prey base. NRF habitat can also function as dispersal habitat. Dispersal-only habitat for spotted owls (McKelvey 5 and 6) is defined as stands that have a canopy closure of 40 percent or greater, and are open enough for flight and predator avoidance. Dispersal-only habitat is used throughout this document to refer to habitat that does not meet the criteria of NRF (nesting, roosting, or foraging) habitat, but has adequate cover to facilitate movement between blocks of suitable NRF habitat. Unsuitable habitat does not currently meet the NRF or dispersal-only habitat criteria. Approximately 1,300 acres (13%) of suitable NRF habitat, 5,241 acres (52%) of dispersal only habitat, and 3,466 acres (35%) of non-suitable habitat exists on BLM lands within the Althouse-Sucker Project Area (Figure A).

Figure A: Owl Habitat within the Althouse-Sucker Project Area



There are eight historic spotted owl sites within the Althouse and Sucker Creek 5th field watersheds. Of these, seven are designated Known Spotted Owl Activity Centers (KSOACs), with approximately 100 acre core areas. The KSOACs were established by Standards and Guidelines of the Northwest Forest Plan to protect the 100 best northern spotted owl habitat acres in close proximity to nest sites or activity centers, known to exist as of January 1, 1994 (NWFP, p. C-10). While there is no requirement to survey for spotted owls prior to taking action, BLM surveyed all eight NSO sites within the project area at least once in 2005, 2006, and limited surveys were conducted prior to 2005. Only two of the eight sites within the project area were occupied with pairs in the last two years, and only one of these two sites nested in the last two years. Additionally, one new nest was located within the project area during 2007, but not within a unit proposed for treatment. This new location is likely an alternate site for one of the 8 known historic sites.

The barred owl is a known competitor of spotted owls. No coordinated surveys for barred owls have occurred in the Medford District, nor are any planned at this time. All barred owl observations on the resource area are from incidental observations. There have been no incidental barred owl observations in the project area.

Spotted Owl Critical Habitat/ Late-Successional Reserve

Approximately 1,944 acres in the northeast portion of the project area are within the designated spotted owl Critical Habitat Unit OR-72. CHU OR-72 is located on the Medford District BLM and the Siskiyou National Forest. As a whole, CHU OR-72 provides a very important east-west and north-south intra-provincial (Klamath Mountains Province) connectivity in an area of high fragmentation. The high fragmentation is a result of the geology, fire history, ownership patterns, and past management practices. These same acres within the project area are also within the East IV/Williams-Deer Late-Successional Reserve. The CHU/LSR portion of the Althouse-Sucker Project Area contains 15 acres of suitable NRF habitat, 1,492 acres of suitable dispersal-only habitat, and 437 acres of non-suitable habitat.

Spotted Owl Prey

Dusky-footed woodrats, the primary prey species for spotted owls in southwest Oregon, are found in high densities in early seral or edge habitat (Sakai and Noon 1993). Down wood is an important habitat feature for these major prey species in southwest Oregon. Dusky-footed woodrats build stick nests, sometimes incorporating logs as part of the structure. Northern flying squirrels are another major source of owl prey in southwest Oregon, while red tree voles (RTV) comprises only 2.6 % of the diet of spotted owls in this area (Forsman 2004).

Fisher (Federal Candidate)

The Pacific fisher was petitioned for listing as endangered or threatened under the Endangered Species Act on three occasions. In 2004 and 2006, the USFWS determined that listing fishers as threatened was warranted, but was precluded by higher priority listing actions (Federal Register Vol. 69, No. 68, April 8, 2004, 18769-18792). In their 2006 update on the status of the Pacific fisher, the USFWS defined the reasons for listing as: "Major threats that fragment or remove key elements of fisher habitat include various forest vegetation management practices such as timber harvest and fuels reduction treatments. Other potential major threats include: Stand-replacing fire, Sudden Oak Death Phytophthora, urban and rural development, recreation development, and highways" (Federal Register Vol. 71, No. 176, Sept. 12, 2006, 53777). The USFWS also states that the three remaining fisher populations "appear to be stable or not rapidly declining based on recent survey and monitoring efforts." (Id.) The species remains a USFWS candidate species (USDI, USFWS 2004, 2006).

In the western United States, fishers are associated with extensive mature conifer forests and elements, such as old live trees, snags, and large fallen trees are required (Buck et al. 1994; Harris et al. 1982; Rosenberg and Raphael 1986; Weir and Harestad 2003; Zielinski et al. (in press); and Zielinski et al. 2004). Fishers are associated with low to mid-elevation forests with a coniferous component, large snags or decadent live trees, large fallen trees for denning and resting, and complex physical structure near the forest floor, which provide habitat for fisher prey (Aubry and Lewis 2003). Mckelvey habitat ratings 1 & 2 used above to describe suitable spotted owl NRF habitat also adequately describes suitable fisher denning and resting habitat because there is a direct correlation of key habitat features captured in the rating system and fisher habitat (high canopy cover, multi-storied stands, large snags, and large down trees on the forest floor). Based on the McKelvey habitat analysis, approximately 1,300 acres of suitable fisher denning and resting habitat exist within the units proposed for treatment in the Althouse-Sucker Project Area. The eastern portion of the project area provides the best potential for suitable denning and resting habitat due to the larger blocks of contiguous habitat. While older forest stands in the project area may provide

suitable habitat, most occur in fragmented patches. Suitable fisher denning and resting habitat is limited in the project area due to fragmentation as a result of past harvests, BLM checkerboard ownership, and natural serpentine influence. BLM checkerboard ownership may be one of the primary factors limiting the ability of BLM lands to provide optimal habitat for fishers (USDA and USDI 1994b).

Forest carnivore surveys using bait stations with motion and infrared detection cameras have been conducted throughout the Grants Pass Resource Area and have detected fishers in the vicinity of Williams, the top of the Deer Creek drainage, and near Galice Creek. Surveys have also been conducted in the project area (T40S-R7W-Sections 13 and 15), but no fishers were detected. Even though fishers have not been detected in the project area, fishers are suspected to occur within the project area due to the detections of fishers in adjacent watersheds. The nearest known fisher location on BLM is approximately 8 miles northeast of the proposed action.

Survey and Manage Species

Species were removed from the Survey and Manage list under the "To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl" (2004 ROD). However, a 1/9/06 Court Order in Northwest Ecosystem Alliance et al. v. Mark Rey et al. resulted in the reinstatement of the Survey and Manage Standards and Guidelines (2001), including any amendments or modifications to the 2001 ROD that were in effect as of March 21, 2004. As a result of this ruling, S&M requirements for the Red tree vole and the Great gray owl are in effect in the Grants Pass Resource Area (GPRA). In 2007, the Agencies prepared the 2007 *Final Supplement to the 2004 FSEIS To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (Final Supplement). The resulting July 2007 ROD once again removed Survey and Manage mitigation requirements. However, since the information is still relevant and available, these species are discussed in this EA.

Red Tree Vole

The red tree vole (RTV) is an arboreal rodent species with very low dispersal capabilities. Red tree voles depend on conifer tree canopies for nesting, foraging, travel routes, escape cover, and moisture (Carey 1991). Douglas-fir needles provide the primary food and building materials for nests (USDA, USDI 2000). The broad management objective for this species is to retain sufficient habitat to maintain its potential for reproduction, dispersal, and genetic exchange. Approximately 1,120 acres proposed for treatment within the Althouse-Sucker Project Area qualify as suitable RTV habitat (RTV Protocol Version 2.1, October, 2002). RTV surveys were completed in all suitable RTV habitat in 2007. Protocol surveys located 26 active and 18 inactive nests.

Great Gray Owl

Great gray owls nest in open forests adjacent to meadows. Broken top trees, abandoned raptor nests, mistletoe clumps, and other platforms provide suitable nest trees (USDA, USDI 2004a). Two-year protocol surveys were completed in 2002 in the best suitable nesting habitat found within the project area, but no great gray owls (GGOs) were detected. Since the late 1990s, 12 landscape management project areas evenly distributed across the GPRA have been surveyed for GGOs using the two-year survey protocol (USDA, USDI BLM 2004a). Only one project area within the GPRA, east of Williams, has documented nesting GGOs. Additionally, no nesting territories have been

detected west of Williams on Forest Service, other BLM in GPRA, and no GGO nest sites have been documented in the Glendale Resource Area to the north.

Bureau Sensitive Species

On July 26, 2007 a new Special Status Species list went into affect (IM No. OR-2007-072). This new list has two categories, Sensitive and Strategic. The former categories of Bureau Assessment and Bureau Tracking no longer exist. As a result, species were removed from the list and no additional species have been added at this time. Since the information is still relevant and available, former Bureau Sensitive and Assessment species are addressed in this EA. As mentioned above, only federally listed, Survey and Manage, Bureau Sensitive, or Bureau Assessment species known or suspected to be present within the project area are addressed in this EA. Appendix D provides additional information on special status species known or suspected to occur within the Grants Pass Resource Area.

Bald Eagle

On August 8, 2007, the USDI Fish and Wildlife Service removed the Bald Eagle from the Federal List of Threatened and Endangered Wildlife (Federal Register Vol. 72, No. 130, July 9, 2007, 37346 -37372), but remain as a Bureau Sensitive species. Bald eagles nest in large trees, usually within one mile of large bodies of water (USDI 2003). Suitable nesting habitat is present within the project area. Bald eagles have been observed within the project area; however, no nests have been located at this time. Althouse and Sucker creeks have high fisheries values and may provide foraging opportunities for bald eagles.

Northern Goshawks

A former Bureau Sensitive species, the Northern goshawk is found in a variety of mature, deciduous and coniferous forest types (Marshall et al. 2003). This habitat exists within the Althouse-Sucker Project Area; however, goshawks are rarely found in the Grants Pass Resource Area (GPRA), likely due to the brush and small tree component found in the understory of most stands that has likely resulted in part from fire exclusion. Heavy shrub layers are believed to inhibit goshawk foraging (Reynolds and Meslow 1984; and Crocker-Bedford 1990). There are no historic records of goshawks nesting in the watershed. Limited surveys conducted in the project area found no goshawks or nests. One incidental observation of an unknown accipiter (genus of forest hawks, including the goshawk) occurred within the project area; however, goshawks were not observed on follow-up surveys to the area. The only known historic goshawk nest in the GPRA is near Galice, which is over 25 miles northwest of the Althouse-Sucker Project Area.

Bats

Bats use live tree and snag cavities, as well as rock crevices, mines, caves, stumps, loose bark, bridges, buildings, and other protected sites (Verts and Carraway 1998). Townsend's big-eared bats (Bureau Sensitive) hibernate in caves and mines during winter (Sherwin 1998). Mine adits associated with the Tip Top Mine Complex (40S-7W-Section 11) provide suitable roosting habitat and have been used as a maternity roost and a hibernacula (hibernating site). Mine adits associated with the Blind Sam Mine Complex (40S-7W-Section 17) also provide potential roosting within the project area. Limited surveys have been conducted at the Blind Sam Complex, but one Townsend's big-eared bat was observed in 1 of the adits in 1991. The fringed myotis and pallid bat, also Bureau Sensitive bat species, are associated with late-successional habitat, and suspected to occur within

the project area. Three additional bat species (the silver-haired bat, long-eared myotis, and long-legged myotis) are listed in the NWFP as protection buffer species (USDA and USDI 1994a, b) and are also associated with older stands. Older forest stands receive greater use by bats due to the availability of roosts, a complex vertical structure, and less clutter. Dense stand conditions existing within the project area negatively affect bats by causing echolocation interference, cluttered flight paths, and reducing access to snags (pers. comm. J. Hayes 2003).

Mollusks

Potential habitat exists throughout the project area for two former Survey and Manage mollusks, *Helminthoglypta hertleini* and *Monadenia chaceana.* Since the late 1990s, more than 15 landscape management project areas throughout the Grants Pass Resource Area have been surveyed for these 2 species using the terrestrial mollusk survey protocol (USDA and USDI 1997 and USDA and USDI 2003a, b). Surveys have revealed no detections of *Monadenia chaceana* and only three detections of *Helminthoglypta hertleini* in the GPRA (one east of Williams and two north of Grants Pass). *Helminthoglypta hertleini* (currently a Bureau Sensitive species) utilizes rocky areas, including talus deposits and outcrops, which contain stable interstitial spaces large enough for snails to enter. Previous GPRA detections were found in rocky areas associated with damp grassy areas, oak woodlands, and shrub lands, or in conifer forests closely associated with these habitat types. *Monadenia chaceana* (currently a Bureau Sensitive species) is associated with rocky areas, talus deposits, associated riparian areas, and coarse woody material (Mollusk protocol version 3.0, 2003). Surveys are no longer required for these species in the GPRA; however, all lands identified for commercial timber harvest within the Althouse-Sucker Project Area were surveyed for these former Survey and Manage mollusks in the spring of 2007. No former S&M mollusks were located.

Additional Species and Habitats of Concern

Land Birds (Neotropical Migrants and Year-Round residents)

Land birds use a wide variety of habitats, including late-successional forests, riparian areas, brush in recovering clear-cuts, and small trees in developing stands. Some birds, such as the Olive-sided Flycatcher, use residual canopy trees for perching and forage over adjacent clear-cuts. Some of the recovering clear-cuts and Jeffery pine savannahs in the project area with lower tree and shrub heights would provide these optimal foraging conditions. Many land birds are associated with deciduous shrubs and trees in early successional habitats (i.e., Orange Crowned Warblers and Rufous Hummingbirds).

All neotropical migrants go to Central or South America each year. They are addressed here due to widespread concern regarding downward population trends, habitat declines, and to comply with the Migratory Bird Treaty Act. No migrants found on the Medford District BLM are listed as endangered or threatened, but some are USFWS identified species of conservation concern (Federal Register July 10, 2003 Vol. 68, No. 25, 6179). Six of the birds on this list (Table 17) are known to occur on the Medford District BLM (USDI USFWS 2002). Neotropical birds, as a group, are not special status species.

Table 17: Birds of Conservation Concern for Medford District BLM	
Species	**Presence in the Althouse-Sucker Project Area**
Peregrine Falcon	No Suitable Nesting Cliffs (may forage in project area)
Flammulated Owl	Unknown
Olive-sided Flycatcher	Present
Rufous Hummingbird	Suspected
Lewis' Woodpecker	Present
White-headed Woodpecker	Unknown

Resident birds remain in the same general area (e.g., the Pileated Woodpecker) or migrate to lower elevations in the winter (e.g., the Dark-eyed Junco). Total numbers of late-successional dependent migratory or resident birds within the Althouse-Sucker Project Area are unknown. However, even though BLM does not know the precise number of individual birds in the two watersheds, Partners in Flight support the ecoregional scale, as appropriate, for analyzing bird populations (http://www.partnersinflight.org/description.cfm). Breeding bird surveys in the Southern Pacific Rainforest Physiographic Region (which includes western Oregon) indicate that songbirds are declining. However, the exact cause of these declines is still unclear, but issues associated with their winter grounds are suspected to be an important factor (Sauer et al. 2004; Pers. comm. Alexander 2005).

Del Norte Salamanders (Former S&M)
The 2001 Annual Species Review (ASR) removed this salamander from the Survey and Manage list. However, prior to the 2001 ASR, the 2001 S&M ROD changed Del Norte salamanders to Category D species, which required management of known sites, but not pre-disturbance surveys. Rock and talus habitat used by Del Norte salamanders is sporadically distributed throughout the project area, occurring primarily near rock outcrops, ridge tops, and riparian areas. There have been two incidental Del Norte observations within the project area. Sites located within commercial harvest units have been buffered according to management recommendations and are compliant with the 2001 ROD before ASRs were implemented.

Jeffery Pine Savannahs/Oak Woodlands/Meadows

Jefferey pine and associated serpentine meadows, as well as some oak woodlands are located within the project area, primarily in the Althouse 5th field watershed. These habitat types are declining due to dense conditions from lack of fire and encroaching brush species and conifers. Dense stands of wedgeleaf ceanothus and manzanita are common throughout the project area. The lack of fire or other disturbance has led to decadent and less productive forage for big game species and a reduction of open foraging conditions for Great gray owls.

3.5. 2 Environmental Consequences

<u>Alternative 1: No Action</u>

Late-Successional Forest Habitat
Under Alternative 1, no proposed activities would occur. Wildfire would remain the most immediate hazard to late-successional forest habitat and associated species (Courtney et al. 2004). Current stand conditions reflect past fire suppression efforts. Fuel loading and ladder fuel

conditions make the existing late-successional habitat susceptible to higher fire severity potential. High severity fires remove or downgrade habitat randomly across the landscape, setting back succession and development and likely resulting in the loss of large tree structure critical to late-successional forest habitat dependent species. Existing dense stand conditions would also negatively affect bats by reduced access to snags due to cluttered flight paths, which causes echolocation interference (Pers. comm. J. Hayes 2003). High severity fires resulting from these dense stand conditions may cause more severe impacts to soils, which may prolong the recovery and colonization of mycorrhizae processes and macroinvertebrate and small mammalian prey food webs important to suitable foraging areas for spotted owls.

The current development trend of stands toward late-successional forest habitat under Alternative 1 is uncertain. In southwest Oregon, the reduction in fire frequency has reduced the role of fire as an ecological factor, influencing stand development and altering historic forest structures, processes, and functions. The development of large tree structure comparable to that of remnant trees used by late-successional dependent species is not likely to occur. This is because current stand conditions are too dense and trees are not developing the diameter to height ratio required to develop this structure. This ratio was historically created through frequent fire events that reduced stem densities and competition that created open grown conditions. Other disturbances, such as insect infestations, diseases, and windthrow, would have historically thinned out stands, created gaps, and created more complex stand structure. Current stand conditions would likely develop into less complex stand structures and species compositions than that of old-growth stands (Sensenig 2002).

Under the No Action Alternative, many wildlife species would be negatively affected because of the increased chance of losing suitable habitat through stand replacing fires. Specifically, the greatest risk of no action is the wildfire related loss of large live remnant conifers, snags, down wood, and hardwoods that are important to fisher natal and maternal denning sites, as well as spotted owl and eagle nest trees. Some neotropical birds that favor dense conditions may benefit from the No Action Alternative because the dense understories would continue to build within the project area. The increased chance of stand replacing fires as a result of no action could also lead to the loss and decline of these favored dense habitat conditions.

Jeffery Pine Savannahs/Oak Woodlands/Meadows

Under the No Action Alternative, Jeffrey pine savannahs, serpentine meadows, and white oak woodlands would continue their declining trend. The invasion and encroachment by fire intolerant species has resulted in high stem densities, composed primarily of shrubs, which shade out native grasses. These savannahs and meadows lack their historic abundance of grasses, which has changed these plant communities, negatively affecting wildlife species, such as the flammulated owl and western blue bird. The No Action Alternative would fail to address the need to return fire to these fire-dependent plant communities and maintain these unique habitats within the project area and the watershed. Additionally, the lack of fire or other disturbance has led to decadent and less productive forage for big game species. The brush species that provide forage for big game species would be expected to continue to decline. The increased density of decadent wedgeleaf ceanothus would also reduce movement and limit travel for big game species. Additionally, meadows within the project area that provide suitable foraging habitat for great gray owls would continue to be encroached upon by fire intolerant plant species, thereby reducing potential foraging opportunities.

Road Work
No roads would be constructed under the No Action alternative; therefore, no habitat or species effects are anticipated as a result of road activities.

Alternatives 2, 3, and 4

The following discussion describes relevant effects that each alternative would have on wildlife species and their habitat. The effects analysis for wildlife species is organized by vegetation treatment and road work for each alternative. Only Federally listed, Survey and Manage, Bureau Sensitive, or Bureau Assessment species known or suspected to be present within the project area and impacted by the proposed actions are addressed in this EA. For each species, general effects to species and habitat are listed first, followed by site specific effects by alternative.

A. Effects to Wildlife from Vegetation Treatments

Threatened and Endangered and Candidate Species

Northern Spotted Owls
Treatments proposed in all three action alternatives would remove, downgrade, and maintain suitable spotted owl habitat. Consultation with the USFWS is ongoing, and all action alternatives would be a "May Affect, Likely to Adversely Affect" to spotted owls. In Critical Habitat Unit OR-72, suitable habitat would be treated and maintained and would not be removed, which would be a "May Affect, Not Likely to Adversely Affect" to designated spotted owl critical habitat.

The proposed habitat modification associated with all action alternatives could affect individual adult spotted owls or young, such that their normal behavior, survival, and/or reproduction might be compromised. The loss of key habitat features would increase the likelihood of spotted owls in the project area to be subject to: displacement from nesting areas; increased competition of suitable nest sites; decreased survival due to increase predation and/or limited forage availability; reduction of future nesting opportunities; and reduction of dispersal capabilities (USDI 2006). Recent landscape-level analyses suggest that a mosaic of late-successional habitat interspersed with other vegetation types may benefit northern spotted owls more than large, homogeneous expanses of older forests (Franklin et al. 2000; Meyer et al. 1998). Additionally, home ranges composed entirely of pristine old forest may not be optimal for spotted owls in the Klamath province and Oregon Coast Range (Courtney et al. 2004). Therefore, even with the proposed habitat modification, a mosaic of habitat types (nesting, roosting, and foraging, as well as non-habitat) would still exist within the home ranges of the known spotted owl sites within the project area. The proposed harvest in all action alternatives would not preclude spotted owls from nesting within the project area, because NRF habitat would still be retained in untreated areas including Known Spotted Owl Activity Centers and untreated riparian buffers. Additionally, season restrictions listed as Project Design Features would prevent disturbance to nesting spotted owls within the project area.

In addition to timber harvest units, hazard trees (per OSHA requirements) along haul roads would also be harvested. The impact on habitat of hazard tree removal would be negligible, because the scope would be small in comparison to the total project area (< 1 %). Hazard trees that need to be felled in the LSR or Riparian Reserves would be left on site to meet the additional coarse woody debris guidelines for these reserve area.

This analysis considered new information presented in the *Scientific Evaluation of the Status of the Northern Spotted Owl* (Sustainable Ecosystems Institute, Courtney et al. 2004 (discussed above); *Status and Trends in Demography of Northern Spotted Owls, 1985-2003* (Anthony et al. 2004); *Northern Spotted Owl Five Year Review: Summary and Evaluation* (USFWS, November 2004); and *Northwest Forest Plan – The First Ten Years (1994-2003): Status and trend of northern spotted owl populations and habitat, PNW Station Edit Draft* (Lint, Technical Coordinator 2005). To summarize these reports, although the agencies anticipated a decline of NSO populations under land and resource management plans during the past decade, the reports identified greater than expected NSO population declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California. The reports did not find a direct correlation between habitat conditions and changes in NSO populations, and they were inconclusive as to the cause of the declines. Lag effects from prior harvest of suitable habitat, competition with barred owls, and habitat loss due to wildfire were identified as current threats; West Nile Virus and Sudden Oak Death were identified as potential new threats. Complex interactions are likely among the various factors affecting spotted owls throughout their range. This information has not been found to be in conflict with the NWFP or the RMP (Evaluation of the Medford RMP Relative to the Four Northern Spotted Owl Reports, August 24, 2005).

This analysis also considered new information presented in the Draft Recovery Plan for the Northern Spotted Owl (USDI 2007). Specifically, this draft recovery plan identified barred owls as the greatest threat to the recovery of the spotted owl. BLM has no control over barred owls or their encroachment into NSO habitat, but has considered their effects on spotted owls in this EA as a part of the *context* in which project impacts would occur. The best information we have to date is how barred owls have impacted spotted owls at the provincial level. Currently, it is unclear whether forest management influences the outcome of interactions between barred and spotted owls (Courtney et. al. 2004).

Effects to CHU-72 and East IV/ Williams-Deer LSR

Under all action alternatives, 144 acres of suitable spotted owl habitat within the CHU and LSR would receive hazardous fuels treatments (15 acres of NRF habitat and 129 acres of dispersal-only habitat). The proposed action would treat and maintain suitable NRF and dispersal-only habitat because key habitat characteristics (canopy cover, coarse large wood, etc.) would remain after project implementation. Long term beneficial effects to the CHU and LSR would be expected, as these treatments are designed to reduce the severity and rate of spread of large, stand-replacing fires capable of removing suitable spotted owl habitat (USDI 2006).

Effects to Spotted Owl Prey Species

Treatments associated with all action alternatives that would remove, downgrade, or maintain spotted owl habitat may also impact foraging by changing habitat for spotted owl prey species (USDI 2006). Residual trees, snags, and down wood retained in the thinned stands would provide some cover for prey species over time and would help minimize harvest impacts to some prey species, such as dusky-footed woodrats. Structural retention harvest would remove suitable habitat for arboreal prey species (flying squirrels, red tree voles), but may improve habitat for non-arboreal species (western red backed voles and deer mice). Treatment implementation would be spread out temporally and spatially within the project area, which would provide areas for spotted owl foraging during project implementation and reduce the impact of these short term effects at the project level. Northern spotted owls seldom venture far into non-forested stands to hunt. However, edges can

provide better hunting opportunities for owls due to the increased vulnerability of the prey and easier access to the prey (Zabel 1995).

Alternative 2

Structural retention treatment type would result in the loss of 379 acres of suitable NRF spotted owl habitat and the loss of 219 acres of suitable dispersal-only habitat (See Table 18). These acres would not be expected to provide suitable nesting or dispersal-only habitat for many years post-treatment (USDI 2006). Specific key habitat elements removed would include large-diameter trees with nesting cavities or platforms, multiple canopy layers, adequate cover, and hunting perches (USDI 2006). Approximately 670 acres of suitable NRF habitat within the project area (including all KSOACs) would not be treated. Additionally, suitable habitat would also be retained in RTV and riparian buffers within units. These acres would continue to provide NRF habitat throughout the project area for nesting owls in the future.

Table 18: Summary of Effects of All Alternatives on Spotted Owl Habitat Within the Althouse-Sucker Project Area

Alternative	NRF Removed	NRF Downgraded	NRF Treated and Maintained	NRF No Treatment	Dispersal Only Habitat Removed	Dispersal Only Habitat Treated and Maintained	Dispersal Only No Treatment
Alt. 1	0	0	0	1,300	0	0	5,241
Alt. 2	379	192	59	670	219	1,189	3,833
Alt. 3	28	205	341	726	122	2,527	2,592
Alt. 4	379	192	181	548	219	2,438	2,584

NRF removed denotes that canopy closure is reduced to < 40% in nesting, roosting or foraging habitat resulting in non-suitable habitat. NRF downgraded denotes that the NRF habitat has been downgraded to dispersal-only habitat because 40 to 59% canopy cover would be retained post harvest. NRF treated and maintained denotes that habitat is degraded but still provides nesting, roosting or foraging habitat and 60% canopy cover would be retained. Dispersal removed denotes that canopy closure is reduced to < 40% in dispersal habitat resulting in non-dispersal habitat.

Alternative 2 would downgrade 192 acres of suitable NRF habitat to dispersal-only habitat through commercial thinning/ Group Selection (CT/GS) treatments. These acres would no longer be suitable NRF habitat due to the loss of potential nest trees and the reduction of canopy closure. Alternative 2 would treat and maintain 59 acres of NRF habitat and 1,189 acres of dispersal-only habitat. Treatments that maintain spotted owl habitat would reduce the canopy cover within the stand, but would still function as spotted owl habitat post treatment because enough canopy cover and key habitat features would be retained (USDI 2006). Approximately 3,833 acres of dispersal-only habitat within the project area would not be treated and would continue to provide suitable dispersal habitat. These untreated areas would continue to facilitate owl dispersal within and throughout the watershed, reducing the impacts from this project. Additionally, suitable dispersal habitat would also be found in untreated suitable NRF habitat within the project area.

<u>Effects to CHU-72 and East IV/Williams-Deer LSR</u>

Under Alternative 2, no young stands within the CHU and LSR would be treated to speed the trajectory of late-successional habitat characteristics within these stands. Stem densities are

high in young stands, placing them at an increasing risk of accelerated density related mortality and increased fire severity (Sensenig 2002). Without treatment, these young stands would likely develop stand structures and species compositions very different than that of old-growth stands. Therefore, under Alternative 2, long term beneficial effects to the CHU and LSR would be expected to only occur in areas receiving fuels treatments.

Effects to Spotted Owl Prey Species

Alternative 2 would treat 2,038 acres of spotted owl habitat (NRF and dispersal-only), which also represent areas of potential foraging opportunities. Approximately 242 acres of this total would be treated adjacent to Known Spotted Owl Activity Centers, which represents the closest potential foraging areas outside of the 100 acre core areas that could be affected from the proposed actions.

Alternative 3

Alternative 3 would remove the least amount of spotted owl habitat within the project area of the action alternatives. Structural retention harvest proposed in Alternative 3 would remove 28 acres of NRF and 122 acres of dispersal-only habitat (Table 17). These acres would not be expected to provide suitable NRF or dispersal-only habitat for many years post-treatment (USDI 2006). Specific key habitat elements removed would include large-diameter trees with nesting cavities or platforms, multiple canopy layers, adequate cover, and hunting perches (USDI 2006). Approximately 726 acres of suitable NRF within the project area (including all KSOACs) would not be treated. Additionally, suitable habitat would also be retained in RTV and riparian buffers within units. These acres would continue to provide NRF habitat throughout the project area for nesting owls in the future.

Alternative 3 would downgrade 205 acres of suitable NRF habitat to dispersal-only habitat through CT and CT/ModGS treatment types. These acres would no longer be suitable for nesting due to the reduction in canopy closure and the loss of potential nest trees. Alternative 3 would treat and maintain 341 acres of NRF habitat and 2,527 acres of dispersal-only habitat. Treatments that maintain spotted owl habitat would reduce the canopy cover within the stand, but would still function as spotted owl habitat post treatment (USDI 2006), because enough canopy cover and key habitat features would be retained. Approximately 2,592 acres of dispersal-only habitat within the project area would not be treated and would continue to provide suitable dispersal habitat. These untreated areas would continue to facilitate owl dispersal within and throughout the watershed, reducing the impacts from this project. Additionally, suitable dispersal habitat would also be found in untreated suitable NRF habitat within the project area.

Effects to Spotted Owl Prey Species

Alternative 3 would treat 3,223 acres of spotted owl habitat (NRF and dispersal-only), which also represent areas of potential foraging opportunities. Approximately 508 acres of this total would be treated adjacent to Known Spotted Owl Activity Centers, which represents the closest potential foraging areas to these 100 acre core areas that could be affected from the proposed actions.

Effects to CHU-72 and East IV/ Williams-Deer LSR

Under Alternative 3, 187 acres of young stands within the CHU and LSR would be treated (31 acres of dispersal-only habitat and 156 acres of non-suitable habitat). Long term beneficial

effects are expected to the CHU and LSR, especially in the young stands, as these treatments would accelerate the trajectory towards late-successional habitat conditions in these stands.

Alternative 4

The amount of spotted owl NRF removal, NRF downgrade, and dispersal-only removal would be the same as described in Alternative 2. However, Alternative 4 would treat and maintain more NRF habitat and dispersal-only habitat, 181 and 2,527 acres respectively (Table 17). Approximately 2,584 acres of dispersal-only habitat within the project area would not be treated and would continue to provide suitable dispersal habitat. These untreated areas would continue to facilitate owl dispersal within and throughout the watershed, reducing the impacts from this project. Additionally, suitable dispersal habitat would also be found in untreated suitable NRF habitat within the project area.

Effects to Spotted Owl Prey Species

Of the 3 action alternatives, Alternative 4 would treat the most spotted owl habitat (NRF and dispersal-only) within the project area (3,409 acres), which could result in the greatest effect to spotted owl prey species of the 3 action alternatives. The same amount of acres identified in Alternative 3 would be treated adjacent to KSOACs within the project area.

Effects to CHU-72 and East IV/ Williams-Deer LSR

Alternative 4 effects to the CHU and LSR would be the same as identified in Alternative 3, because the same type and amount of treatments are proposed in both alternatives.

Fisher

Proposed treatments in all action alternatives would remove and reduce the quality of suitable fisher habitat; however, no direct impacts to fishers are expected because no known denning sites would be impacted. Structural retention harvest would no longer provide suitable fisher denning and resting habitat, because key components, such as large snags, large down wood, and multiple canopy layers, and canopy closure would be reduced and large trees could be removed. Structural retention treatments would also increase habitat fragmentation within the project area which would further limit the ability of BLM lands to provide optimal habitat for fishers. These areas would not provide foraging habitat until vegetation reestablishes to provide cover, in approximately 5-10 years.

CT/GS, CT, CT/ModGS treatments with at least 40% canopy retention would have short term negative effects to fisher prey species due to the reduced vegetation. These effects are relatively short term, as understory vegetation typically returns within 5 years and 60% canopy closure returns within 10-15 years. However, these short term effects to fisher prey species would be minimal, because untreated areas within the project area would continue to provide forage habitat while canopy cover in the treated stands increases. Additionally, all treatments would retain large snags and coarse woody debris (CWD) to provide future habitat for fishers, and reduce potential impacts.

Project activity disturbance effects to fishers are not well known. Fishers may avoid roaded areas (Harris and Ogan 1997) and humans (Douglas and Strickland 1987; Powell 1993). Disturbance from project activities would be temporally and geographically limited and would occupy a geographic area smaller than the average fisher home range. Seasonal restrictions listed as Project Design Features for other resources would also benefit fishers by restricting project activities until young are approximately six weeks old. Fishers have large home ranges and would be able to move

away from the action area while the disturbance is occurring, without impacting their ability to forage and disperse within their home range.

The action alternatives would not contribute to the need to federally list the fisher as threatened or endangered because habitat features, such as large snags and coarse wood, would be retained throughout the project area, which would provide future habitat for denning and resting and further reduce potential impacts. Fishers would not be precluded from dispersing or foraging in the project area because suitable habitat would still be retained, units with higher canopy retention would aid in dispersal, and key habitat features would be retained throughout the project area. Additionally, late-successional habitat would be maintained throughout the Althouse and Sucker Creek 5th field watersheds in Riparian Reserves, 100-acre KSOACs, and 15% late-successional forest retention (RMP pp. 38-40). These reserve areas would continue to provide suitable habitat for fisher and other late-successional habitat dependent species and would help maintain future connectivity throughout the watersheds and between large LSRs.

Alternatives 2 and 4
Structural retention harvest treatments are proposed on 379 acres of suitable fisher denning and resting habitat under Alternative 2. CT/GS treatments with at least 40% canopy retention are proposed on approximately 192 acres of suitable denning and resting habitat in Alternative 2. Approximately 178 acres of previously un-entered stands in 39S-7W-Section 11 and 40S-7W-Section 9 are proposed for treatment in Alternatives 2 and 4. These stands provide the best suitable contiguous fisher denning and resting habitat within the project area.

Alternative 3
Alternative 3 would treat the most total acres with a variety of treatments. However, of the three action alternatives, Alternative 3 would have the least amount of impact to fisher habitat, because only 28 acres of suitable fisher denning and resting habitat would be removed as a result of structural retention harvests. Commercial thinning treatments with 40% canopy retention are proposed on approximately 205 acres of suitable denning and resting habitat in Alternative 3. In units where 60% canopy closure would be maintained (160 acres), fisher prey species would not likely be reduced to the point where fishers would experience food shortages. These short term effects to fisher prey species would be minimal, because untreated areas would continue to provide forage habitat while canopy cover in the treated stands increases. In addition, approximately 178 acres of previously un-entered stands in 39S-7W-Section 11 and 40S-7W-Section 9 would not be treated. These stands provide the best suitable contiguous fisher denning and resting habitat within the project area.

Survey and Manage Species

Red Tree Voles – Effects Common to All Action Alternatives
All active and associated inactive RTV nests discovered during surveys have been buffered according to the 2000 RTV management recommendations, version 2.0 (USDA, USDI 2000). These buffers (Habitat Areas) removed approximately 165 acres from potential commercial harvest treatments, reducing the effects to RTVs from the proposed action. In some cases, entire units have been dropped from commercial harvest due to high concentrations of active and associated inactive RTV nests requiring large habitat areas. Additionally, Habitat Areas delineated under the management guidelines, are intended to provide for protection of the physical integrity of the nests and retain adequate habitat for the expansion of active nests at that site (USDA, USDI 2000).

Undiscovered nests located outside of the buffer areas may be negatively affected due to reduced canopy closure by isolating nests and reducing dispersal capability. Some undiscovered nests may also be lost through removal of nest trees. However, the likelihood of undiscovered nests and associated effects would be expected to be low because RTV surveys are designed to ensure detection of red tree vole nests where the most viable populations exist within the stands. Additionally, even with the loss of some RTV nests, RTVs would persist in the watershed and continue as a source of prey for NSOs, because known RTV sites would be protected and habitat would be retained throughout the project area and watershed.

Great Gray Owl (GGO) – Effects Common to All Action Alternatives

While structural retention and some commercial thinning treatments may modify potential nesting habitat to non-nesting habitat, it is unlikely that GGOs would be negatively affected, because none were found in the project area and the likelihood of GGOs nesting in the project area is low. The proposed structural retention units are spread throughout the project area, which would reduce potential effects to nesting opportunities. Additionally, limited structural retention treatments occurring in suitable nesting habitat are located within a ¼ mile of suitable foraging habitat. Short term effects would include reduced canopy closure and structural complexity and the loss of future potential nest trees. However, these habitat changes would also open stands for unobstructed flight and increased foraging success. Long term beneficial effects include accelerated development of late-successional forest habitat suitable for potential GGO nesting and improved potential GGO foraging due to thinning and burning.

Bureau Sensitive Species

Bald Eagle

No Bald eagle nest trees have been located within the project area. Therefore, no direct negative effects are anticipated. If a nest is located prior to implementing the project, it would be protected as per RMP guidelines (RMP p. 57). Even though all of the alternatives would remove some potential nest/roost trees, bald eagles would not be precluded from nesting and foraging within the watershed due to retention of larger suitable nest trees in areas set aside for spotted owl cores and Riparian Reserves, as well as in units dropped from the proposed action. Additionally, the proposed actions would not affect the Bald eagle nest success and recovery of the species, due to the protection of historic and new nests located on the Medford District as directed in the Final Medford RMP/EIS (p. 4-71).

Alternative 2 and 4

Structural retention treatments would remove the majority of the overstory and may result in the loss of potential nest/roost trees. Alternatives 2 and 4 would have the highest chance of removing potential nest/roost trees in the 323 acres of structural retention treatments proposed in close proximity to foraging areas within the project area. Commercial thinning treatments are proposed on 518 acres, which would modify the overstory and may also result in the loss of potential nest/roost trees. However, a greater number of large trees would be maintained than in structural retention units, and commercial thinning treatments would promote growing conditions required to develop large diameter trees with large open limb structures needed for bald eagle nesting and roosting trees. Fuel hazard reduction treatments would not modify the overstory structure of the stands.

Alternative 3
Alternative 3 would have the highest chance of removing potential nest/roost trees in the 30 acres of structural retention treatments proposed in close proximity to foraging areas within the project area. Commercial thinning treatments proposed on 636 acres would modify the overstory and may also result in the loss of potential nest/ roost trees. However, a greater number of large trees would be maintained than in structural retention units, and commercial thinning treatments would promote growing conditions required to develop large diameter trees with large open limb structures needed for Bald eagle nesting and roosting trees. Fuel hazard reduction treatments would not modify the overstory structure of the stands.

Northern Goshawks- Effects Common to All Action Alternatives
While structural retention treatments may modify potential nesting habitat to non-nesting habitat, it is unlikely that goshawks would be negatively affected because none were found in the project area and the likelihood of goshawks nesting in the project area is low. Treatments, such as commercial thinning, may benefit goshawks since they are habitat generalists and thinned stands provide more suitable foraging habitat and unimpeded flight paths for this sit-and-wait predator.

Bats - Effects Common to all Action Alternatives
There would be negligible effects to Townsend's big-eared bats, because known roosting sites (mine adits) would be protected during critical seasons (maternity, winter roosting, etc.) through implementation of a 250' no-harvest buffer around the site. The 250' no-harvest buffer around Townsend's big-eared bat colonies is the Medford District RMP requirement for protection of microclimate conditions and is expected to greatly reduce adverse impacts to Townsend's big-eared bats by preventing disturbance and changes to cave temperatures or drainage patterns. Additional roosting habitat would be provided through green tree and snag retention, which would also help minimize potential effects for other sensitive bat species dependent on these roosting structures. Thinning treatments may benefit bat species by reducing echolocation interference and cluttered flight paths, and improve access to snags (pers. comm. J. Hayes 2003).

Mollusks- Effects Common to All Action Alternatives
There are no anticipated impacts to these 2 former survey and manage mollusk species from any of the action alternatives because none were located during in surveys in commercial harvest units. Additionally, the range of the *Monadenia chaceana* changed in 2002, which removed the Grants Pass Resource Area from the range. This range change was based on results from years of mollusk surveys conducted within the Northwest Forest Plan area. Analysis of the survey data also showed the majority of the *Helminthoglypta hertleini* sites were not found in late-successional forest habitat and do not depend on late-successional forest components for persistence.

Additional Species and Habitats of Concern

Land Birds (Neotropical Migrants and Year-Round Residents)
While the extent and scope would change for each action alternative, the general effects described below would be the same for all action alternatives. Due to the variety of habitat requirements, any action that changes or removes vegetation used by one species may benefit another. Therefore, analyzing the total acres treated by alternative best describes impacts to land birds. Species that require dense cover and forage have benefited from lack of fire and dense understories could be negatively affected by density management and thinning treatments designed to reduce vegetation

density. Due to habitat removal, songbird composition and abundance in treated stands could be reduced in the short term (Janes 2003; Hagar et al. 2001; Siegel et al. 2003). There would be a reduction of late-successional forest habitat from structural retention units. This would remove hiding cover and nesting habitat for neoptropical birds that use older forests. However, riparian buffers, untreated areas, and 100-acre spotted owl activity centers would continue to provide enough late-successional forest habitat within the project area for birds that use late-successional forest habitat. Additionally, existing large diameter snags and down wood found in older seral stands would be retained in the project area, and would continue to provide nesting, roosting, or foraging opportunities for species dependent on these key habitat structures.. Habitat for birds that use early seral habitat would increase as a result of structural retention treatments. Species, such as the Rufous Hummingbird, which use nectar producing plants would benefit from the increase in forbs and flowering shrubs that would occur post treatment. This increase would continue until the tree canopy recovers and shades out these plants. Additionally, the Olive-sided flycatcher would benefit from the creation of additional openings through structural retention and group selection treatments because they forage in open areas.

Some individuals may be lost or displaced during project activities. However, untreated areas adjacent to the treatment areas would provide refuge and nesting habitat, which would help minimize short term loss of habitat. Riparian and Survey and Manage buffers would also serve as untreated areas within the proposed harvest units. Activities occurring during active nesting periods could even cause some nests to fail. Seasonal restrictions/Project Design Features would protect some nests from disturbance during project activities. Some nests may be lost from timber harvest and thinning occurring during active nesting periods. However, the loss of a nest during one nesting season would not be expected to reduce the persistence of any bird species in the watershed. The loss would not be measured at the regional scale; therefore, populations in the region would be unaffected. Partners in Flight support the ecoregional scale, as appropriate, for analyzing bird populations (http://www.partnersinflight.org/description.cfm).

Alternative 2

All treatment types proposed in Alternative 2, as well as foreseeable young stand treatments within the watersheds, would treat approximately 3,297 total acres (32% of the BLM lands within the project area), which have the smallest range of effects to neotropical birds of all the action alternatives.

Alternative 3

Approximately 6,256 total acres would be treated (all treatment types, including foreseeable young stand treatments within the watersheds) within the project area under Alternative 3. This alternative would have a wider range of effects to neotropical birds than Alternative 2, due the large number of acres (63% of the BLM lands within the project area) that would be treated in a variety of habitats.

Alternative 4

Approximately 6,442 total acres would be treated (all treatment types, including foreseeable young stand treatments within the watersheds) within the project area under Alternative 4. This alternative would have the widest range of effects to neotropical birds, due the large number of acres (64% of the BLM lands within the project area) that would be treated in a variety of habitats.

Del Norte Salamanders – Effects Common to All Action Alternatives
All action alternatives propose treatments within talus habitats for Del Norte salamanders. The one known Del Norte site found in a commercial harvest unit has been buffered as per protection measures outlined in the management recommendations and the Medford RMP/ROD (p. 47). Short term effects for all action alternatives would be a reduction in canopy closure that may change current cool moist forest floor conditions to warmer and drier conditions post harvest. This change in microsite conditions may decrease the suitability of some talus habitat patches for Del Norte salamanders until the vegetation layers have been restored and the canopy cover increases. Long term effects for all action alternatives would be the reduction in stem densities and ladder fuels, resulting in a lower risk of a stand replacing fire event.

Jeffery Pine savannahs/Oak Woodlands/Meadows

Alternative 2
No Jeffery pine savannahs or white oak woodland treatments would occur under Alternative 2; therefore, the effects would be similar to the No Action Alternative.

Alternatives 3 and 4
Approximately 1,153 acres of Jeffery pine savannahs and 52 acres of white oak woodlands would be treated. Treatments would help restore wildlife habitats in Jeffery pine and white oak woodlands by reintroducing low intensity fire, removing encroaching shade tolerant species, and reducing dense and decadent chaparral. In the short term (5–10 years), the reduction in the amount of shrub structure and stem densities would negatively impact some song birds that benefit from greater tree and shrub densities. Some shrubs would sprout immediately following treatment, as would native grasses from the available sunlight. With the return of fire and the removal of competing shrub species, there would be an increase in the native grass and herbaceous layers, which would benefit other wildlife species. The increase in grasses and decrease in shrubs would increase the suitability of flammulated owl and western bluebird foraging habitat. Additionally, big game forage would improve due to greater nutrient content of herbaceous species and shrubs (sprouts and new top growth).

B. Effects to Wildlife from Road Work

Alternative 2
Alternative 2 would construct 1.01 miles of new roads, 2.31 miles of temporary roads, and 5 helicopter landings. Road and helicopter landing construction could cause warmer, drier conditions in adjacent interior forest habitats, because of canopy closure reduction and increased solar and wind exposure (Trombulak and Frissell 2000). This could result in reduced reproduction and survival of species with low dispersal capabilities, such as mollusks and possibly amphibians (Marsh and Beckman 2004). Species with greater dispersal capabilities could likely move to areas with more favorable microclimate conditions if suitable habitat were nearby. In stands not proposed for commercial harvest, temporary and permanent road construction would be expected to decrease interior forest habitat due to newly created edges (Trombulak and Frissell 2000). However, with the exception of one proposed temporary road, all road construction would occur within units proposed for vegetation treatments. Therefore, since these unit level treatments would affect canopy cover

and interior forest at the stand level, rather than just within the road clearing width, only limited edge effects to wildlife species from road building are anticipated.

The RMP identified traffic control devices, such as gates, as an accepted method to prevent or reduce adverse OHV impacts (RMP p. 68). New roads would be closed and temporary roads would be obliterated and barricaded, which would help reduce the potential future disturbance from OHV. Although gates are not guaranteed to be 100 % effective, they do reduce the potential of inappropriate OHV use and adverse OHV impacts. Therefore, even if the gates are not 100 % effective, disturbance to wildlife would be minimal due to the reduction of inappropriate OHV use.

Alternative 3
General effects to wildlife from the proposed road work would be the same for Alternative 3, but fewer miles of new road and temporary road construction would occur. Approximately 0.56 miles of new road construction, 2.14 miles of temporary roads, and 5 helicopter landings would occur under Alternative 3. Additionally, in Alternative 3, approximately 5.0 miles of roads would be decommissioned. This would reduce road density within the project area, decreasing potential disturbance to wildlife. Effects from potential OHV use would be similar to Alternative 2.

Alternative 4
Alternative 4 effects from road activities would be similar to those identified in Alternative 2. In addition, approximately 5.0 miles of roads would be decommissioned in Alternative 4. This would reduce road density within the project area, decreasing potential disturbance to wildlife. Effects from potential OHV use would be similar to Alternative 2.

C. Cumulative Effects

Cumulative effects for wildlife species and habitat are primarily discussed at the 5th field watershed level. However, in some cases, multiple 5th fields, as well as portions of adjacent watersheds, are used in order to capture the varying habitats, species home ranges, and varying degrees of species mobility. Approximately 4,800 acres have been harvested from BLM lands in the Althouse and Sucker Creek 5th field Watersheds since 1950. The associated habitat loss has negatively affected late-successional forest habitat dependent species by reducing stand seral stage and habitat structure. However, species associated with younger forested conditions have benefited from these changes due to the increased acres of young stands within the watershed.

A summary of ongoing and foreseeable actions on Federal lands within the Althouse and Sucker Creek 5th field Watersheds is provided on pages 30 and 31 of this EA. It is assumed that private land would be harvested on a 60-year rotation (RMP EIS p. 4-5) and would be maintained in early to mid-seral habitat. The potential for retention and maintenance of existing late-successional forest, as well as the development of future late-successional forest in this watershed is greatest on Federal lands. Late-successional forest habitat would be retained throughout the Althouse and Sucker Creek 5th field Watersheds providing habitat for late-successional forest dependent species.

According to the late-successional forest assessment for this project, approximately 75% (2,827 acres) of the BLM lands within the Althouse Creek watershed and 68% (3,367 acres) were found to be in a late-successional forest condition as defined by the 15% Late-Successional Standards and Guidelines (Instruction Memo OR 98-100). Late-successional forest in the Althouse and Sucker

Creek 5th field Watersheds would remain well above the 15% minimum following completion of this project, because only 598 acres of structural retention treatments would change age class of the stand, retaining a combined 64% of the stands in late-successional forest condition across both watersheds. Additionally, other overall stand ages would not changed in other treatment types proposed in the Althouse-Sucker Project Area because of the retention of all age classes within the stands.

Northern Spotted Owl

Range-wide, Northern spotted owl populations declined 3.7% annually from 1985-2003 (USFWS 2004). However, in the Tyee, Klamath, and South Cascades study areas in southwestern Oregon, spotted owl populations appeared stable from 1985-2003 (USFWS 2004). Habitat loss due to timber harvest was identified as the paramount threat in 1990 (USFWS 2004). The rate of suitable habitat loss due to timber harvest on private, state, and Federal forest lands declined in the late 1980s and early 1990s (USFWS 2004). The harvest rates in suitable habitat on BLM lands in Oregon was 3% per year (22,000 acres) in 1990, and dropped to 0.52% per year (4,911 acres) by 2003 (USFWS 2004 p.28). During this period of declining rates of habitat loss, spotted owl populations in southwestern Oregon appeared stable. In addition, it is estimated that in the NWFP area, late-successional forest habitat development through in-growth (tree growth) is occurring at approximately 8% (600,000 acres) per decade over the baseline condition established in the NWFP (USFWS 2004). Not all of these estimated in-growth acres would function as suitable nesting, roosting, and foraging habitat; some would more likely function as dispersal or foraging habitat when they are added back into the baseline. The emergence of Barred owls as invasive competitors, West Nile virus, and Sudden Oak death as new threats to spotted owls suggests an increase in risk to the species since 1990. These newly identified threats are poorly understood, are likely to be pervasive, and would be difficult to alleviate. However, this risk was not sufficient to change the status of the spotted owl (USFWS 2004). In summary, under all alternatives, the proposed commercial harvest of NRF and dispersal-only NSO habitat would not incrementally affect the stability of the Northern spotted owl population in southwestern Oregon, because the rate of habitat loss range wide has been substantially reduced, there is substantial in-growth of habitat, and newly identified threats are independent to the proposed action.

The Althouse-Sucker project proposes commercial harvest of up to 3,409 acres of NRF and dispersal-only NSO habitat, including the loss of up to 379 acres of NRF and 219 acres of dispersal habitat (Alternative 4). Structural retention treatments proposed in the Althouse-Sucker project would remove late-successional forest habitat important to spotted owls and when combined with future foreseeable projects in the watersheds, would increase fragmentation within the watershed. However, the Althouse-Sucker project would remove less than 1 % of the late successional forest habitat within the project area. This small percentage of removal at the project level would not preclude spotted owls or other late successional forest species from dispersing within or through the Althouse and Sucker Creek 5th field watersheds. Approximately 92 acres of future foreseeable BLM projects in adjacent watersheds are planned in suitable owl habitat within the home range of one known spotted site associated with the Althouse-Sucker project area. These adjacent treatments are not expected to increase impacts to owls located within the Althouse-Sucker project area because no habitat would be removed and treatments would only modify habitat within the home range of one known site. This site is likely not viable to begin with due to the large amount of private land and unsuitable habitat within the home range. Additionally, late-successional forest habitat would be retained throughout the Althouse and Sucker Creek 5th field Watersheds in Riparian Reserves, 100-acre KSOACs, Survey and Manage buffers, and 15% late-successional

forest retention, which would continue to provide suitable spotted owl habitat within the two watersheds. Therefore, even with the proposed actions of the Althouse-Sucker project area added with the future foreseeable actions, it is unlikely the actions proposed would appreciably reduce or diminish the survival or recovery of the spotted owl, due to the small percentage of habitat affected and the remaining provincial and range-wide habitat.

Other Wildlife Species

There is no evidence that current forest practices on Federal land immediately threaten any terrestrial wildlife species in Oregon. Even though the proposed actions may potentially adversely disrupt local individuals of sensitive wildlife species and may cause the loss of habitat in some cases, this project is not expected to affect long-term population viability of any Bureau Sensitive or former Survey and Manage wildlife species known to be in the area. Additionally, this project combined with other actions in the watershed would not contribute to the need to federally list any Bureau Sensitive or former Survey and Manage wildlife species, because of the small scope of the proposed action and the presence of a diversity of habitat within the Althouse and Sucker Creek 5th field Watersheds. If the maximum acres are treated (under Alternative 4), the proposed action would only treat 6.9% of the Althouse and Sucker Creek 5th field combined watersheds.

3.6 Botany

3.6.1 Affected Environment

Special Status Species

BLM surveyed the Althouse-Sucker Project Area for the presence of federally-listed plant species, Bureau Special Status botanical species, Survey and Manage botanical species, and noxious weeds during the 1999-2007 field seasons. The project area is within the range of the federally-listed plant *Lomatium cookii*; however, there are no known existing populations in the project area and no populations were observed during the surveys. Sixteen Special Status botanical species, two State Threatened species, and nine Survey and Manage Species were observed during the surveys. See Appendix XX for a summary of these species.

Survey and Manage surveys were completed in compliance with protocols established under the Northwest Forest Plan (USDA, USDI 1997, 1998; Wogen, 1998). Management of species found during surveys complies with the 2001 *ROD and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*.

On July 26, 2007 a new Special Status Species list went into affect (IM No. OR-2007-072). This new list has two categories, Sensitive and Strategic. The former categories of Bureau Assessment and Bureau Tracking no longer exist. Sensitive species require a pre-project clearance and management to prevent them from trending toward federal listing. There is no pre-project clearance or management required for the Strategic Species at the District level, thus Strategic Species will not be analyzed in this document. The new list is effective immediately; however, if pre-project clearances have already been conducted for a project, there are no requirements to conduct pre-project clearances for newly added Bureau Sensitive Species or to address the newly added Bureau Sensitive species in the NEPA document (IM No. OR-2007-072).

Survey and Manage (S&M), Threatened and Endangered (T&E), State Threatened (STO), and Bureau Sensitive botanical species require protection and management. It is the BLM Oregon State

Office's policy that the BLM would protect, manage, and conserve those sensitive species and their habitats such that any Bureau action would not contribute to the need to list any of these species (IM OR-1991-57 and IM OR-2003-054).

Special Status Fungi

Surveys have not been conducted for Bureau Sensitive or S&M fungi, which is consistent with the BLM Oregon State Office Information Bulletin # OR-2004-145, Attachment 5, and the Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (USDA, USDI 2001). It is expected that field units will not conduct field surveys for these species due to survey impracticality. Protection of known sites along with on-going large scale inventory work would provide the measures and means to meet agency policy. The only S&M fungi species that requires surveys, *Bridgeoporus nobilissimus*, is not within the range of this project. All known sites of fungi in the project area were incidental finds, observed while surveying for vascular and nonvascular plants.

There are 20 Survey and Manage fungi species that are suspected or documented on lands administered by Medford District BLM that are also managed as Bureau Sensitive Species. For these 20 fungi species, specific information regarding connectivity, range, habitat requirements, and response to disturbance are lacking. The NWFP, RMP, and technical information contained in the 2004 S&M FSEIS acknowledge incomplete or unavailable information regarding these species. Given the broad habitat and the lack of surveys completed for these species, it is assumed that more sites exist in the area of the NWFP. It is unknown how rare these species really are, but it is known they are associated with common tree species (Table 19). Given the acknowledged uncertainty, the association between these species and late-successional conditions, as well as unknown information regarding connectivity, habitat needs and range is not well understood.

Table 19 summarizes the known information regarding 10 of the 20 fungi. The 10 fungi not on the list were recently added to the sensitive list. As stated above the newly added species do not need to be analyzed in this NEPA document as project clearances occurred prior to the implementation of the new Special Status Species list. Table 19 shows how many sites if each species are in the range of the NWFP, the number of those sites in reserves and the forest communities where these species may be found. The fifth column summarizes the likelihood of occurrence in the Medford District, which can assist in conservation planning (USDA/USDI Interagency Special Status and Sensitive Species program website).

Table 19: BSS Fungi Habitat Sufficiency, Location, and Forest Community Components in the Medford District

Scientific Name	Sites in NWFP[1]	Sites in Reserves[2] (%)	Forest Community Component	Likelihood of Occurrence and Risk to Species	Known Sites in the Althouse Creek and Sucker Creek 5th Field Watersheds
Boletus pulcherrimus	36	5 (14%)	PSME, PIPO, ABCO	Low likelihood of occurrence; low risk to species viability	None
Dermocybe humboldtensis	4	1 (25%)	PSME, PIPO	Low likelihood of occurrence; low risk to species viability	None
Gastroboletus vividus	4	2 (50%)	ABCO, Pine	Low likelihood of occurrence; low risk to species viability	None
Phaeocollybia californica	30	5 (17%)	PSME	Reasonable likelihood of occurrence; low risk to species viability	None
Phaeocollybia olivacea	93	19 (20%)	PSME, ABCO, QUKE, Pine	Reasonable likelihood of occurrence; low risk to species viability	1
Phaeocollybia oregonensis	11	5 (46%)	ABCO	Low likelihood of occurrence; low risk to species viability	None
Ramaria spinulosa var. diminutiva	1	0	PSME, Pine	Low likelihood of occurrence; low risk to species viability	None
Rhizopogon chamaleontinus	1	0	PSME	Reasonable likelihood of occurrence; low risk to species viability	None
Rhizopogon ellipsosporus	3	0	PSME	Reasonable likelihood of occurrence; low risk to species viability	None
Rhizopogon exiguus	5	3 (60%)	PSME	Reasonable likelihood of occurrence; low risk to species viability	None

[1] Source: ISMS database 11-20-04, Handbook to Strategy 1 Fungal Species in the NWFP, Handbook to Additional Fungal Species of Special Concern in the NWFP, Medford District data.
[2] Reserves = Land Use Allocations, such as Late Successional Reserve and Congressionally Reserved areas.
Bold species = occurs on or within Medford District.
Acronyms: PSME = Douglas-fir, forest community component; PIPO = Ponderosa pine, forest community component, ABCO = White fir, forest community component; QUKE = California black oak, forest community component; Pine = Pinaceae family (includes pine, fir, Douglas-fir, spruce, hemlock), forest community component.

3.6.2 Environmental Consequences

Alternative 1—No Action

The No Action Alternative would not result in any direct effects to T&E, S&M, Bureau Sensitive, or State Threatened botanical species because this alternative proposed no habitat/ground-disturbing activities. The No Action Alternative could have negative indirect effects on botanical species and habitat requirement as described below.

Forest Harvest and Fuels Treatments

Fire has played an extremely important role in influencing the plant communities of southwestern Oregon. Fire created and perpetuated habitats typically found in this project area. According to Franklin and Dyrness (1988), this fire regime has been disturbed by fire suppression activities. Without the forest harvest and fuels treatments proposed in the action alternatives, a build-up of fuels would continue to occur within the project area. This build-up would create favorable conditions for moderate to high intensity wildfires, which could result in excessive damage to plant sites or their habitat. Fire may also damage the mycelia networks of Special Status Fungi, possibly eliminating population of those species. Similarly, special status botanical species or populations may be damaged or lost in the event of a wildfire. Further, high intensity fires would create large areas of bare soil and extensive canopy loss, conditions that are ideal for the establishment and spread of noxious weeds which could out complete Special Status botanical species.

The no action alternative would have no effect to the T&E species *Lomatium cookii*, would not trend toward listing Bureau Sensitive species, and would not impact State Threatened and S&M botanical species because there are no ground/habitat disturbing activities proposed in this alternative and it is not possible to predict where and how intense a wildfire would be.

Alternatives 2, 3 and 4

Special Status Species

The T&E species *Lomatium cookii* has not been observed during surveys in the project area. Because *L. cookii* does not occur in proposed project units, actions proposed in all alternatives would not affect *L. cookii*.

The one known site of the Bureau Sensitive fungi, *Phaeocollybia olvicea*, will be addressed here. All other discussion of Bureau Sensitive fungi will be analyzed separately in this section.

Due to Project Design Features (PDFs) that buffer known sites or seasonally restrict project work, proposed actions in Alternative 2, 3, and 4 would not directly or indirectly affect Bureau Sensitive, State Threatened, or S&M botanical species, with the exception of the Bureau Sensitive plant, *Erythronium howellii* (see discussion below). For some species that require higher canopy cover, such as *Cypripedium fasciculatum*, buffers are expanded beyond the actual site in order to protect habitat for future site expansion, typically 50 feet or greater. Buffers surrounding all listed plant sites would provide protection from treatments. Minimum buffer size would be 25 feet. Buffer sizes would be implemented based on species, habitat, and treatment.

The species *Erythronium howellii* has many sites in the project area that are large and robust, greater than one acre in size and with more than 100 plants. As this species prefers open, wooded habitats, some treatments would occur within these large sites where habitat improvement is needed and ground impacts would be minimal. In the short term, some individuals may be lost, but it is expected that the majority of the individuals will survive and the resulting habitat will be more suitable for the species. If no treatments were to occur, the long term effect would be increased canopy closure, further degrading habitat for the species. When possible, treatments would be seasonally restricted to July through February when the plant is dormant. These treatments would not trend this species toward listing.

Additionally, a temporary road would cross through two occurrences of *E. howellii* in unit 40S-7W-8. Occurrence #1 is approximately 0.1 acre and has approximately 350 individual plants. Occurrence #2 is approximately 0.2 acre and has approximately 350 individual plants. At each site the road would impact an area approximately 45' by 20'. The temporary road would cross through the upper portion of Occurrence #1 and through the middle of Occurrence #2. It is estimated approximately 18 % of the plants (63 plants) at Occurrence #1 and 13% of the plants (45 plants) at Occurrence #2 would be impacted by the temporary road. The area adjacent to the temporary road that is occupied by *E. howellii* would be buffered to exclude all activities. The temporary road may impact the occurrences by causing damage to individuals or lose of individuals, but it is expected that persistence of each occurrence would be maintained due to the no disturbance buffer. Therefore, the temporary road would not trend *E. howellii* toward federal listing.

Alternatives 2, 3, and 4 would not trend toward listing Bureau Sensitive botanical species or impact State Threatened or S&M botanical species because these sites would either be protected by buffers, the treatment would improve habitat for the species, and persistence would be maintained.

Bureau Special Status Fungi

Forest Harvest

The 10 species of Bureau Sensitive Fungi listed in Table 18 are all mycorrhizal, forming associations with their hosts, mostly conifers. Commercial harvest would have varying degrees of adverse impacts depending on the level of tree removal and ground disturbance. Commercial harvest, skid roads, and road building decrease soil moisture, organics, coarse wood debris, and loss of host trees. Effects to species from the altered habitat could include reduced fungal species diversity, reduced fungal biomass, and localized loss of the mycelia network.

Appendix A shows acres proposed for harvest by logging method and alternative. Approximately 56 acres of compaction would result from forest harvest activity in Alternative 2, 65 acres in Alternative 3, and 75 acres in Alternative 4, representing less than 1% of the project area. Dahlberg and Stenlid (1995) found that ectomycchorizal mycelia networks may range in size from 1.5 to 27 meters (5 to 89 feet). Given the potentially small range of mycelia networks, ground-disturbing harvest yarding may fragment the mycelia network, reducing or eliminating local populations if Bureau Sensitive Fungi are present in the disturbed area. However, given the small percentage of ground disturbance and protection of the one known site in the project area, loss of local populations is not likely.

Fuels

Organic soils, nutrients, soil moisture, and abundance of coarse woody debris would be reduced by prescribed burning. PDFs have been designed to retain course woody material, future snags, and down wood, minimizing potential effects. While some coarse woody material can be lost through underburning, prescribed underburning usually occurs during late winter to spring when moisture conditions are sufficient to retain duff and large woody material to protect moist habitat and reduce soil heating. As observed in past prescribed burning units, treatments create a mosaic of vegetation, retaining duff, down wood, and shrubs.

The effects of pile burning are limited to the area under the pile, where the heat is most intense, consuming nearly all duff and organics. This heating may cause death of fungi down into mineral

soil (the more diverse portion of the soil). Pile burning can also result in loss of available nutrients and soil moisture, leading to reduced fungal biomass and species diversity.

Within pile burning units, given a 7'x 7' hand pile and 60 hand piles per acre, a maximum of 6% of the ground in each acre of pile burning treatment is subject to high intensity heat. Alternative 2 proposes 949 acres of fuels treatments that may receive pile burning treatments, Alternative 3 proposes 1,696 acres, and Alternative 4 proposes 1,555 acres. At a maximum, area of piles would be approximately 97 acres in Alternative 2, 102 acres in Alternative 3, and 93 acres in Alternative 4. If a Special Status fungi were to be located under one of these burn piles, it would likely reduce or eliminate the local population. Given this small percentage of ground disturbance (6 %) and low probability of species occurrence, impacts to species are not anticipated.

A Forest Research Extension Note (Wiensczyk, A. M. et al. 2000) identified forest management practices that can maintain a diverse community of ectomycorrhizal fungi across the landscape. These include:

- Retaining refuge plants, mature trees, and old-growth forests;
- Retaining the forest floor during harvest and mechanical site preparation;
- Avoiding high-intensity broadcast burns;
- Minimizing the effects of species shifts, particularly following grass seeding;
- Maintaining the edge-to-area ratio of harvest areas within certain limits;
- Planting a mixture of tree species soon after harvest; and
- Retaining coarse woody debris.

The following design features are consistent with the above mentioned management practices including:

- Mature trees would be left in each unit harvested.
- Less than 1 % of the forest floor will be compacted during harvest yarding and 6% of the ground impacted by pile burning.
- No high-intensity broadcast burns are proposed.
- Grass seeding will only occur in select disturbed areas, there will be no broadcast seeding.
- Harvest prescriptions are designed to retain the natural diversity of each stand. For units that would be planted after harvest, a mixture of Douglas-fir, ponderosa pine, sugar pine, incense cedar, and hardwoods (if available) would be used. Planting would occur within three years after harvest.
- Prescribed underburning is designed to minimize the consumption of coarse woody debris. Additionally, PDFs in Chapter 2 have been designed to maintain coarse woody debris.

<u>Road Work</u>

Alternatives 2 and 4 propose an estimated 1 mile of new road construction, 2.3 miles of temporary roads, opening 1.1 miles of spur roads, and 5 helicopter landings each ½-acre in size. For new road construction, it is estimated that the clearing width would average 40 feet (4 acres per mile), temporary roads would average 25 feet clearing width (3 acres per mile), and spurs would average 16 feet in width (2 acres per mile). The road work and helicopter landings create approximately 15.6 acres of ground disturbance, representing 0.2% of BLM land in the project area.

Alternative 3 proposes an estimated 0.5 miles of new road construction, 2.1 miles of temporary road construction, opening 0.6 miles of spur roads, and creating 5 helicopter landings each ½-acres in

size. The road work and helicopter landings create approximately 12.0 acres of ground disturbance, representing 0.1% of BLM land in the project area.

Due to the very small area impacted by roads in all alternatives, the potential effects to rare fungi are indiscernible among the three alternatives. Consistent with the RMP EIS, ground disturbing road work may fragment the mycelia network, reducing or eliminating local populations if Bureau Sensitive Fungi are present in the disturbed area.

Road decommissioning would not impact Bureau Sensitive fungi, as these are previously disturbed sites; thus, implementation would not create new disturbance. Additionally, existing road prisms are unlikely to support populations of Bureau Sensitive fungi because compacted fill does not provide suitable habitats.

Proposed Action Common to all Alternatives
Instream restoration and young stand management would not impact Bureau Special Status Fungi because those projects are not habitat disturbing. Additionally, actions proposed in the Tartar Gulch Quarry would not impact these species, as this site is not suitable habitat.

Conclusion
The management activities proposed in the Althouse Sucker Project Area and their effects are consistent with those activities anticipated under the Northwest Forest Plan 1994 FSEIS and the RMP EIS and 2004 FSEIS as cited in the 2007 SFEIS. While project activities are known to reduce duff and course woody material, create compaction, and generate heat sufficient to damage local population, the project is not likely to impact populations because of implementation of underburning during favorable conditions and low percent of ground disturbance from roads, yarding, and pile burning.

Cumulative Effects

The analysis area for cumulative effects for Special Status vascular and non-vascular plants is the Medford District. The analysis area for Special Status fungi is the Althouse Creek and Sucker Creek 5th field Watersheds.

As human populations increase in this region, available habitat for botanical species would decrease as suitable habitat is developed for other uses. It is assumed that land management would continue on private land on a rotational basis, where there are no laws or regulations governing management of rare plants. Current and future projects proposed on the Medford BLM District would incorporate PDFs similar to those developed for the Althouse-Sucker project, protecting habitat and species.

Special Status Vascular Plants, Non-Vascular Plants, and Survey and Manage Botanical Species

Plant species on BLM lands would continue to be protected and conserved following policy and management guidelines. Populations on non-federal lands would most likely remain undetected and unprotected because no laws governing rare plants on non-federal lands exist. Because habitat and populations for the botanical species found in BLM project areas are and would be protected from potential impacts (defined above), activities proposed in the Althouse- Sucker Project Area would

not lead to the listing of any plant species, when considered in conjunction with habitat or plant impacting activities on non-federal land.

Special Status Fungi
Other than the one known site of *Phaeocollybia olivacea* (which would be protected as described in the PDFs), there are no other known sites of Special Status Fungi located in the watershed; thus, this project would not create any cumulative impacts to those species.

3.7 Noxious Weeds

3.7.1 Affected Environment

BLM surveys found three noxious weed species in the project area: Himalayan blackberry, Scotch broom, and meadow knapweed. Of these species, Himalayan blackberry is the only one considered an established species for which current control measures would have little effect on reducing the overall infestation; thus, only small (10 plants or less) isolated sites of this species would be treated. A description of the noxious weeds species can be found in Appendix E.

Noxious weeds can out-compete native species for light, space, water, and nutrients. They can alter soil fertility, dry up water supplies, poison animals, decrease agriculture production, infest rivers, and reduce recreational value. Noxious weeds find disturbed sites favorable for establishment and spread. Vehicles are a primary method for transporting noxious weeds and creating new populations of noxious weeds.

3.7.2 Environmental Consequences

Alternative 1—No Action

The No Action Alternative would not create additional disturbed areas or access points that may result in new weed populations. Conversely, under the No Action Alternative, noxious weed treatments in the project area would not be a high priority and would continue to spread into existing suitable habitat at an unknown rate. On private land and throughout the watershed, the rate of weed spread is not possible to quantify, as it depends on many factors including, but not limited to, logging on private lands, motor vehicle traffic, recreation use, rural and urban development, and natural processes, such as wind, seasonal flooding, and animal migration patterns.

The No Action Alternative would also continue the trend toward increased fire hazards. Moderate to high intensity wildfires could create a landscape that is ideal for the introduction and spread of noxious weeds. There would also be no road decommissioning in this alternative, which could result in the introduction of noxious weeds to those roads that would not be decommissioned. Noxious weeds are typically found along roads because vehicles traveling on them are a major vector for the spread of noxious weeds.

Alternatives 2, 3, and 4

Road work, tractor harvest, trails, and landing construction represent opportunities for dispersal of noxious weed seed from outside the project area, as well as the spread of existing seed present in the project area. Vegetation treatment would create openings in the forest canopy that increase light

conditions, which are more favorable for noxious weeds compared to the pre-treatment condition. Consistent with the RMP EIS (p. 4-41, 42), project activities could cause noxious weeds to spread or become established in the project area through seed or plant transport due to timber harvest and road construction.

Alternative 2 proposes almost half the number of acres of vegetation treatments as Alternative 3 and 4. Therefore, based on the extent of treatments, Alternatives 3 and 4 pose a higher potential to spread weeds and seeds. However, due to PDFs designed to reduce the risk of weed spread (equipment washing to remove dirt containing weed seeds or plants, seeding/mulching with native species to help native plants become established more quickly), increases in weed populations would be equal among the alternatives and are not anticipated to be distinguishable above current levels and mechanisms (vehicles, wind, animals, etc.). The use of straw is not anticipated to increase the spread of noxious weeds because straw used for mulch would be native species and certified weed free. According to Todd Thompson (BLM Natural Resource Specialist and Restoration Coordinator, Oregon State Office), the PDFs for reducing or eliminating noxious weed impacts are widely accepted and utilized as best management practices in noxious weed control across the nation.

Additionally, noxious weed treatments proposed in this project would reduce the spread of existing noxious weeds by treating these sites prior to implementation of other activities proposed in this project. This project also proposes to treat noxious weeds in the project area after project implementation. These noxious weed treatments would reduce the risk of establishment and spread of noxious weeds in the project area. If the noxious weed pre-treatments were not to occur, the existing populations of noxious weeds may spread into stands because equipment may run through the sites carrying seed and vegetative material into stands receiving harvest treatments. If noxious weed post-treatments were not to occur, existing weed sites, as well as any new weed sites that may have established during project implementation, would continue to spread and increase in size.

Cumulative Effects

The analysis area for cumulative effects on noxious weeds is the Althouse Creek and Sucker Creek 5th field Watersheds. This analysis area was chosen because the majority of the roads used to access proposed project units are within these two watersheds and road corridors are typically how noxious weeds spread.

To address the cumulative effects of the proposed actions on the spread of noxious weed encroachment, the conditions on nonfederal lands must be considered. However, there is no available or existing data regarding noxious weed occurrences on local non-federal lands. Therefore, for purposes of this analysis, BLM assumes that: 1) there is a source of noxious weeds on non-federal lands that can spread to federal lands, especially when the land ownership is checkerboard, as within the watershed; and 2) conversely, that noxious weeds are not established in these lands. Under either assumption, there is an equal need to reduce the risk of spread of noxious weeds from the federal lands to the adjoining non-federal lands. Seeds are spread by the wind, animal/avian vectors, natural events, and human activities. Additional human disturbance and traffic would increase the potential for spreading noxious weeds, but regardless of human activity, spread of these weeds would continue through natural forces. Thus, the BLM cannot stop the spread of noxious weeds from non-federal lands; it might only reduce the risk or rate of spread and control of known populations.

There are no proposed foreseeable activities on BLM land that would affect noxious weeds. It is assumed that private lands would be entered on a 60 to 80-year rotational basis, providing opportunities for weed spread and establishment. Foreseeable activities that have the potential to spread weeds, such as motor vehicle traffic, development, recreational use including OHVs, and road construction are expected to continue or increase. These types of activities could result in new disturbed sites available for noxious weed establishment. This possibility of introduction of new noxious weeds is similar for each alternative, including the No Action Alternative. The Forest Service is proposing Young Stand Management treatments in the Sucker Creek Watershed. The Forest Service District Botanist has stated that the activities proposed would have a low likely hood of spreading noxious weeds due to prevention measures that would be implemented.

Given unpredictable vectors for weed spread, such as vehicle usage by private parties, wildlife behavior, and wind currents, it is not possible to quantify with any degree of confidence the rate of weed spread in the future, or even the degree by which that potential would be increased by the proposed actions. However, the proposed action inclusive of PDFs would minimize the spread of noxious weeds, and treatments would reduce existing weed populations.

3.8 Fisheries

3.8.1 Affected Environment

Within the Rogue River Basin, the Illinois River and its tributaries are important spawning and rearing habitats for both anadromous and resident salmonids. The Illinois River constitutes an important portion of the remnant native wild fish population/habitat within the Rogue River Basin. Thus, the Illinois River Watershed is believed to be the stronghold for wild anadromous fish populations in the Rogue Basin (East Fork Illinois River Watershed Analysis BLM, 2000). The majority of wild coho spawning in the Rogue Basin spawn in the Upper Illinois River. Sucker Creek produces an estimated 30% or more of the coho in the Illinois River (USDA 1997). Sucker Creek and Althouse Creek watersheds are partially responsible for the Illinois River having the largest coho salmon population in the Rogue River basin (USFS Sucker Creek Watershed Analysis 1997, USFS Althouse WA 1996).

Fish Species

Anadromous salmonids present within the project area include: coho salmon (*Oncorhynchus kisutch*), fall chinook salmon (*Oncorhynchus tshawytscha*), and winter steelhead (*Oncorhynchus mykiss*). Additionally, anadromous Pacific lamprey (*Lampetra tridentata*) distribution extends into the project area.

Resident salmonids within the project area consist of rainbow trout (*Oncorhynchus mykiss irideus*) and cutthroat trout (*Oncorhynchus clarki clarki*). Other resident fish species include native sculpin (*Cottidae spp.*), and non-native redside shiner (*Richardsonius balteatus*) and brook trout (*Salvelinus confluentus*). Other species thought to be present in the project area include: Western brook lamprey (*Lampetra richardsoni*), Klamath smallscale sucker (*Catostomus rimiculus*), and non-native Umpqua pikeminnow (*Ptychocheilus umpquae*) and brown bullhead (*Ameiurus nebulosus*).

Southern Oregon/Northern California (SONC) coho salmon are federally listed as threatened. Klamath Mountain Province winter steelhead and the Southern Oregon Coast/California Coast Chinook are strategic species.

Several streams have been identified as coho critical habitat: Althouse Creek, Sucker Creek, Bear Creek, Little Grayback Creek, Lake Creek, Cave Creek, Democrat Gulch, Hanford Gulch, and #7 Gulch (Table 20). Fish distribution limits are based on Geographic Information System (GIS) coverage, ODFW survey information, and available site-specific information.

Table 20 – Miles of Coho Critical Habitat in the Project Area

Stream Name	Coho Habitat (mi)
Althouse Creek	10.0
Sucker Creek	15.8
Bear Creek	2.3
Little Grayback Creek	1.7
Lake Creek	0.4
Cave Creek	0.5
Democrat Gulch	4.8
Hanford Gulch	0.7
Number 7 Gulch	0.2

Aquatic Habitat

The Medford District RMP (p. 50) identifies Althouse Creek and Sucker Creek as a priority for potential fish habitat improvement projects, indicating a high potential for increasing fish production capability in a cost-effective manner. The RMP identified Upper Sucker Creek as a Tier 1 Key Watershed. Restoration of water quality to maintain or improve anadromous fish habitat is emphasized in key watersheds. In addition, the RMP (p. 23) requires that there be "no net increase of roads" in key watersheds.

The USFS placed fish habitat improvement structures in Grayback Creek and Cave Creek in the late 1980's to improve habitat for coho salmon and rainbow trout respectively (USDA 1997). The BLM conducted a mining reclamation project from 2000-2003 in Sucker Creek to restore stream processes and aquatic systems, and repair highly degraded fish and riparian habitat at two heavily mined sites; the sites are now withdrawn from mineral entry. Fish habitat and stream conditions will continue to improve at these locations.

The description of aquatic habitat conditions is based on aquatic habitat surveys by the Oregon Department of Fish and Wildlife (ODFW) in conjunction with BLM surveys. BLM conducted habitat surveys on fish-bearing tributaries on BLM lands using a modified version of the ODFW Aquatic Inventory. Habitat is compared to the ODFW habitat benchmark standards for current conditions.

Althouse Creek Watershed

The lower portion (7 miles) of Althouse Creek flows mostly through private agricultural land. Factors limiting salmonid production throughout the Althouse Creek Watershed include: inadequate stream flows in the summer months; high water temperatures; erosion and sedimentation; lack of large woody material in the stream and riparian area; lack of rearing and holding pools for juveniles and adults; channelization of streams in the canyons and lowlands; and blockages of migration corridors (Althouse Creek Watershed Analysis BLM, 2004). Althouse Creek is DEQ listed (2004)

as water quality limited for temperature for salmon and trout rearing and migration from river mile 0 to 18 which runs through the project area.

The ODFW surveys performed in 1993 for mainstem Althouse Creek (within the project area) indicate that shade levels, pool frequency and area all fell below desirable levels (Table 21). Surveys indicated that one of the reaches had adequate amounts of gravel in riffles and the other desirable. Silt-sand-organics were found to be undesirable in one reach and desirable in the other. All of the reaches indicated low levels of large woody debris (LWD), falling below desired levels. DEQ surveys revealed shade values on BLM lands were high and considered fully recovered (DEQ 2002).

Table 21: Stream Habitat Conditions for Mainstem Althouse Creek (ODFW)

Stream Reach (river mile)	LWD Pieces	% Gravel in Riffles	Silt-Sand-Organics (% Area)	% Shade	Pool Freq.	% Pools	Avg. Gradient (%)
Althouse Creek Reach 1 (0-3.5)	U	D	U	U	A	A	1.3
Althouse Creek Reach 2* (3.5-5.8)	-	-	-	-	-	-	-
Althouse Creek Reach 3 (5.8-11.2)	U	A	D	U	U	U	2.8

Source: ODFW 1993
U = Undesirable, A = Adequate, D = Desirable
*Survey for this reach not conducted due to access being denied.

Six tributaries were surveyed by BLM in 2005 (Table 22). Data gathered in the tributaries indicate degraded instream habitat conditions. All six tributaries were below the ODFW desirable benchmark for quantity of LWD. The percent gravel in riffles met or exceeded benchmarks in four tributaries. However, no riffles were recorded in one tributary and notes recorded during these surveys indicate the majority of the substrate identified as gravel was not suitable for spawning. Undesirable levels of silt-sand-organics were found in 3 tributaries and adequate levels were found in 3 tributaries. Pool frequency levels were desirable to adequate in the tributaries, however all six tributaries were rated below desirable for percentage of pools and rated undesirable for amount of complex pools.

Table 22: Tributary Stream Habitat Conditions in the Althouse Creek Watershed (BLM)

Stream Reach (river mile)	LWD Pieces	% Gravel in Riffles	Silt-Sand-Organics (% Area)	Complex Pools	Pool Freq.	% Pools	Avg. Gradient (%)
Democrat Gulch (4.7-4.8)	U	D	A	U	A	A	6.1
Hansford Gulch (0.2-0.3)	U	D	U	U	D	A	4.4
Tartar Gulch (0.0-0.1)	U	A	A	U	A	A	8.0
Blind Sam Gulch (0.0-0.1) (ODFW)	U	U*	U	U	A	A	10.7
# 7 Gulch (0.2-0.3)	A	D	U	U	D	A	5.0
# 8 Gulch (0.0-0.1)	A	D	A	U	A	A	14.0

Source: BLM 2005
U = Undesirable, A = Adequate, D = Desirable
*Denotes stream reach which did not contain riffles.

Sucker Creek Watershed

In 1997, the Governor's Salmon Recovery Science Team designated Sucker Creek as a core area for coho salmon protection and restoration. The lower portion (~9 miles) of Sucker Creek flows mostly through private land, with the majority having agricultural use. Agricultural factors influencing fish

habitat and water quality include lack of riparian overstory vegetation, over-allocation of water (low summer flows), increased stream temperature, and potential fish barriers at water withdrawal points (Sucker Creek WA 2006). DEQ listed Sucker Creek as water quality limited for temperature from its mouth to Grayback Creek (approx. milepost 11).

The Oregon Department of Fish and Wildlife (ODFW) conducted a physical habitat survey in 2002 on Sucker Creek consisting of 3 reaches (Table 23). Reach 1 included a BLM Mining Reclamation site. Reach 2 was not surveyed due to denied access. The average gradient for reach 1 was 1.8% and for reach 3 was 2.0%. Shade, gravel, pool frequency and the number of complex pools were at desirable levels in the two reaches. Pool area was at adequate levels. The amount of LWD and silt-sand-organics was at undesirable levels.

Table 23. Stream Habitat Conditions for Sucker Creek (ODFW)

Stream Reach (river mile)	LWD Pieces	% Gravel	Silt-Sand-Organics (% Area)	% Shade	Complex Pools	Pool Freq.	% Pool	Avg. Gradient (%)
Reach 1 (Grayback u/s 2.2 miles)	U	D	U	A	D	D	A	1.8
Reach 2 (Access Denied – no survey)	-	-	-	-	-	-	-	-
Reach 3 (SE S.12 u/s to Cohen Ck)	U	D	U	D	D	D	A	2.0

Source: ODFW 2002
u/s = upstream
U = Undesirable, A = Adequate, D = Desirable

The BLM conducted a habitat survey in Sucker Creek in T40S-R7W-Section 1 in September 2004 (Table 24). Pool frequency for all reaches was found to be desirable, but pool area and amount of complex pools fell below the desirable benchmark. The stream had adequate to desirable amounts of gravel in riffles and silt-sand-organics. LWD was found to be undesirable.

Table 24. Stream Habitat Conditions on BLM for Sucker Creek (BLM)

Stream Reach	LWD Pieces	% Gravel	Silt-Sand-Organics (% Area)	Complex Pools	Pool Freq.	% Pools	Avg. Gradient (%)
Reach 1 (S. 1 boundary u/s 1974 ft)	U	A	A	A	D	A	2.3
Reach 2 (u/s 1593 ft)	U	D	D	U	D	U	2.7
Reach 3 (u/s 500ft)	U	A	A	U	D	A	2.2
Reach 4 (u/s 475 ft)	U	D	D	U	D	U	1.8

Source: BLM 2004
U = Undesirable, A = Adequate, D = Desirable
u/s = upstream

Little Grayback Creek

BLM conducted a habitat survey in Little Grayback Creek in T39S-R7W-Section 24 and 13 in September 2004 (Table 25). Reach one had a gradient of 6.5%. It had desirable levels of LWD, complex pools and pool frequency. It had adequate levels of gravel and pool area. Reach 2 had a steeper gradient at 11.2%. It also had desirable levels of complex pools, silt-sand-organics and pool frequency but undesirable levels of LWD pieces and % gravel.

Table 25. Little Grayback Creek Habitat Survey Summary

Stream Reach	LWD Pieces	% Gravel	Silt-Sand-Organics (% Area)	Complex Pools	Pool Freq.	% Pools	Avg. Gradient (%)
Reach 1 (BLM boundary u/s 2776')	D	A	D	D	D	A	6.5
Reach 2 (u/s 2565')	U	U	D	D	D	A	11.2

Source: BLM 2004
u/s = upstream
U = Undesirable, A = Adequate, D = Desirable

Macroinvertebrates

Aquatic Biology Associates, Inc. conducted macroinvertebrate surveys in the Sucker Creek watershed for BLM in 1994, 1997, 1998 and 2002. Surveys were also conducted in Althouse Creek in 1998 and 2002 and in Little Grayback Creek in 1994, 1997, and 2002.

Macroinvertebrate communities were compared to minimally disturbed, mid-order, forested, low to mid elevation, moderate to high gradient, montane streams to score criteria. Sucker Creek macroinvertebrate surveys identified moderate to high levels of scour and erosion and low levels of complexity. Macroinvertebrate surveys in Althouse Creek indicate moderate levels of embeddedness and siltation and low habitat complexity. Little Grayback surveys indicate moderate to high levels of fine sediment embedding and high levels of erosion and low habitat complexity.

The lack of large, instream wood was a key factor in the reaches receiving low to moderate biotic integrity scores. Lack of large woody debris decreases the ability of the stream to retain detritus and nutrients upon which the macroinvertebrates are dependent. Additionally, without large wood to dissipate energy from high peak flows, macroinvertebrate populations are vulnerable to winter scour.

Habitat Access

A 2002 BLM culvert inventory identified five culverts with fish passage problems located in the Althouse Creek Watershed and four culverts in the Sucker Creek watershed.

The Illinois Valley Soil and Water Conservation District has conducted stream restoration projects in the Illinois Valley, including the Sucker Creek and Althouse Creek watersheds. These projects, some partnered with the BLM, have included improving points of diversion, removal of gravel push-up dams, and bank stabilization.

3.8.2 Environmental Consequences

The following analysis considers the potential, magnitude, duration, and nature of effects from the proposed actions to affect fisheries and aquatic resources. The proposed actions are evaluated on how they would change fish habitat, and therefore, the fisheries analysis is linked closely to the soil and water effects analysis. The effects on habitat are in turn used to evaluate the potential of the proposed actions to affect fish production and survival.

Alternative 1 – No Action

Under Alternative 1, the current conditions and trends of channel processes and water quality, and therefore fish habitat, would continue. Alternative 1 would have no direct effect on summer stream temperatures. However, the increased risk of a high severity wildfire in the riparian zone could indirectly affect stream temperatures by substantially reducing stream shade. Fish growth and survival currently are limited by elevated stream temperatures in the lower portions of Althouse and Sucker Creeks (primarily private lands). The loss of future Large Woody Debris (LWD) recruitment potential from a high severity wildfire in the riparian would result in decreased pool frequency and depth, stream complexity, and salmonid growth and survival through reduced rearing habitat quality.

Instream and riparian restoration would not take place under Alternative 1. Riparian areas would continue to contain dense understory habitat suppressing tree growth and future LWD recruitment. The reaches would continue to have low levels of LWD and complex pools, little stream complexity, high stream velocities, and excessive sediment and erosion. This would continue the current condition of poor quality rearing habitat which limits salmonid growth and survival.

Alternative 2

Roads

Maintenance/Renovation: Overall, road maintenance and renovation would maintain downstream salmon habitat, survival and production. Road activities would result in sediment reduction and improved road drainage conditions (see Soils and Hydrology Section, 3.1).

Road maintenance and renovation is proposed on roads 39-7-24, Little Grayback Creek Road, and road 39-7-16, E. Fork Bear Creek Road. These roads parallel Little Grayback Creek and E. Fork Bear Creek. The roads range from 100–300 ft. from the stream with an average distance of 200 feet. BMPs, PDFs (e.g. minimal ditch blading within 75' of culverts) and seasonal restrictions would minimize or eliminate the delivery of any sediment to streams. Due to the short term isolated inputs of sediment (see Soils and Hydrology Section, 3.1), channel habitat conditions of spawning and pool habitat would not be affected. Therefore fish production and survival would not be affected.

During roadside brushing for fuels reduction, stream shade and thus stream temperatures would be maintained due to retaining trees >12" DBH, retaining riparian species, and retaining low growing vegetation overhanging perennial streams. Hazard trees may be felled within the riparian but would not be expected to affect primary or secondary shade because of the dispersed nature of hazard trees.

Road Construction: New permanent road construction is proposed on stable ridge-top or sideslope locations outside of Riparian Reserves. Quarry development would not affect fish habitat because it is outside of the Riparian Reserve and would not add sediment or reduce shade or vegetation. Two stream crossings are proposed on temporary roads, 40-7-8B and 40-7-3A. Temporary roads would be obliterated after use.

Road density would be increased by constructing new permanent roads; however these roads are located outside of Riparian Reserves near ridge tops and are not hydrologically connected to streams. Therefore, these roads would not impact fish or fish habitat.

Two temporary roads are proposed within Riparian Reserves. Road 40-7-8B would be constructed across an intermittent stream and then obliterated following use. This road would be located in the headwaters above a ditch and pond which would prevent potential effects of sediment from reaching fish habitat. Existing spur road 40-7-3A crosses an intermittent stream and is currently overgrown with alder at the crossing. The Riparian Reserve would not be opened up for through traffic during reconstruction. No effects would be expected from this action. The location of the road segments and the temporary nature of the spur roads along with BMPs and PDFs would minimize concentration of flows or sediment delivery to stream channels. Therefore, there would be no changes to sediment in gravel or pool quality.

Hauling would be restricted to May 15th and October 15th. Between October 15th and May 15th, hauling would be allowed conditionally in order to meet erosion management objectives. Dates may vary depending on weather, road surface, drainage, and soil moisture. Hauling could continue as long as the running surface remained dry. Hauling would be suspended during wet conditions. Haul during dry conditions has little potential to create or deliver road-derived sediment to streams. If any fines were created from haul during dry conditions, a pulse of sediment would be delivered to streams during the first winter storm but would be undetectable against the natural sediment regime. Well vegetated filter strips would prevent dust from reaching streams. There are no affects fish habitat because of the minimal amount of sediment that would be delivered to the stream and because the majority of crossings are in headwater streams with no fish habitat.

Summary

In consideration of the following measures, the risk for sediment associated with road construction, renovation and decommissioning would be negligible.

- All road activities would be restricted to dry conditions.
- All roads used during the wet season October 15 through April 15 shall be surfaced with at least 4" of crushed aggregate unless weather is unseasonably dry.
- All temporary spur roads would be constructed and obliterated in the dry season. Roads would be replanted after obliteration.
- When roads would be used for more than one season, temporary roads or roads slated for decommissioning would be winterized and treated for erosion control (water barred, seeded, mulched, etc.). Temporary road blocks would prevent wet season use prior to decommissioning.
- Decommissioned roads would be left in an “erosion-resistant” condition. These roads would be waterbarred, seeded, mulched, and planted to reestablish vegetation.
- To reduce maintenance generated sediment from entering streams, ditches would not be bladed 75’ within live streams, unless necessary to protect culvert/road stability.

There is minimal potential for negative impacts to riparian and stream habitats, and hydrologic function as a result of the proposed road activities. There would be negligible affects to salmonid migration, spawning, egg incubation, rearing, and feeding. Positive effects would be expected by reducing sediment inputs to streams and improving road drainage.

Vegetation Treatments

Harvest – Several harvest units lie directly adjacent to fish habitat (Units 40-7-12-008A, 40-7-13-003, 001A, 40-7-9-002B, 005, 40-7-15-003, 40-7-17-007). Young Stand Management units directly adjacent to fish habitat are Units 39-7-9-013, 40-7-12-004 and 40-7-17-010. Vegetation treatment prescriptions within the Riparian Reserve were developed to meet ACS objectives (RMP p. B-11) specifically to maintain and restore species composition and structural diversity of plant communities, and habitat to support well-distributed populations of riparian-dependent species.

PDFs establish restrictions for the implementation of the prescriptions in riparian areas, minimizing the potential to negatively affect fish and aquatic habitat. Tractors would operate in riparian areas that have slopes less than 35%, and logs would be lined to existing or designated skid trails, which would be decompacted following use. Project designs for special forest products and biomass extraction would minimize soil compaction and displacement and limit ground based equipment to existing skid trails and roads in Riparian Reserves.

Silvicultural treatments in Riparian Reserves outside the 50ft no treatment buffer would reduce canopy closure to 50-60% within the secondary shade zone. Within 10 years, canopy closure would be expected to increase to 70%. Typically, thinning in the secondary shade zone has been found to have no effect on temperature or relative humidity microclimate when stands were thinned down to 50% canopy cover (Emmingham et al. 2002). The Sufficiency Analysis for Stream Temperatures (USDA, USDI 2005) identifies that vegetation treatments maintaining canopy cover at 50% or greater protect riparian site conditions. Vegetation in the primary shade zone of perennial streams would be retained because a 50 foot no treatment area would be implemented next to the channel, thereby protecting water quality.

Vegetation treatments would not negatively affect LWD because the trees are not in size classes qualifying as LWD or are not in locations that could enter stream channels. Thinning in riparian areas would accelerate growth of residual trees and improve future recruitment of LWD.

The use and subsequent decommissioning of pre-existing but unrecovered skid roads and landings in the riparian reserves would have a minimal short term increase in soil disturbance. However due to lack of routing mechanism and surrounding vegetation to buffer streams, soil would not move off-site and would not enter stream channels. Decommissioning skid roads would increase infiltration, decrease the chance of overland flows in the riparian reserve, and allow the reestablishment of riparian vegetation. The reduction in sediment delivery resulting from the renovation of problem roads would aid egg and juvenile fish survival because the risk of egg suffocation would be lower.

Similarly, riparian vegetation treatments not adjacent to fish habitat would not affect sedimentation rates, riparian shade and LWD.

The Hydrology analysis (Section 3.1) determined peak or base stream flows would not be affected because of lack of routing mechanisms on most skid trails, the low levels of area occupied by roads, and the small spatial scale of harvest. As a result, fish habitat would not be altered in any detectable way.

Fuels - Fuels reduction treatments would take place adjacent to fish-bearing reaches of Sucker Creek, Althouse Creek, Little Grayback Creek, Democrat Gulch, Bear Creek and Hanford Gulch.

Perennial and intermittent streams without fish habitat would be adjacent to treatment areas as well. Mechanical treatments and prescribed burning within Riparian Reserves would be restricted to areas outside of no treatment zones. Low intensity underburns in riparian reserves may back into the no-treatment zones.

Small woody material would be consumed during prescribed burning, but large coarse woody material would be left largely intact. During underburns in riparian areas, higher fuel moisture and relative humidity combine to slow the movement of fire, reducing the risk of mortality of large trees and consumption of snags and large down wood. Hence, the low intensity fires have a very low risk of resulting in the mortality of large overstory trees. The future recruitment of large woody debris and shade would not be reduced by the application of prescribed fire in the riparian reserve. Sediment and ash are unlikely to be transported to fish habitat because of the unburned strip of vegetation and organics along streams and the mosaic pattern of unburned vegetation. Given the improbability of sediment reaching streams, the limited spatial extent, and the low intensity of the prescription, stream sedimentation is discountable.

These treatments reduce the spread of disease and the risk of a large scale fire that could negatively affect fish habitat by removing significant portions of the shade canopy, and causing increased soil erosion.

Large Woody Debris Placement

The proposed placement of LWD in Althouse Creek, Blind Sam Gulch, Number 7 Gulch, Yeager Creek, Sucker Creek, Little Grayback Creek, and several unnamed tributaries would improve spawning and rearing habitat because pools would be scoured and gravel would be captured by logs. Logs would retain small woody material and detritus that moves through the system, slowing water around the complexes and adding to instream cover. Because increased channel complexity decreases winter scour and helps retain nutrients, populations of macroinvertebrates that fish feed on would benefit from wood placement.

Along reaches where felling of trees from Riparian Reserves is proposed, the sites are fully stocked and dominated by small diameter trees. Treatments to girdle and fell trees along these reaches would maintain primary shade to the creek because trees selected would be from the understory. In the long term, treatments would increase canopy coverage, and large woody debris recruitment in the riparian.

Fish Culvert Replacement

Three culverts on fish bearing streams would be replaced with open bottom (natural stream bed) culverts. The potential for sediment delivery to fish habitat during construction would be minimized through the use of the PDFs described in the proposed action. Stream turbidity could increase above background levels for brief periods during daily construction activities. Typically, this turbidity is associated with the initial placement of the temporary erosion and sediment control measures and dewatering of the work area. There would be a negligible effect on fish. After the work area is isolated from stream flows, sediment laden water that collects in the excavated area would be pumped into an off-channel area where it would infiltrate into the soil. No long term adverse impacts to fish are anticipated from the construction of the culverts. Resident and anadromous fish would benefit from unrestricted passage upstream and downstream of the proposed culvert replacements through improved aquatic connectivity.

Cumulative Effects
The Althouse Creek watershed is limited in salmonid production due to inadequate stream flows in the summer months; high water temperatures; lack of large woody material in the stream and riparian area; lack of rearing and holding pools for juveniles and adults, respectively; channelization of streams in the canyons and lowlands; and blockages of migration corridors. The Sucker Creek watershed is limited in salmonid production because of high water temperatures, large woody debris, lack of rearing and holding pools, poor riparian structure, low summer stream flows, and passage barriers.

No cumulative adverse affects from the proposed road work are anticipated because new permanent roads would be located outside of Riparian Reserves near ridge tops and are not hydrologically connected to streams; temporary roads in Riparian Reserves would have no effect on fish habitat; existing roads which are current sources of sediment would be renovated or decommissioned; and there would be no detectable change to runoff hydrology. The production and survival of salmonids would be maintained.

The riparian vegetation treatments would maintain stream shade and LWD potential. Based on the analysis of potential impacts, the proposed actions would not disrupt normal behavior patterns such as migration, spawning, egg incubation, rearing and feeding. Habitat would not be degraded. The habitat would be expected to improve as late successional forest develops in the riparian reserves. In areas where instream LWD placement is proposed, habitat quality would improve. Due to the minimal short term sediment input but long term decrease from road maintenance and maintenance of shade and LWD, the project activities would not generate cumulative effects to fish or fish habitat at the site, drainage or watershed level.

There are no additional reasonably foreseeable actions on BLM land in the project area. On National Forest lands, a plantation thinning project scattered across the Althouse Creek and Sucker Creek 5th field watersheds is being planned. Over a ten year period, <2% of the watershed would be thinned. Private lands are assumed to continue to harvest on a rotation schedule in accordance with ODF guidelines.

The harvest management of riparian forest stands on a short (approximately 40-60 year) rotation on private timber land is not likely to accelerate watershed recovery. However, if the proposed actions are taken on federal lands, currently degraded riparian areas would have the opportunity to move more quickly toward recovery.

<u>Alternative 3</u>

Roads
The road maintenance, renovation, and construction proposed in Alternative 3 are similar to that of Alternative 2, and accordingly, the impacts would be similar. As in Alternative 2, there is minimal potential for negative impacts to riparian and stream habitats, and hydrologic function as a result of the proposed road activities. There would be negligible affects to salmonid migration, spawning, egg incubation, rearing, and feeding. Positive effects would be expected by reducing sediment inputs to streams and improving road drainage.

Road Decommissioning: A total of approximately 5.0 miles of existing road segments would be decommissioned to reduce sedimentation and road density. PDFs would minimize or eliminate the

delivery of any sediment to streams. There would be immeasurable effects to fish spawning and rearing from sediment resulting from road decommissioning.

Vegetation Treatments
Harvest – Several harvest units lie directly adjacent to fish habitat (Units 39-7-9-001A, 40-7-12-002, 008A, 40-7-13-003, 001A, 001E, 005, 40-7-15-003, 002, 008, 40-7-17-001A, 007). Young Stand Management units directly adjacent to fish habitat are Units 39-7-9-013, 39-7-13-001, 40-7-12-004, and 40-7-17-010. Silvicultural treatments within the Riparian Reserve were developed to meet ACS objectives (RMP p. B-11).

PDFs (as described in Alternative 2, above) establish restrictions for the implementation of the prescriptions in riparian areas minimizing the potential to negatively affect fish and aquatic habitat. Riparian function of shade and LWD would be maintained or enhanced through treatments.

The soil and water analysis determined that proposed vegetation treatments would not have any measurable effect on peak or base stream flows because of the small scale of vegetation removal. As a result, fish habitat would not be altered in any detectable way.

Fuels – Alternative 3 would treat more acres for fuel hazard reduction in riparian areas than Alternative 2. Large woody debris and shade would be maintained and sediment is unlikely to be transported to fish habitat, as in Alternative 2. However, the alternative would further reduce the spread of disease and the risk of a large scale fire that could negatively affect fish habitat.

Large Woody Debris Placement / Fish Culvert Replacement
The proposed placement of LWD and replacement of fish culverts in this alternative is the same as in Alternative 2 and accordingly, the impacts would be the same.

Cumulative Effects
While this alternative treats more acres, it incorporates road decommissioning and less Structural Retention. No cumulative effects to fish and aquatic habitats would be expected at the site, drainage or watershed level for the reasons and rationale presented in Alternative 2. As in Alternative 2, PDF's and project designs would prevent any change to habitat from sedimentation, LWD, shade, or water quality. Since there would be no site specific cumulative effects, there would be none at the 7th, 6th or 5th field.

<u>Alternative 4</u>

Roads
The road maintenance, renovation, and construction proposed in Alternative 4 are similar to that of Alternative 2, and accordingly, the impacts would be the same. As in Alternative 2, there is minimal potential for negative impacts to riparian and stream habitats, and hydrologic function as a result of the proposed road activities. There would be negligible affects to salmonid migration, spawning, egg incubation, rearing, and feeding. Positive effects would be expected by reducing sediment inputs to streams and improving road drainage.

Road Decommissioning: A total of approximately 5.0 miles of existing road segments would be decommissioned to reduce sedimentation and road density. PDFs would minimize or eliminate the

delivery of any sediment to streams. There would be immeasurable effects to the sediment regime resulting from existing road decommissioning.

Vegetation Treatments

Harvest –Several harvest units lie directly adjacent to fish habitat (Units 39-7-9-001A, 40-7-12-002, 008A, 40-7-13-003, 001A, 40-7-9-002B, 001E, 005, 40-7-15-003, 002, 008, 40-7-17-001A, 007). Young Stand Management units directly adjacent to fish habitat are Units 39-7-9-013, 39-7-13-001, and 40-7-12-004. Vegetation treatment prescriptions within the Riparian Reserve were developed to meet ACS objectives (RMP p. B-11).

PDFs (as described in Alternative 2, above) establish restrictions for the implementation of the prescriptions in riparian areas minimizing the potential to negatively affect fish and aquatic habitat. Riparian function of shade and LWD would be maintained or enhanced through treatments.

The soil and water analysis determined that proposed vegetation treatments would not be likely to have any measurable effect on peak or base stream flows because of lack of routing mechanisms on most skid trails and the low levels of area occupied by roads. As a result, fish habitat would not be altered in any detectable way.

Fuels – Alternative 4 would treat more acres for fuel hazard reduction than Alternative 2, but would treat a similar acreage to that proposed in Alternative 3. Large woody debris and shade would be maintained and sediment is unlikely to be transported to fish habitat, as in Alternatives 2 and 3. As is the case with Alternative 3, the increased area of fuel treatments in this alternative would further reduce the spread of disease and the risk of a large scale fire that could negatively affect fish habitat.

Large Woody Debris Placement/ Fish Culvert Replacement

The proposed placement of LWD and replacement of fish culverts in this alternative is the same as in Alternative 2 and accordingly, the impacts would be the same. There would be an improvement to aquatic habitat.

Cumulative Effects

In this alternative, cumulative effects are not anticipated for the same reasons as described above for Alternative 2 and 3. The production and survival of salmonids would be maintained.

Aquatic Conservation Strategy (ACS)

Road work would create a small amount of sediment input but would improve drainage and runoff thereby decreasing routing of sediment and water to streams. Riparian functions of LWD and shade would be maintained through buffers and restored through thinning. Stream channel processes of pool development and spawning gravel retention would improve through improved riparian function and placement of LWD. Likewise habitat connectivity would improve with culvert replacement. No effects to stream flows were identified. Therefore the project maintains upslope processes of sediment and water; maintains and improved riparian functions, and maintains and improves instream habitat.

Based on the review of project effects at both the site and watershed scale and comparison of effects with each of the nine ACS objectives, we find that the Althouse Sucker Landscape Management

Project would maintain and restore the riparian and aquatic ecosystem consistent with the Aquatic Conservation Strategy (RMP EIS p. 2-5).

3.9 Visual Resources Management (VRM)

3.9.1 Affected Environment

As designated in the RMP, the Althouse-Sucker Project Area is managed as VRM Class III and Class IV (USDI 1995). The objective for VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape (USDI 1986).

To determine the effects of the project on visual resource management, the key observation points (KOPS) were selected because these areas are frequented by travelers touring the backcountry corridor, with destination points to local vineyards or the Oregon Caves National Monument.

Travelers view portions of the project area from two main travel corridors, Caves Highway (KOP A) and Holland Loop Road (KOP B). The existing landscape character (KOP A: T39S, R7W, Section 9; KOP B: T40S, R7W, Section 9) shows a variety of vegetation densities that vary in difference from natural, vegetative patterns of open to dense stands compared to other areas of dense and open stands from past forest management activities that have occurred over the years across the landscape surrounding the project area. Both sections have continuous vegetation with openings along the adjacent slopes and mountainsides.

The landscape character is a blend of medium to dark green colors with medium to coarse textures of varying forms, created primarily of mixed conifers with pockets of hardwoods and brush fields among a mountainous landscape. The conifer stands, with their medium to coarse texture of vegetation, characterizes the general landscape; pockets of openings, brush fields and younger stands occur and reflect the existing landscape throughout the planning area that surrounds the valley.

3.9.2 Environmental Consequences

Alternative 1: No Action

Under the No Action Alternative for KOPs A and B, there would be no change to the existing visual landscape.

Alternatives 2, 3 and 4

Under Alternatives 2, 3 and 4 for KOP A (Caves Highway), the level of visual change would be moderate and would repeat the basic elements found in the predominant features of the overall landscape. The level of change would create more openings (i.e., pocket openings & mosaic patterns) and would reflect the mosaic, open patterns that currently exist within the overall

landscape. In the short term, the activity would cause a slight contrast to the landform (i.e., soils) until vegetation fills in the openings; however, the combination of the adjacent scenery (vineyards and agricultural lands) in the foreground would attract casual observer's attention while traveling this corridor. The vegetation's blend of medium to dark green colors would remain unchanged.

Under Alternatives 2 and 4 for KOP B (Holland Loop Road), the level of visual change would be noticeable and the landscape character would be altered. The level of change would create openings in an existing dense, coarse-textured stand with full canopy closure. The level of change would match the existing openings that are in the surrounding landscape. In the short term, the activity would cause a moderate contrast and draw attention to the landform (i.e., soils) until vegetation fills in the openings over several years. The vegetation's blend of medium to dark green colors would remain unchanged. Specifically, the driving line of site (KOP B) is directly in front of T40S, R7W, Section 9, which would draw attention to the proposed activity site.

Under Alternative 3 for KOP B, there would be no change to the existing visual landscape as there is not proposed treatment in this section that would be in view from KOP B.

Overall, the project design features would meet the overall change in the vegetative character within the landscape area and is consistent with and would meet VRM class objectives as identified in the RMP (USDI 1995) and BLM H-8410-1, Visual Resource Inventory Handbook (USDI 1986).

3.10 Socio-economics

3.10.1 Affected Environment

The Althouse and Sucker watersheds are adjacent to and include communities and residential areas. The project area includes both private and federal lands with residents living adjacent to BLM managed lands. Residents have expressed a preference for living in country settings away from noise and construction found in larger cities. The transportation system provides access to and between private and federal lands.

Scoping identified a need within nearby communities to provide economic opportunities from federal lands. Regionally, BLM has initiated biomass utilization and stewardship programs with the goal to develop markets for utilization of woody material. Both commercial operators and small businesses in the Illinois Valley depend on forest products from federal land to supplement their business operations.

Josephine County also depends on timber revenues generated from federal land to maintain county services. As an O & C county, Josephine County would receive its share of one-half of O & C timber receipts to support services to county residents. With the reduction in harvest on federal land, the County has relied on the Secure Rural Schools and Self Determination Act to replace lost revenues. The federal funding expired in 2007. However, a one year extension of funding was approved in June of 2007. These funds, which replace timber receipts, amounted to $12-15 million annually. Continued funding is currently being debated in Congress but, if not replaced, Josephine County faces significant cuts to services.

3.10.2 Environmental Consequences

Alternative 1—No Action

Under the No Action Alternative, the BLM would not offer commercial timber to support the county or local and regional timber mills. Further, there would be no acres available for special forest products, biomass utilization, or stewardship contract opportunities for small, local businesses. Material to assist in the development of local markets would not occur. There would be no helicopter noise or other logging related noise impacts to residents.

Alternatives 2, 3, and 4

Logging Activity Impacts to Residents

To minimize new road construction, helicopter yarding is proposed for some project areas. Helicopter logging proposed under Alternatives 2 and 4 would have a noise impact on residents living near or adjacent to proposed helicopter units and landings. These impacts would occur during daylight hours. In general, normal operating times for helicopter logging include the majority of daylight hours. Flight time is also greatly influenced by weather conditions and FAA rules, such as pilot work/rest requirements. It is not uncommon for a helicopter to be grounded by low clouds or wind for hours or days at a time.

Noise from helicopter logging can be heard most of an operational day, depending on how close residences are to flight paths and the blocking or enhancing effect of local topographic features. The greatest amount of noise disturbance occurs when the helicopter is within 500 feet of residences. Previous experience indicates that rural interface residents are most affected in the early morning and late evening. This is unavoidable, resulting from the increased use of helicopter logging required to implement the Medford RMP.

There are no residences within 1,400 feet of the proposed helicopter yarding units and landings in section T40S-R7W-Sections 4&9. There are two residences in Section 4, approximately 1,500 feet from a yarding unit in Section 9. After a day of yarding, this proximity would extend out to 2,000 feet or greater, as the helicopter gradually works away from these distant residences. The helicopter landing in Section 4 is approximately one-half mile away from these same two residences. Duration of helicopter use under Alternatives 2 and 4 would be approximately 20 days to harvest all units within T40S-R7W-Section 9.

Other effects on residents include chain saw noise, dust, and log truck traffic. Chain saw noise has different properties and duration than helicopters, but the possible effects on people follow a similar pattern as described for helicopters. Noise would be dispersed and of short duration. Dust from truck hauling would be mitigated by watering, lignin and/or speed reductions. Log truck traffic on publicly-owned roads would follow all laws, regulations, and speed limits. Special measures would be implemented as needed during special times of the day, such as school bus pick-up and drop-off times.

In summary, effects of increased noise from chainsaw use, helicopters, and logging trucks, and dust and traffic from project activities would be relatively short to moderate in duration and mitigated as necessary. There are no cumulative effects as the disturbance ceases when the project is completed.

Economic Opportunities

All units identified for harvest, thinning, and restoration treatments would be available for special forest product. Namely, 1,700 acres in the project area would be available for small sales, biomass utilization, special forest products, and stewardship contracting opportunities for small local businesses. In addition, approximately 1,500 acres of fuel reduction treatment would be available for contracting to local businesses.

For commercial benefit, the project proposes to make available to local and regional mills 1.5 to 6 million board feet (mmbf). One-half of the receipts generated from the commercial sale of timber go the Oregon and California (O& C) land grant fund which is distributed to O & C counties to support administration and services to county residents.

Both the commercial volume and special forest products opportunities would be offered for competitive bidding. The level of economic benefit in terms of dollars is uncertain and depends on timber market conditions and development of markets for special forest products.

4.0 Agencies and Persons Contacted

4.1 Public Involvement

Public scoping began in July 2005 announcing the Althouse Landscape Project. Subsequent to the release of the Althouse July 2005 scoping letter, the project scope expanded to include the Sucker Creek area. BLM reinitiated public scoping for the Althouse-Sucker Landscape Management Project in November 2005. BLM mailed out approximately 250 scoping letters to landowners and others who have asked to be kept informed about upcoming BLM projects. Approximately 40 letters were received. BLM sent an update letter in April 2007 providing preliminary proposed alternatives.

An open house held in December 2005 introduced the local communities to the BLM planning team, resource specialists and the scope of the project. A field trip on October 19, 2005 facilitated informal discussions between BLM resource specialists and the public. Responses to questionnaires, personal discussions, scoping letters, and comment letters provided public input for BLM consideration. Letters, phone calls, meetings, and field visits solicited the following issues or concerns, which were either considered and addressed in the EA or included in Appendices F&G:

- Maintain the quality of life for local residents by protecting forest resources
- Maintain or improve Aquatic ecosystem
- Create local jobs from forest activities
- Disclose effects to fuel hazard
- Protect water quality
- Reduce fuel loading/fire hazard
- Protect Visual quality and tourism

- Avoid the spread of weeds and Port Orford Cedar root rot disease
- Maintain or improve wildlife habitat
- Cumulative effects of all BLM timber sale activity in the Illinois Valley
- Restore riparian areas
- OHV use
- Improve road conditions
- Consider variable density and young stand treatments
- Address soil effects unit by unit
- Address effects to late successional species
- Habitat connectivity
- Function of LSR
- EIS is required for all BLM projects in the Illinois Valley

Public Suggested Actions

- Consider the Natural Selection alternative
- No harvest in Key watersheds
- Increase non-motorized recreation
- Avoid structural retention harvest
- Avoid removing trees in the riparian zone
- Avoid road building impacts
- No degradation to Northern Spotted Owl or critical habitat
- Maintain old growth stands

4.2 Agencies and Persons Consulted

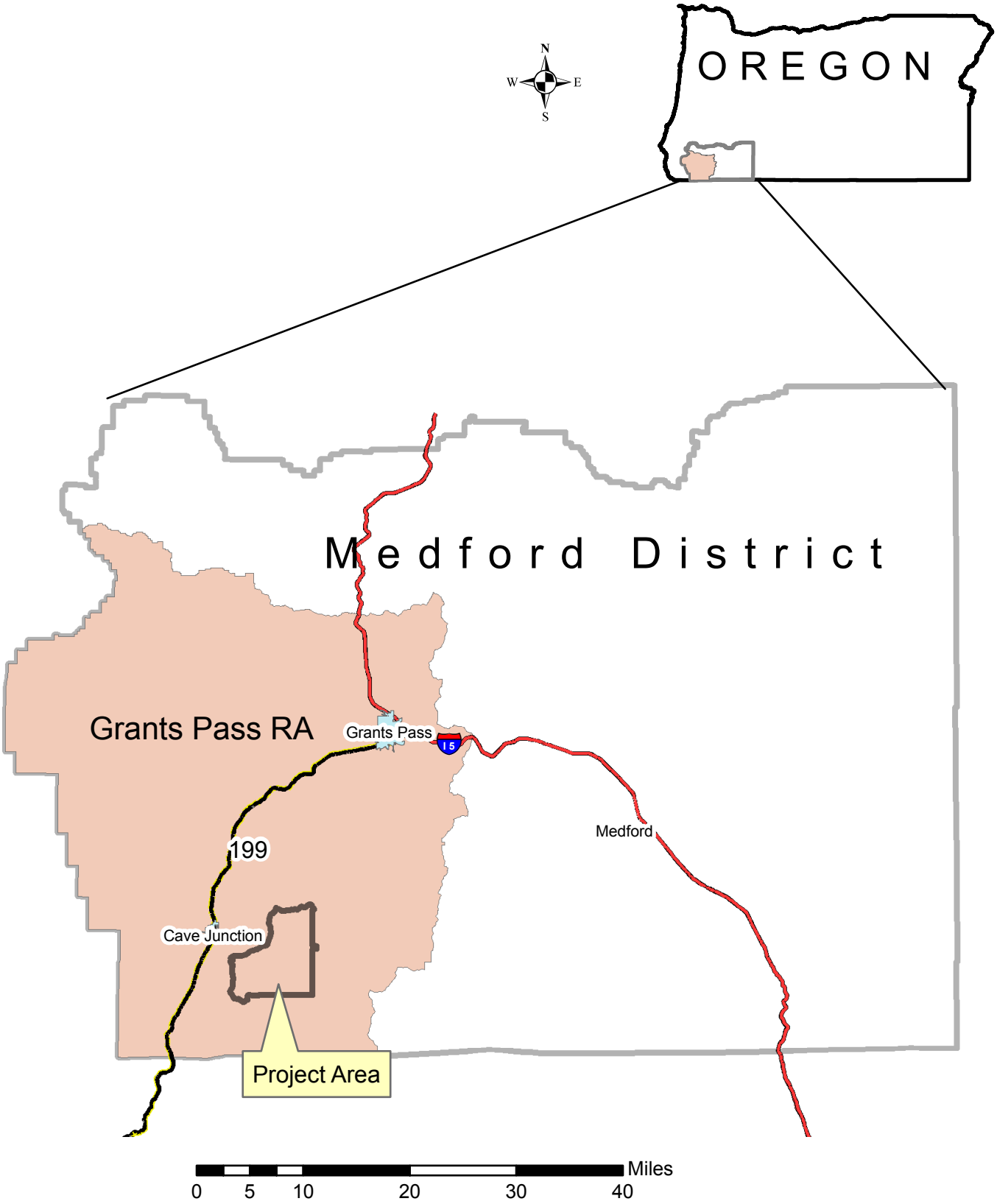
The following agencies were consulted during the planning process: Josephine County, City of Cave Junction, the City of Grants Pass, USDA Forest Service, US Fish and Wildlife Service, National Marine Fisheries Service, and Oregon Department of Fish and Wildlife.

4.3 Availability of Document and Comment Procedures

Copies of the EA will be available for public review in the Grants Pass Interagency Office, 2164 NE Spalding Avenue, Grants Pass, OR 97526. A formal 30-day public comment period will be initiated by a notice in the Grants Pass Daily Courier. If you would like a copy of the EA, please stop by the office or contact Dave Maurer, project lead, at (541) 471-6637. Written comments should be addressed to Abbie Jossie, Field Manager, Grants Pass Resource Area, at 2164 NE Spalding Avenue, Grants Pass, OR 97526. E-mailed comments may be sent to: *Medford_mail.or.blm.gov.*

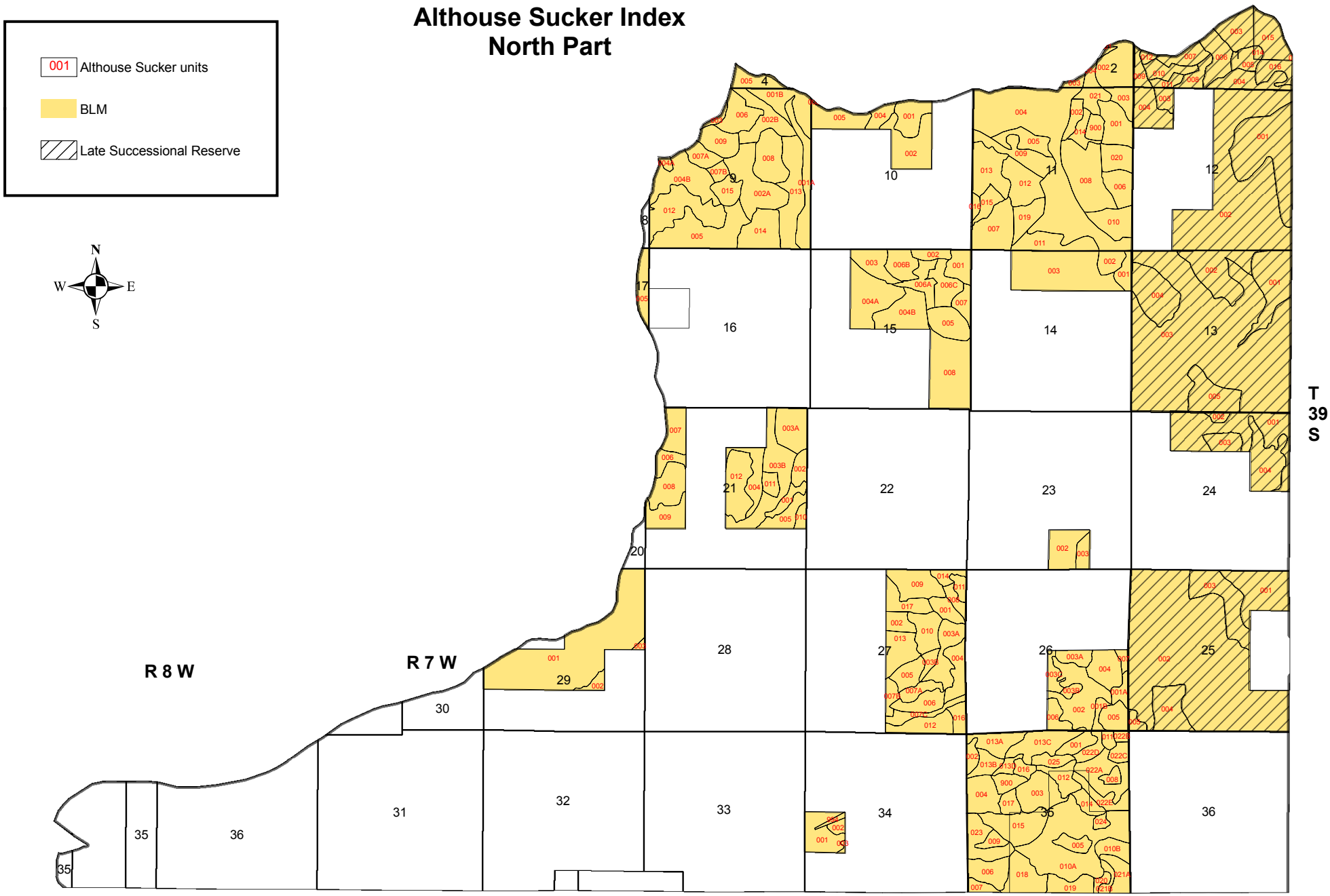
Appendix A — Maps

Althouse Sucker Vicinity



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Althouse Sucker Index
North Part



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Althouse Sucker Index
South Part

001 Althouse Sucker units

BLM

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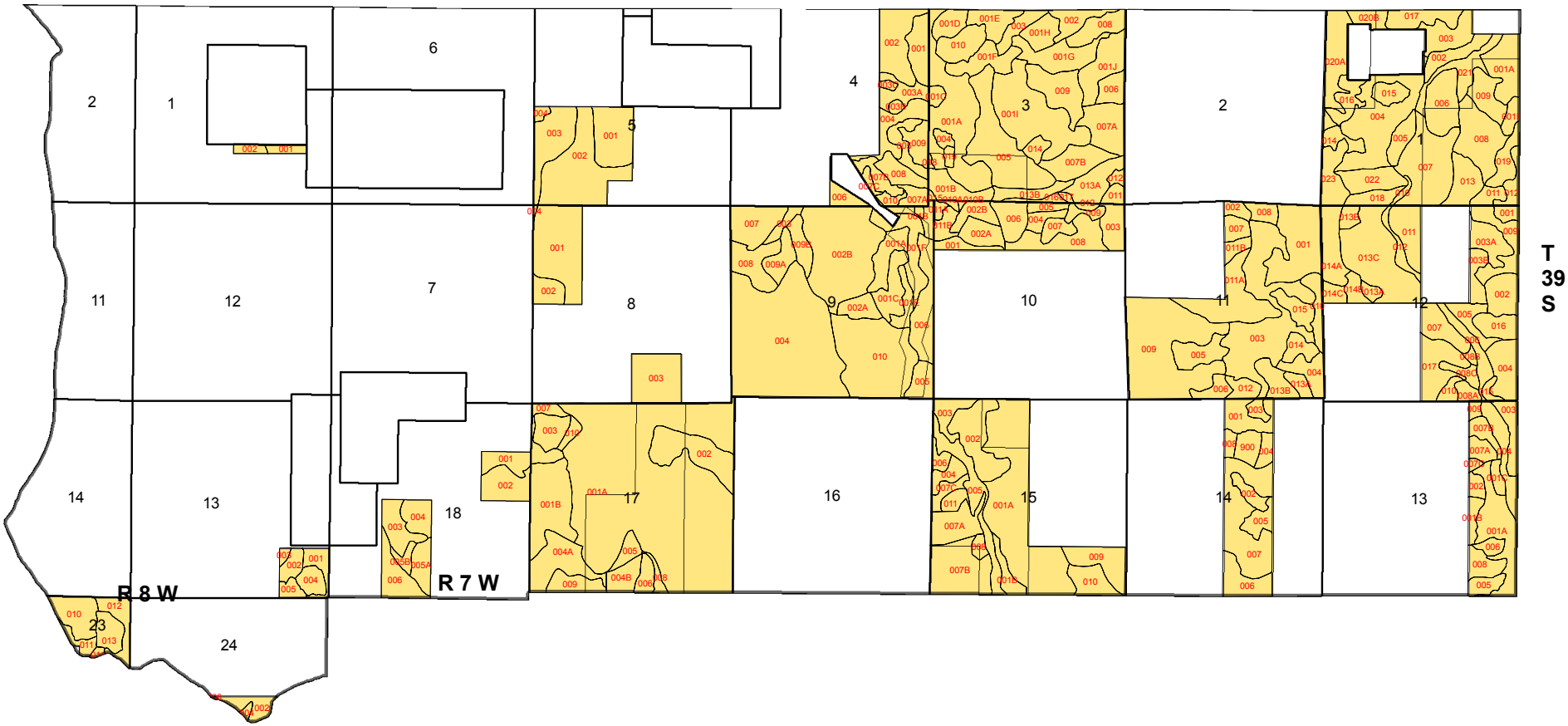
S



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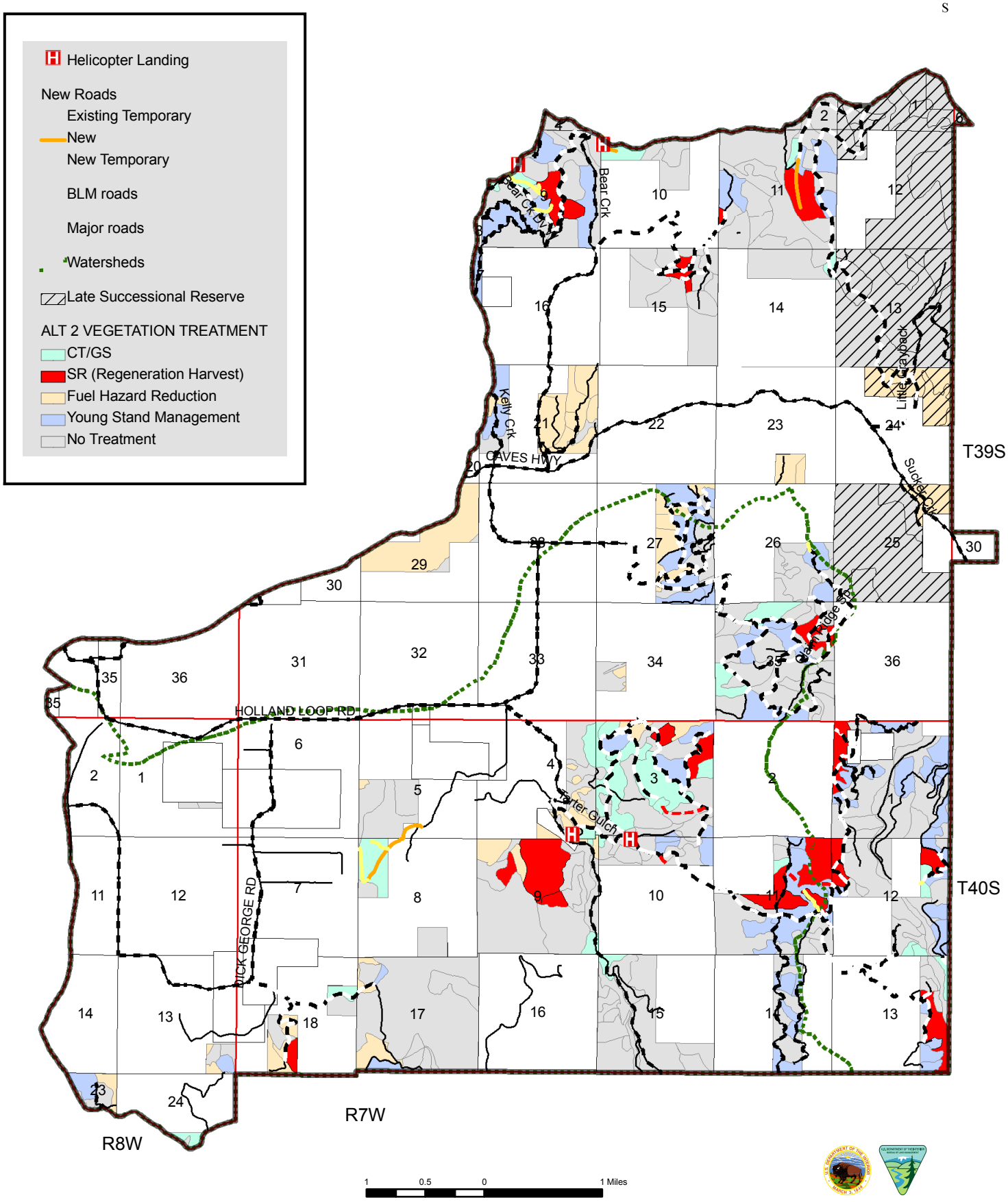
Althouse Sucker
Alternative 2



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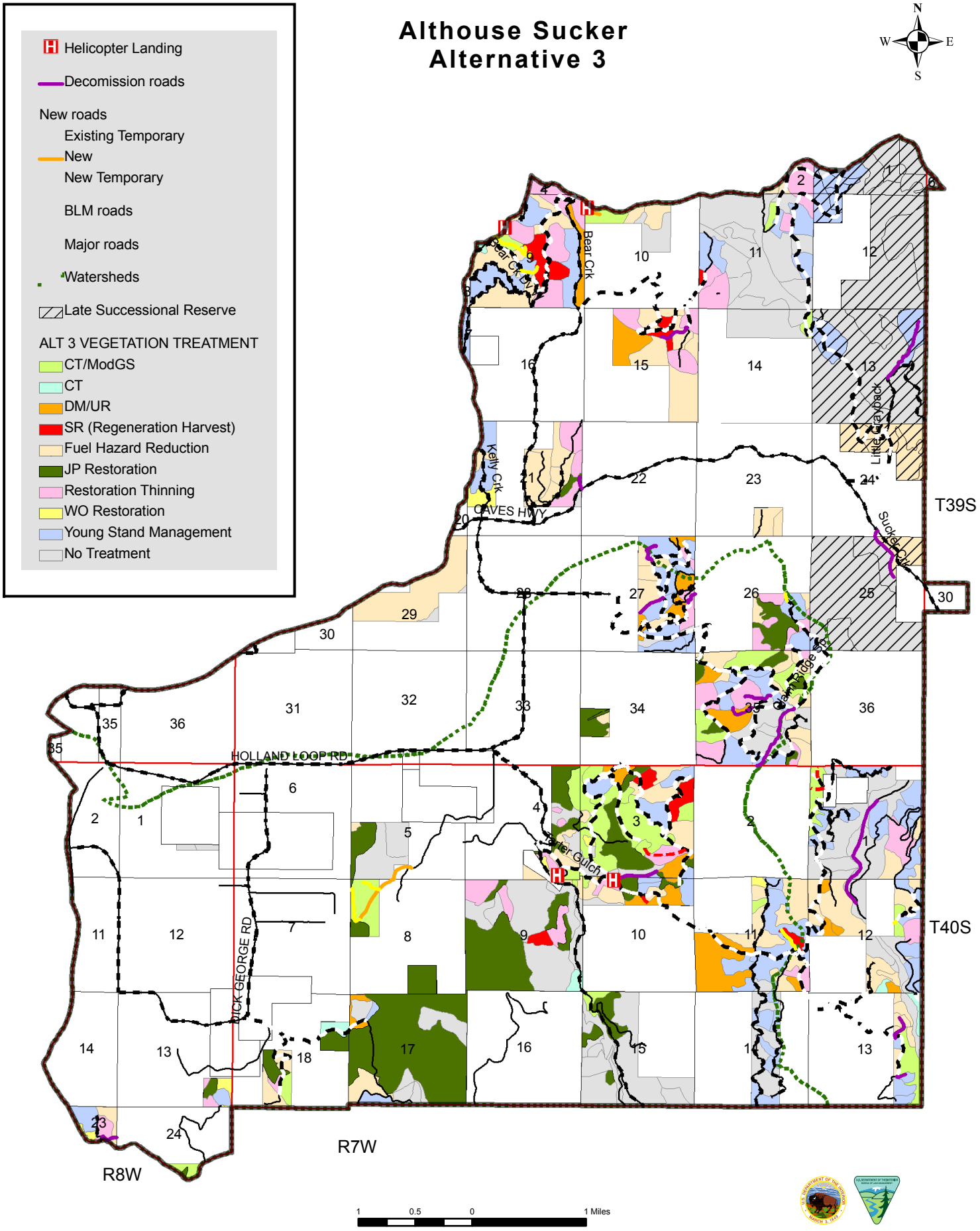
Althouse Sucker Alternative 3



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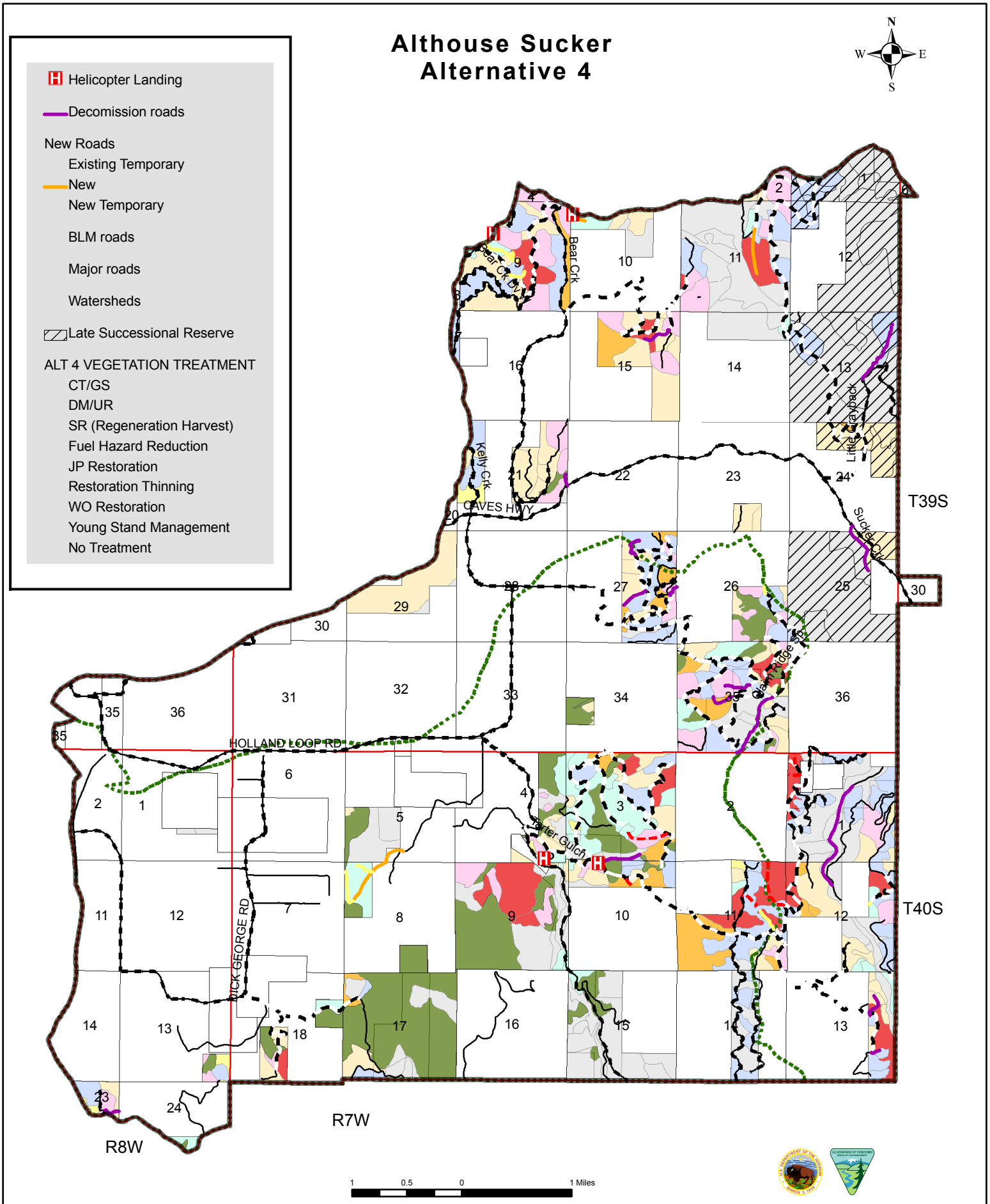
Althouse Sucker
Alternative 4



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Appendix B — Treatment Table

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-06W-06-012	8	0	0	8	0	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-06W-06-018	1	0	0	1	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-003	30	0	0	30	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-004	27	5	0	20	2	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-005	13	2	0	10	1	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-006	27	0	0	27	0	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-007	18	0	0	18	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management, PR, Biomass	0	18	0	0	0	0	5	5
39S-07W-01-008	12	0	0	12	0	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-01-009	11	0	0	11	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	0	11	0	0	0	0	2	2
39S-07W-01-010	16	0	0	16	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	0	16	0	0	0	0	7	7
39S-07W-01-011	7	0	0	7	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	0	7	0	0	0	0	4	4
39S-07W-01-012	4	0	0	4	0	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-014	3	0	0	3	0	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-015	33	0	0	33	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-01-016	17	1	0	16	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-02-001	0	0	1	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	1	0	0	0	0	0	0
39S-07W-02-002	36	0	36	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	0	36	0	0	0	0	3	3

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-02-003	5	0	5	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	5	0	0	0	0	1	1
39S-07W-02-004	9	0	9	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	9	0	0	0	0	3	3
39S-07W-04-005	19	1	17	0	1	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	1[b]	17	0	0	0	0	4	4
39S-07W-09-001A	33	20	4	0	9	Early	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	20[a]	4	7	17	0	0	24	24
39S-07W-09-001B	34	10	20	0	4	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	10[b]	20	0	0	0	0	9	9
39S-07W-09-002A	54	2	51	0	1	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, ,Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, VRM*,Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	2[a]	51	11	42	0	53	53	53
39S-07W-09-002B	32	5	25	0	2	Mature-Late	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	5[b]	25	0	0	0	0	8	8
39S-07W-09-003	5	0	5	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	5	0	0	0	0	1	1

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-09-004A	4	0	4	0	0	Mature	CT/GS, SL/HP/UB/PL, Biomass	CT, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	0	4	4	0	0	4	4	4
39S-07W-09-004B	49	6	40	0	3	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	6[b]	40	0	0	0	0	11	11
39S-07W-09-005	64	19	37	0	8	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	19[b]	37	0	0	0	0	16	16
39S-07W-09-006##	28	1	27	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT	1[c]	27	0	0	0	2	2	2
39S-07W-09-007A	15	0	15	0	0	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	15	6	9	0	15	15	15
39S-07W-09-007B	7	0	7	0	0	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	7	0	0	0	0	2	2
39S-07W-09-008	35	4	29	0	2	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	4[b]	29	0	0	0	0	4	4
39S-07W-09-009	24	0	24	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB	Variable Canopy Thinning, SL/HP/UB	0	24	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-09-012##	53	13	34	0	6	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	13[c]	34	0	0	0	28	28	28
39S-07W-09-013##	51	14	30	0	7	Early	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT, Biomass	14[c]	30	0	0	0	15	15	15
39S-07W-09-014	35	8	23	0	4	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	8[b]	23	0	0	0	0	4	4
39S-07W-09-015	16	0	16	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	16	0	0	0	5	5	5
39S-07W-10-001	25	0	25	0	0	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	25	0	0	0	0	0	0
39S-07W-10-002	45	1	44	0	0	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-10-003	0	0	1	0	0	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	1	0	0	0	0	0	0
39S-07W-10-004	12	0	12	0	0	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	12	0	0	0	0	0	0
39S-07W-10-005	29	0	29	0	0	Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	0	29	9	20	0	29	29	29

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-11-001	29	4	23	0	2	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR	4[c]	23	0	0	0	2	2	2
39S-07W-11-002	11	0	11	0	0	Mid-Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	0	11	11	0	0	11	11	11
39S-07W-11-003	13	0	13	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	0	13	0	0	0	0	2	2
39S-07W-11-004	197	3	193	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-005	20	0	20	0	0	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-006	21	6	13	0	3	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	6[c]	13	0	0	0	1	1	1
39S-07W-11-007	41	6	32	0	3	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	6[b]	32	0	0	0	0	3	3
39S-07W-11-008	63	1	62	0	0	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	No Treatment	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	1[b]	62	32	31	0	63	0	63
39S-07W-11-009	32	3	28	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-11-010	26	0	26	0	0	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-011	29	1	27	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-012	33	3	29	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-013	39	12	22	0	5	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR	12[c]	22	0	0	0	2	2	2
39S-07W-11-014	11	0	11	0	0	Early	Young Stand Management, BR	Young Stand Management, BR	WO Restoration, SL/HP/UB Biomass	0	11	0	0	0	0	0	0
39S-07W-11-015	13	0	13	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	0	13	0	0	0	0	2	2
39S-07W-11-016	5	1	3	0	1	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	1[b]	3	0	4	0	4	4	4
39S-07W-11-019	20	6	11	0	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-11-020	20	2	17	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-	15	0	15	0	0	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
11-021																	
39S-07W-11-900	10	0	10	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB	Variable Canopy Thinning, SL/HP/UB	0	10	0	0	0	0	0	0
39S-07W-12-001	102	23	0	68	11	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-12-002	256	58	0	172	26	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-12-003	10	0	0	10	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	0	10	0	0	0	0	4	4
39S-07W-12-004	31	0	0	31	0	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	0	31	0	0	0	0	4	4
39S-07W-13-001	55	25	0	18	12	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	25[c]	18	0	0	0	0	15	15
39S-07W-13-002	57	6	0	48	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-13-003	441	79	0	326	36	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-	50	10	0	35	5	Early	No Treatment	Young Stand Management-	Young Stand Management-	10[c]	35	0	0	0	0	18	18

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
13-004								**LSR, SL/HP/UB Biomass**	**LSR, SL/HP/UB Biomass**								
39S-07W-13-005	**39**	**2**	**0**	**36**	**1**	**Mature**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-14-001	**11**	**0**	**11**	**0**	**0**	**Mature**	**CT/GS, SL/HP/UB/BU/PL, Biomass**	**CT/ModGS, SL/HP/UB Biomass**	**CT/GS, SL/HP/UB/BU/PL, Biomass**	**0**	**11**	**11**	**0**	**0**	**11**	**11**	**11**
39S-07W-14-002	**14**	**0**	**14**	**0**	**0**	**Mature**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-14-003	**95**	**0**	**95**	**0**	**0**	**Mature**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-15-001	**18**	**0**	**18**	**0**	**0**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**0**	**18**	**0**	**0**	**0**	**0**	**5**	**5**
39S-07W-15-002	**10**	**0**	**10**	**0**	**0**	**Mature**	**No Treatment**	**Fuel Hazard Reduction, SL/HP/UB Biomass**	**Fuel Hazard Reduction, SL/HP/UB Biomass**	**0**	**10**	**0**	**0**	**0**	**0**	**2**	**2**
39S-07W-15-003	**23**	**0**	**23**	**0**	**0**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB**	**Variable Canopy Thinning, SL/HP/UB**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-15-004A	**54**	**1**	**52**	**0**	**1**	**Mid-Mature**	**No Treatment**	**DM/UR, SL/HP/UB Biomass**	**DM/UR, SL/HP/UB Biomass**	**1[b]**	**52**	**5**	**48**	**0**	**0**	**53**	**53**
39S-07W-	**40**	**9**	**27**	**0**	**4**	**Mature**	**No Treatment**	**Fuel Hazard Reduction,**	**Fuel Hazard Reduction,**	**9[b]**	**27**	**0**	**0**	**0**	**0**	**0**	**0**

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
15-004B								SL/HP/UB	SL/HP/UB								
39S-07W-15-005	27	5	20	0	2	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	5[b]	20	0	0	0	0	1	1
39S-07W-15-006A	21	0	21	0	0	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	0	21	8	11	0	21	21	21
39S-07W-15-006B	21	1	20	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	1[b]	20	0	0	0	0	0	0
39S-07W-15-006C	23	0	23	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	23	0	0	0	0	10	10
39S-07W-15-007	11	0	11	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	11	0	0	0	0	0	0
39S-07W-15-008	73	4	67	0	2	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	4[b]	67	0	0	0	0	0	0
39S-07W-17-005##	21	1	20	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	20	0	0	0	14	14	14
39S-07W-21-001	11	2	8	0	1	Mid	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	2[b]	8	0	0	0	0	5	5

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-21-002	11	3	6	0	2	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	3[b]	6	0	9	0	1	1	1
39S-07W-21-003A	32	0	32	0	0	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	0	32	0	32	0	6	6	6
39S-07W-21-003B	55	5	48	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	5[b]	48	0	0	0	10	10	10
39S-07W-21-004	23	1	21	0	1	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	1[b]	21	0	0	0	6	6	6
39S-07W-21-005	18	1	17	0	0	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	1[b]	17	0	18	0	5	5	5
39S-07W-21-006	12	1	11	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	1[b]	11	0	0	0	4	4	4
39S-07W-21-007	25	0	25	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	0	25	0	0	0	2	2	2
39S-07W-21-008	31	4	25	0	2	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	4[c]	25	0	0	0	9	9	9

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-21-009	24	0	24	0	0	Mid	No Treatment	WO Restoration, SL/HP/UB Biomass	WO Restoration, SL/HP/UB Biomass	0	24	0	0	0	0	7	7
39S-07W-21-010	6	2	3	0	1	Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-21-011	9	0	9	0	0	Early-Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	9	0	0	0	1	1	1
39S-07W-21-012	39	12	21	0	6	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	12[b]	21	0	0	0	10	10	10
39S-07W-23-002	30	0	30	0	0	Mature-Late	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	0	30	0	0	0	0	0	0
39S-07W-23-003	10	0	10	0	0	Mature-Late	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	0	10	0	0	0	0	0	0
39S-07W-24-001	91	17	0	66	8	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	17[b]	66	0	0	0	21	21	21
39S-07W-24-002	5	0	0	5	0	Early-Mid	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	0	5	0	0	0	4	4	4
39S-07W-	16	1	0	14	1	Mid-Mature	Fuel Hazard Reduction-	Fuel Hazard Reduction-	Fuel Hazard Reduction-	1[b]	14	0	0	0	6	6	6

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
24-003							CAR/LSR, SL/HP/UB Biomass	CAR/LSR, SL/HP/UB Biomass	CAR/LSR, SL/HP/UB Biomass								
39S-07W-24-004	45	13	0	26	6	Early-Mid	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB	13[b]	26	0	0	0	0	0	0
39S-07W-25-001	57	24	0	22	11	Mid-Mature	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR/LSR, SL/HP/UB Biomass	24[b]	22	0	0	0	15	15	15
39S-07W-25-002	415	10	0	401	4	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-25-003	49	12	0	31	6	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-25-004	36	0	0	36	0	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-25-005	7	2	0	4	1	Early	No Treatment	Young Stand Management-LSR, SL/HP/UB Biomass	Young Stand Management-LSR, SL/HP/UB Biomass	2[c]	4	0	0	0	0	1	1
39S-07W-26-001A	9	1	8	0	0	Mature	No Treatment	Restoration Thinning, SL/HP/UB	Restoration Thinning, SL/HP/UB	1[b]	8	9	0	0	0	9	9
39S-07W-26-	6	1	4	0	1	Mature	No Treatment	Restoration Thinning, SL/HP/UB	Restoration Thinning, SL/HP/UB	1[b]	4	5	0	0	0	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
001B								**Biomass**	**Biomass**								
39S-07W-26-002	**54**	**8**	**42**	**0**	**4**	**Mid**	**No Treatment**	**JP Restoration, SL/HP/UB/BB, Biomass**	**JP Restoration, SL/HP/UB/BB, Biomass**	**8[b]**	**42**	**0**	**0**	**0**	**0**	**2**	**2**
39S-07W-26-003A	**12**	**2**	**9**	**0**	**1**	**Mature**	**No Treatment**	**Restoration Thinning, SL/HP/UB**	**Restoration Thinning, SL/HP/UB**	**2[b]**	**9**	**5**	**6**	**0**	**0**	**12**	**12**
39S-07W-26-003B	**5**	**3**	**1**	**0**	**1**	**Mature**	**No Treatment**	**Restoration Thinning, SL/HP/UB**	**Restoration Thinning, SL/HP/UB**	**3[b]**	**1**	**4**	**0**	**0**	**0**	**4**	**4**
39S-07W-26-003C	**11**	**3**	**6**	**0**	**2**	**Mid-Mature**	**No Treatment**	**Fuel Hazard Reduction, SL/HP/UB**	**Fuel Hazard Reduction, SL/HP/UB**	**3[b]**	**6**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-26-004	**27**	**1**	**26**	**0**	**0**	**Early**	**Young Stand Management, PR, Biomass**	**Young Stand Management, PR, Biomass**	**Young Stand Management, PR, Biomass**	**1[c]**	**26**	**0**	**0**	**0**	**9**	**9**	**9**
39S-07W-26-005##	**17**	**6**	**8**	**0**	**3**	**Early**	**Young Stand Management, PCT, Biomass**	**Young Stand Management, PCT, Biomass**	**Young Stand Management, PCT, Biomass**	**6[c]**	**8**	**0**	**0**	**0**	**2**	**2**	**2**
39S-07W-26-006	**14**	**1**	**12**	**0**	**1**	**Mid**	**No Treatment**	**Restoration Thinning, SL/HP/UB**	**Restoration Thinning, SL/HP/UB**	**1[b]**	**12**	**3**	**10**	**0**	**0**	**13**	**13**
39S-07W-26-007	**5**	**0**	**5**	**0**	**0**	**Mid**	**No Treatment**	**Fuel Hazard Reduction, SL/HP/UB**	**Fuel Hazard Reduction, SL/HP/UB**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-27-001	13	3	9	0	1	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	3[c]	9	0	0	0	1	1	1
39S-07W-27-002	13	3	8	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	3[b]	8	0	0	0	1	1	1
39S-07W-27-003A	31	0	31	0	0	Early-Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	0	31	31	0	0	0	31	31
39S-07W-27-003B	7	0	7	0	0	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	0	7	0	0	0	3	3	3
39S-07W-27-004	22	6	13	0	3	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	6[b]	13	0	0	0	0	8	8
39S-07W-27-005##	17	5	10	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	5[c]	10	0	0	0	3	3	3
39S-07W-27-006##	20	6	12	0	3	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	6[c]	12	0	0	0	6	6	6
39S-07W-27-007A	12	0	12	0	0	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	12	0	0	0	5	5	5

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-27-007B	10	5	3	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	5[b]	3	0	8	0	7	7	7
39S-07W-27-007C	14	10	0	0	4	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-27-008	8	3	3	0	2	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	3[b]	3	0	0	0	0	1	1
39S-07W-27-009#	33	7	23	0	3	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	7[c]	23	0	0	0	6	6	6
39S-07W-27-010	25	0	25	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	0	25	0	0	0	7	7	7
39S-07W-27-011	7	1	5	0	1	Early	Young Stand Management, PR	Young Stand Management, PR	Young Stand Management, PCT/PR, Biomass	1[c]	5	0	0	0	0	0	0
39S-07W-27-012#	24	9	11	0	4	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	9[c]	11	0	0	0	7	7	7
39S-07W-27-013	28	0	28	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	28	0	0	0	2	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-27-014	9	0	9	0	0	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	0	9	0	9	0	9	9	9
39S-07W-27-016#	10	2	7	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	2[c]	7	0	0	0	7	7	7
39S-07W-27-017	21	0	21	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	21	0	0	0	3	3	3
39S-07W-29-001	198	12	181	0	5	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	12[b]	181	0	0	0	54	54	54
39S-07W-29-002	6	4	0	0	2	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-29-003	2	1	0	0	1	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-34-001	32	3	27	0	2	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	3[b]	27	0	0	0	0	11	11
39S-07W-34-002	5	0	5	0	0	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	5	0	0	0	1	1	1
39S-07W-	1	0	1	0	0	Mid	Fuel Hazard Reduction-CAR,	Fuel Hazard Reduction-CAR,	Fuel Hazard Reduction-CAR,	0	1	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
34-003							**SL/HP/UB**	**SL/HP/UB**	**SL/HP/UB**								
39S-07W-34-994	**3**	**0**	**3**	**0**	**0**	**Mid-Mature**	**No Treatment**	**JP Restoration, SL/HP/UB/BB,**	**JP Restoration, SL/HP/UB/BB,**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-35-001	**13**	**0**	**13**	**0**	**0**	**Mid-Mature**	**No Treatment**	**JP Restoration, SL/HP/UB/BB, Biomass**	**JP Restoration, SL/HP/UB/BB, Biomass**	**0**	**13**	**0**	**0**	**0**	**0**	**1**	**1**
39S-07W-35-002	**9**	**0**	**9**	**0**	**0**	**Mid-Mature**	**No Treatment**	**JP Restoration, SL/HP/UB/BB, Biomass**	**JP Restoration, SL/HP/UB/BB, Biomass**	**0**	**9**	**0**	**0**	**0**	**0**	**2**	**2**
39S-07W-35-003	**34**	**3**	**30**	**0**	**1**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**3[b]**	**30**	**0**	**0**	**0**	**0**	**2**	**2**
39S-07W-35-004	**29**	**3**	**24**	**0**	**2**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**3[b]**	**24**	**0**	**0**	**0**	**0**	**1**	**1**
39S-07W-35-005	**12**	**3**	**7**	**0**	**2**	**Early-Mid**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
39S-07W-35-006	**25**	**8**	**14**	**0**	**3**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**8[b]**	**14**	**0**	**0**	**0**	**0**	**2**	**2**
39S-07W-35-007	**8**	**1**	**6**	**0**	**1**	**Early**	**No Treatment**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**Variable Canopy Thinning, SL/HP/UB Biomass**	**1[b]**	**6**	**0**	**0**	**0**	**0**	**3**	**3**

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-35-008	6	1	4	0	1	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	1[b]	4	0	0	0	0	0	0
39S-07W-35-009	8	0	8	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	0	8	0	0	0	0	1	1
39S-07W-35-010A	116	5	109	0	2	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
39S-07W-35-010B	14	3	9	0	2	Mature-Late	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	9	0	0	0	0	4	4
39S-07W-35-011	6	3	1	0	2	Mature-Late	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	1	0	0	0	0	1	1
39S-07W-35-012	19	10	4	0	5	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	10[c]	4	0	0	0	2	2	2
39S-07W-35-013A	24	1	23	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	1[b]	23	0	0	0	0	2	2
39S-07W-35-013B	14	1	12	0	1	Mid-Mature	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	1[b]	12	0	13	0	0	13	13
39S-07W-	34	8	23	0	3	Mid-Mature	CT/GS, SL/HP/UB/BU/PL,	CT/ModGS_60**, SL/HP/UB	CT/GS, SL/HP/UB/BU/PL,	8[a]	23	10	21	0	31	31	31

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
35-013C							Biomass	Biomass	Biomass								
39S-07W-35-013D	7	3	3	0	1	Early	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	3	0	0	0	0	1	1
39S-07W-35-014#	12	4	6	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	4[c]	6	0	0	0	4	4	4
39S-07W-35-015	40	3	35	0	2	Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	3[b]	35	8	30	0	0	38	38
39S-07W-35-016#	7	5	0	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	5[c]	0	0	0	0	3	3	3
39S-07W-35-017#	10	0	10	0	0	Early	Young Stand Management, PCT	Young Stand Management, PCT	Young Stand Management, BR, Biomass	0	10	0	0	0	0	0	0
39S-07W-35-018	31	6	23	0	3	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	6[c]	23	0	0	0	3	3	3
39S-07W-35-019#	19	0	19	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	19	0	0	0	13	13	13
39S-07W-35-020	5	0	5	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	0	5	0	0	0	0	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-35-021A	17	2	14	0	1	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	2[b]	14	0	0	0	0	1	1
39S-07W-35-021B	7	1	5	0	1	Mid-Mature	No Treatment	Restoration Thinning, SL/HP/UB Biomass	Restoration Thinning, SL/HP/UB Biomass	1[b]	5	0	5	0	0	1	1
39S-07W-35-022A	34	5	27	0	2	Mature-Late	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	5[a]	27	7	25	0	32	32	32
39S-07W-35-022B	4	1	2	0	1	Mature	No Treatment	Restoration Thinning, SL/HP/UB Biomass	Restoration Thinning, SL/HP/UB Biomass	1[b]	2	3	0	0	0	1	1
39S-07W-35-022C	8	1	6	0	1	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	1[b]	6	0	0	0	0	2	2
39S-07W-35-022D	11	6	3	0	3	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	6[b]	3	0	0	0	0	1	1
39S-07W-35-022E	17	4	11	0	2	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	4[b]	11	0	0	0	0	7	7
39S-07W-35-023	29	14	9	0	6	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	14[a]	9	0	23	0	23	23	23

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
39S-07W-35-024	5	1	3	0	1	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	1[b]	3	0	0	0	0	2	2
39S-07W-35-025#	11	5	4	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	5[c]	4	0	0	0	3	3	3
39S-07W-35-900	12	3	8	0	1	Early	Young Stand Management, PCT	Young Stand Management, PCT	Young Stand Management, PCT	3[c]	8	0	0	0	0	0	0
40S-07W-01-001A	30	9	17	0	4	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	9[c]	17	0	0	0	4	4	4
40S-07W-01-001B	8	0	8	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	8	0	0	0	0	3	3
40S-07W-01-002	16	11	0	0	5	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-003	24	10	10	0	4	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-004	70	24	35	0	11	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-005	14	9	1	0	4	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-01-006	31	6	23	0	3	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	6[c]	23	0	0	0	7	7	7
40S-07W-01-007	62	24	27	0	11	Mature-Late	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-008	42	5	35	0	2	Early-Mid	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	5[b]	35	0	0	0	0	16	16
40S-07W-01-009	20	5	13	0	2	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	5[c]	13	0	0	0	5	5	5
40S-07W-01-010	3	2	0	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-011#	8	0	8	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	8	0	0	0	3	3	3
40S-07W-01-012	10	0	10	0	0	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	0	10	0	0	0	0	0	0
40S-07W-01-013	22	3	18	0	1	Mature-Late	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	18	0	0	0	0	3	3
40S-07W-01-014##	10	0	10	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	10	0	0	0	3	3	3

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-01-015##	11	1	10	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	10	0	0	0	6	6	6
40S-07W-01-016	16	3	11	0	2	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	3[c]	11	0	0	0	10	10	10
40S-07W-01-017##	21	3	16	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	3[c]	16	0	0	0	6	6	6
40S-07W-01-018	12	3	7	0	2	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-019	15	0	15	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	0	15	0	0	0	8	8	8
40S-07W-01-020A	37	12	20	0	5	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	12[a]	20	32	0	0	32	32	32
40S-07W-01-020B	10	3	5	0	2	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-021	23	8	12	0	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-01-022	22	7	12	0	3	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-01-023	23	2	20	0	1	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-03-001A	82	1	80	0	1	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	1[a]	80	81	0	0	81	81	81
40S-07W-03-001B	20	10	6	0	4	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-03-001C	5	3	0	0	2	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	0	0	0	0	0	1	1
40S-07W-03-001D	14	0	14	0	0	Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS, VRM*, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	0	14	7	7	0	14	14	14
40S-07W-03-001E	18	0	18	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	0	18	9	9	0	18	18	18
40S-07W-03-001F	23	8	11	0	4	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	8[a]	11	12	7	0	19	19	19
40S-07W-03-001G	32	4	26	0	2	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	4[b]	26	0	0	0	0	9	9

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TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-03-001H	16	1	14	0	1	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	1[b]	14	15	0	0	15	15	15
40S-07W-03-001I	78	10	63	0	5	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	10[a]	63	72	0	0	73	73	73
40S-07W-03-001J	30	0	30	0	0	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest) SL/HP/UB/PL, Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	0	30	30	0	0	30	30	30
40S-07W-03-002	16	4	10	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	4[b]	10	0	0	0	0	0	0
40S-07W-03-003	13	1	11	0	1	Mid	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	1[b]	11	0	0	0	0	5	5
40S-07W-03-004	5	1	4	0	0	Mid	No Treatment	WO Restoration, SL/HP/UB Biomass	WO Restoration, SL/HP/UB Biomass	1[b]	4	0	0	0	0	5	5
40S-07W-03-005	72	14	51	0	7	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	14[b]	51	0	0	0	0	15	15
40S-07W-03-006	12	0	12	0	0	Mid-Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	0	12	12	0	0	12	12	12
40S-07W-03-007A	29	1	28	0	0	Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	1[b]	28	0	0	0	0	4	4

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-03-007B	26	4	20	0	2	Mid	No Treatment	Restoration Thinning, SL/HP/UB Biomass	Restoration Thinning, SL/HP/UB Biomass	4[a]	20	24	0	0	0	3	3
40S-07W-03-008##	19	3	15	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	3[c]	15	0	0	0	4	4	4
40S-07W-03-009	33	3	28	0	2	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	3[c]	28	0	0	0	16	16	16
40S-07W-03-010##	22	1	21	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	21	0	0	0	10	10	10
40S-07W-03-011#	6	1	5	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	5	0	0	0	2	2	2
40S-07W-03-012	3	1	2	0	0	Mid	No Treatment	JP Restoration, BB, Biomass	JP Restoration, BB, Biomass	1[b]	2	0	0	0	0	1	1
40S-07W-03-013A	23	8	12	0	3	Mid-Mature	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	8[a]	12	20	0	0	0	20	20
40S-07W-03-013B	13	9	0	0	4	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-03-014	7	1	5	0	1	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	1[a]	5	6	0	0	7	7	7
40S-07W-03-015	1	0	1	0	0	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	1	1	1	0	1	1	1
40S-07W-03-016	4	1	3	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	1[c]	3	0	0	0	2	2	2
40S-07W-03-017	2	0	2	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	0	2	0	0	0	0	0	0
40S-07W-03-018	1	0	1	0	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-03-019	3	0	3	0	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-04-001	20	0	20	0	0	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS_60**, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	20	8	12	0	20	20	20
40S-07W-04-002	39	1	38	0	0	Mid	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	1[b]	38	0	0	0	0	9	9
40S-07W-04-003A	16	6	8	0	3	Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-04-	3	0	3	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	0	3	3	0	0	2	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
003B							Biomass	Biomass	Biomass								
40S-07W-04-003C	2	1	0	0	1	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	1[b]	0	1	0	0	1	1	1
40S-07W-04-004	22	3	17	0	2	Mid	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	3[b]	17	0	0	0	0	14	14
40S-07W-04-005	14	3	9	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	3[b]	9	0	0	0	3	3	3
40S-07W-04-006	10	3	5	0	2	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	3[b]	5	0	0	0	0	0	0
40S-07W-04-007A	8	0	8	0	0	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	8	4	4	0	8	8	8
40S-07W-04-007B	12	1	11	0	0	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	1[b]	11	12	0	0	4	4	4
40S-07W-04-007C	4	2	1	0	1	Early-Mid	No Treatment	WO Restoration, BB, Biomass	WO Restoration, BB, Biomass	2[b]	1	0	0	0	0	1	1
40S-07W-04-008	16	4	10	0	2	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	4[b]	10	0	0	0	4	4	4

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
							Biomass	Biomass	Biomass								
40S-07W-04-009	14	3	9	0	2	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-04-010	4	1	3	0	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-05-001	38	8	26	0	4	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-05-002	73	3	69	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-05-003	37	0	37	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	0	37	0	0	0	0	0	0
40S-07W-05-004	3	0	3	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	0	3	0	0	0	0	0	0
40S-07W-08-001	67	4	61	0	2	Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS_60**, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	4[a]	61	65	0	0	65	65	65
40S-07W-08-002	14	0	14	0	0	Early-Mid	No Treatment	JP Restoration, BB,	JP Restoration, BB,	0	14	0	0	0	0	0	0
40S-07W-08-003	41	1	40	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	1[b]	40	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-08-004	1	0	1	0	0	Mid	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	0	1	0	0	0	0	0	0
40S-07W-09-001A	20	2	17	0	1	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	2[b]	17	0	0	19	0	0	0
40S-07W-09-001B	9	4	3	0	2	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	4[b]	3	0	0	0	2	2	2
40S-07W-09-001C	22	1	21	0	0	Mid-Mature	No Treatment	Restoration Thinning, SL/HP/UB	Restoration Thinning, SL/HP/UB	1[b]	21	0	0	22	0	22	22
40S-07W-09-001D	1	1	0	0	0	Mid-Mature	CT/GS, SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	1[a]	0	1	0	0	1	1	1
40S-07W-09-001E	11	5	4	0	2	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB,	JP Restoration, SL/HP/UB/BB,	5[b]	4	0	0	0	0	0	0
40S-07W-09-001F	26	17	1	0	8	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-09-002A	13	0	13	0	0	Mature-Late	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	0	13	0	0	13	13	13	13

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-09-002B	105	8	94	0	3	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	No Treatment,	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	8[a]	94	0	0	102	101	0	101
40S-07W-09-003	7	2	4	0	1	Mid	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	2[b]	4	0	0	0	0	0	0
40S-07W-09-004	201	2	198	0	1	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	2[b]	198	0	0	0	0	0	0
40S-07W-09-005	13	6	4	0	3	Mature	CT/GS, SL/HP/UB/PL, Biomass	CT, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	6[a]	4	5	5	0	11	11	11
40S-07W-09-006	33	20	4	0	9	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-09-007	31	6	23	0	3	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	6[b]	23	0	0	29	29	29	29
40S-07W-09-008	26	0	26	0	0	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-09-009A	15	3	10	0	2	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	No Treatment,	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	3[b]	10	0	0	13	14	0	14
40S-07W-09-009B	13	3	8	0	2	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	Restoration Thinning-CAR, SL/HP/UB	3[b]	8	0	0	11	12	12	12

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-09-010	93	37	39	0	17	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-10-001	8	6	0	0	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-10-002A	17	8	6	0	3	Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	8[b]	6	0	0	0	0	1	1
40S-07W-10-002B	13	6	4	0	3	Mid-Mature	No Treatment	Restoration Thinning, SL/HP/UB Biomass	Restoration Thinning, SL/HP/UB Biomass	6[a]	4	10	0	0	0	7	7
40S-07W-10-003#	16	0	16	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	16	0	0	0	1	1	1
40S-07W-10-004	8	0	8	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	8	0	0	0	1	1	1
40S-07W-10-005	6	0	6	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	0	6	0	0	0	1	1	1
40S-07W-10-006	18	1	17	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	1[b]	17	0	0	0	0	8	8
40S-07W-10-007	9	3	4	0	2	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	4	0	0	0	0	4	4

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-10-008	31	9	18	0	4	Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	9[a]	18	27	0	0	0	27	27
40S-07W-10-009	6	1	5	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	1[b]	5	0	0	0	0	1	1
40S-07W-10-010A	2	0	2	0	0	Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	2	0	0	0	0	2	2
40S-07W-10-010B	1	0	1	0	0	Mature	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	0	1	1	0	0	1	1	1
40S-07W-10-011A	3	0	3	0	0	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	3	2	2	0	3	3	3
40S-07W-10-011B	10	3	6	0	1	Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	3[b]	6	0	0	0	0	2	2
40S-07W-10-012	2	0	2	0	0	Mid-Mature	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	0	2	2	0	0	2	2	2
40S-07W-11-001	56	1	55	0	0	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	1[b]	55	56	0	0	55	55	55
40S-07W-	6	4	0	0	2	Mid-Mature	No Treatment	WO Restoration, SL/HP/UB	WO Restoration, SL/HP/UB	4[b]	0	0	0	0	0	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
11-002								Biomass	Biomass								
40S-07W-11-003	104	3	100	0	1	Early	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT/PR, Biomass	3[c]	100	0	0	0	46	46	46
40S-07W-11-004	17	0	17	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	0	17	0	0	0	0	9	9
40S-07W-11-005##	21	2	18	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	2[c]	18	0	0	0	3	3	3
40S-07W-11-006##	9	1	8	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	8	0	0	0	4	4	4
40S-07W-11-007	10	2	7	0	1	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	2[b]	7	0	0	0	0	2	2
40S-07W-11-008	10	1	8	0	1	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	1[c]	8	0	0	0	8	8	8
40S-07W-11-009	123	21	92	0	10	Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	21[b]	92	113	0	0	0	113	113
40S-07W-11-010	13	0	13	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	0	13	0	0	0	10	10	10

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-11-011A	48	1	46	0	1	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	1[b]	46	47	0	0	47	47	47
40S-07W-11-011B	7	0	7	0	0	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	0	7	7	0	0	7	7	7
40S-07W-11-012	10	0	10	0	0	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-11-013A	7	1	6	0	0	Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	1[b]	6	7	0	0	0	7	7
40S-07W-11-013B	15	0	15	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	15	0	0	0	0	4	4
40S-07W-11-014	11	0	11	0	0	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	11	0	0	0	0	8	8
40S-07W-11-015	14	0	14	0	0	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	0	14	14	0	0	14	14	14
40S-07W-12-001	6	0	6	0	0	Mid-Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	6	0	0	0	0	1	1

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-12-002	21	10	6	0	5	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	10[b]	6	0	0	0	0	3	3
40S-07W-12-003A	20	5	13	0	2	Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	5[a]	13	18	0	0	18	18	18
40S-07W-12-003B	13	3	9	0	1	Mid-Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	3[a]	9	12	0	0	12	12	12
40S-07W-12-004	25	10	11	0	4	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	10[c]	11	0	0	0	10	10	10
40S-07W-12-005	15	9	2	0	4	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-12-006	16	11	0	0	5	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-12-007	21	8	9	0	4	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-12-008A	6	3	2	0	1	Mature	CT/GS, SL/HP/UB/PL, Biomass	DM/UR, SL/HP/UB Biomass	CT/GS, SL/HP/UB/PL, Biomass	3[a]	2	0	5	0	5	5	5
40S-07W-12-	3	1	1	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
008B																	
40S-07W-12-008C	**7**	**4**	**1**	**0**	**2**	**Mid-Mature**	**No Treatment**	**Fuel Hazard Reduction, SL/HP/UB**	**Fuel Hazard Reduction, SL/HP/UB**	**4[b]**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
40S-07W-12-009##	**25**	**3**	**20**	**0**	**2**	**Early**	**Young Stand Management, PCT, Biomass**	**Young Stand Management, PCT, Biomass**	**Young Stand Management, PCT, Biomass**	**3[c]**	**20**	**0**	**0**	**0**	**11**	**11**	**11**
40S-07W-12-010	**6**	**1**	**5**	**0**	**0**	**Mid-Mature**	**CT/GS, SL/HP/UB/PL, Biomass**	**CT, SL/HP/UB Biomass**	**CT/GS, SL/HP/UB/PL, Biomass**	**1[a]**	**5**	**3**	**3**	**0**	**6**	**6**	**6**
40S-07W-12-011	**24**	**6**	**15**	**0**	**3**	**Mature**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
40S-07W-12-012	**9**	**6**	**0**	**0**	**3**	**Early**	**No Treatment**	**No Treatment**	**No Treatment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
40S-07W-12-013A	**5**	**0**	**5**	**0**	**0**	**Mid**	**No Treatment**	**DM/UR, SL/HP/UB Biomass**	**DM/UR, SL/HP/UB Biomass**	**0**	**5**	**0**	**5**	**0**	**0**	**5**	**5**
40S-07W-12-013B	**7**	**0**	**7**	**0**	**0**	**Mid-Mature**	**No Treatment**	**DM/UR, SL/HP/UB Biomass**	**DM/UR, SL/HP/UB Biomass**	**0**	**7**	**0**	**7**	**0**	**0**	**7**	**7**
40S-07W-12-013C	**73**	**25**	**37**	**0**	**11**	**Mid-Mature**	**No Treatment**	**Fuel Hazard Reduction, SL/HP/UB Biomass**	**Fuel Hazard Reduction, SL/HP/UB Biomass**	**25[b]**	**37**	**0**	**0**	**0**	**0**	**4**	**4**

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-12-014A	28	3	23	0	2	Mid-Mature	SR (Regeneration Harvest)***, SL/HP/UB/PL, Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	SR (Regeneration Harvest)*** SR (Regeneration Harvest)***, SL/HP/UB/PL,	3[b]	23	13	13	0	27	27	27
40S-07W-12-014B	8	0	8	0	0	Mid	No Treatment	DM/UR, SL/HP/UB Biomass	DM/UR, SL/HP/UB Biomass	0	8	0	8	0	0	8	8
40S-07W-12-014C	8	0	8	0	0	Early	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT/PR, Biomass	Young Stand Management, PCT/PR, Biomass	0	8	0	0	0	8	8	8
40S-07W-12-015	4	2	1	0	1	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-12-016	16	3	11	0	2	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	3[c]	11	0	0	0	5	5	5
40S-07W-12-017	32	4	26	0	2	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	4[b]	26	0	0	0	0	15	15
40S-07W-13-001A	46	3	41	0	2	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	CT/ModGS_60**, SL/HP/UB Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	3a[a]	41	5	39	0	44	44	44
40S-07W-13-001B	8	0	8	0	0	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	0	8	0	0	0	0	6	6

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-13-001C	6	3	2	0	1	Early-Mid	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	3[b]	2	0	0	0	0	0	0
40S-07W-13-002##	6	1	5	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	5	0	0	0	4	4	4
40S-07W-13-003	15	6	7	0	3	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	6[a]	7	5	8	0	13	13	13
40S-07W-13-004	22	11	6	0	5	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-13-005##	10	1	8	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	8	0	0	0	2	2	2
40S-07W-13-006#	6	1	4	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	4	0	0	0	2	2	2
40S-07W-13-007A	9	1	7	0	1	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	1[b]	7	0	0	0	0	0	0
40S-07W-13-007B	10	6	2	0	3	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	6[b]	2	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-13-007C	2	1	1	0	0	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	Fuel Hazard Reduction, SL/HP/UB Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	1[b]	1	2	0	0	2	2	2
40S-07W-13-008	14	6	5	0	3	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	6[c]	5	0	0	0	1	1	1
40S-07W-13-009	4	3	0	0	1	Mature	No Treatment	Fuel Hazard Reduction, SL/HP/UB	Fuel Hazard Reduction, SL/HP/UB	3[b]	0	0	0	0	0	0	0
40S-07W-14-001	22	4	16	0	2	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-14-002	9	1	7	0	1	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	1[c]	7	0	0	0	4	4	4
40S-07W-14-003	6	1	5	0	0	Early	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	Young Stand Management, PR, Biomass	1[c]	5	0	0	0	5	5	5
40S-07W-14-004##	8	0	8	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	8	0	0	0	5	5	5
40S-07W-14-005#	11	0	11	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	11	0	0	0	5	5	5
40S-07W-14-006#	23	3	18	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	3[c]	18	0	0	0	12	12	12

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-14-007	66	19	39	0	8	Early	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-14-008##	5	1	3	0	1	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	3	0	0	0	5	5	5
40S-07W-14-900	13	3	8	0	2	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	3[c]	8	0	0	0	3	3	3
40S-07W-15-001A	138	25	102	0	11	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-001B	11	6	2	0	3	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-002	40	15	18	0	7	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	15[b]	18	0	0	0	0	16	16
40S-07W-15-003	15	8	4	0	3	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT/ModGS, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	8[a]	4	0	0	12	11	11	11
40S-07W-15-004	11	2	8	0	1	Mid	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	2[b]	8	0	0	0	0	0	0
40S-07W-15-005	33	23	0	0	10	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-15-006	7	3	2	0	2	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-007A	27	8	16	0	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-007B	49	8	38	0	3	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-007C	8	1	7	0	0	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-008	5	3	0	0	2	Mid	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	3[b]	0	0	0	0	0	0	0
40S-07W-15-009	26	6	17	0	3	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-010	19	0	19	0	0	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-15-011	7	0	7	0	0	Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-001A	415	89	285	0	41	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB/BB, Biomass	JP Restoration, SL/HP/UB/BB, Biomass	89[b]	285	0	0	0	0	9	9

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-17-001B	56	1	54	0	1	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB Biomass	JP Restoration, SL/HP/UB Biomass	1[b]	54	0	0	0	0	8	8
40S-07W-17-002	43	11	27	0	5	Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-003	17	3	13	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-004A	38	3	33	0	2	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	3[b]	33	0	0	0	8	8	8
40S-07W-17-004B	15	3	10	0	2	Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-005	9	5	2	0	2	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-006	10	2	7	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-07W-17-007	15	3	10	0	2	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	DM/UR, CAR, SL/HP/UB Biomass	3[b]	10	7	6	0	14	14	14
40S-07W-17-008	5	3	0	0	2	Mid-Mature	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-07W-17-009	16	1	15	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	1[c]	15	0	0	0	3	3	3
40S-07W-17-010##	5	3	1	0	1	Early	Young Stand Management, PCT	Young Stand Management, PCT	Young Stand Management, PCT	3[c]	1	0	0	0	0	0	0
40S-07W-18-001	15	3	10	0	2	Mature	CT/GS, SL/HP/UB/BU/PL, Biomass	CT, SL/HP/UB Biomass	CT/GS, SL/HP/UB/BU/PL, Biomass	3[a]	10	3	10	0	14	14	14
40S-07W-18-002	25	2	22	0	1	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB Biomass	JP Restoration, SL/HP/UB Biomass	2[b]	22	0	0	0	0	3	3
40S-07W-18-003	20	5	13	0	2	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB Biomass	JP Restoration, SL/HP/UB Biomass	5[b]	13	0	0	0	0	3	3
40S-07W-18-004	16	0	16	0	0	Mid	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	0	16	0	0	0	7	7	7
40S-07W-18-005A	15	1	14	0	0	Mature	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	CT/ModGS, SL/HP/UB/PL, Biomass	SR (Regeneration Harvest), SL/HP/UB/PL, Biomass	1[b]	14	12	3	0	14	14	14
40S-07W-18-005B	6	0	6	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	0	6	6	0	0	1	1	1
40S-07W-18-006	24	10	9	0	5	Mature	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	Fuel Hazard Reduction-CAR, SL/HP/UB	10[b]	9	0	0	0	4	4	4

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
							Biomass	Biomass	Biomass								
40S-08W-01-001	6	2	3	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-08W-01-002	5	3	1	0	1	Early-Mid	No Treatment	No Treatment	No Treatment	0	0	0	0	0	0	0	0
40S-08W-13-001	11	3	6	0	2	Mid-Mature	No Treatment	WO Restoration, SL/HP/UB	WO Restoration, SL/HP/UB	3[b]	6	0	0	0	0	0	0
40S-08W-13-002	9	0	9	0	0	Mid	No Treatment	JP Restoration, BB,	JP Restoration, BB,	0	9	0	0	0	0	0	0
40S-08W-13-003	2	0	2	0	0	Mid	Fuel Hazard Reduction, SL/HP/UB	Restoration Thinning-SL/HP/UB	Restoration Thinning-SL/HP/UB	0	2	2	0	0	0	0	0
40S-08W-13-004	11	1	10	0	0	Early	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	Young Stand Management, BR, Biomass	1[c]	10	0	0	0	1	1	1
40S-08W-13-005	6	0	6	0	0	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	Restoration Thinning-CAR, SL/HP/UB Biomass	0	6	6	0	0	1	1	1
40S-08W-23-010##	26	0	26	0	0	Early	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	Young Stand Management, PCT, Biomass	0	26	0	0	0	4	4	4
40S-08W-23-011	7	0	7	0	0	Mid	No Treatment	WO Restoration, SL/HP/UB Biomass	WO Restoration	0	7	0	0	0	0	2	2

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4
40S-08W-23-012	18	8	7	0	3	Mid-Mature	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	Fuel Hazard Reduction-CAR, SL/HP/UB Biomass	8[b]	7	0	0	0	4	4	4
40S-08W-23-013	15	6	7	0	3	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	6[b]	7	0	0	0	0	7	7
40S-08W-23-014	2	0	2	0	0	Early	No Treatment	Variable Canopy Thinning, SL/HP/UB Biomass	Variable Canopy Thinning, SL/HP/UB Biomass	0	2	0	0	0	0	2	2
40S-08W-24-002	14	2	11	0	1	Mature	CT/GS, HP/UB/PL, Biomass	CT/ModGS, HP/UB Biomass	CT/GS, HP/UB/PL, Biomass	2[a]	11	13	0	0	13	13	13
40S-08W-24-004	2	0	2	0	0	Mid-Mature	No Treatment	JP Restoration, SL/HP/UB	JP Restoration, SL/HP/UB	0	2	0	0	0	0	0	0
40S-08W-24-006	0	0	1	0	0	Early	Young Stand Management, BR	Young Stand Management, BR	Young Stand Management, BR	0	1	0	0	0	0	0	0
	10,472	1,662	6,485	1,565	774					1,008	5,434	1,002	545	221	1,816	2,486	2,664

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2- Vegetation Treatment Prescription[8]	Alternative 3- Vegetation Treatment Prescription[9]	Alternative 4- Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4

[1]TRSU: Township- Range- Section- operations inventory (OI) number that represents an inventoried area of land / vegetation included in this project.

 # The young stand management treatment was proposed with a CE (Categorical Exclusion document) in 2007. It is listed here to describe the biomass extraction proposal.

The young stand management treatment was proposed with a CE in 2006 and treatment is ongoing. It is listed here to describe the biomass extraction proposal.

[2]Total Unit Acres – Total acres for each OI unit based on GIS map measurement Rounding can create slight discrepancies in summations

Land Use Allocation - Allocation under the RMP which define allowable uses/activities, restrictive uses\activities, and prohibited uses/activities Each allocation is associated with a specific management objectives.

[3]Riparian Reserve - Designated riparian reserves for aquatic/terrestrial habitat under Aquatic Conservation Strategy, see NWFP ROD. It does not include the 100 foot no treatment buffer along the stream channel.

[4]Matrix – Lands outside of reserves and special management areas that are available for timber harvest.

[5]LSR – Late-Successional Reserve, designated under the NWFP to protect and enhance LS habitat.

[6]No Treatment Riparian Buffer- 50 foot buffer on each side of the stream channel that would not be treated.

[7]Stand Seral Stage, current Stand Seral Stage, prior to treatment.

Early - Vegetation is dominated by shrubs or conifers and hardwood trees in a seedling/ sapling size class (<5"DBH)

Mid - Vegetation is tree dominated. Trees at least small pole size (>4"DBH). Larger scattered trees may be present.

Late - Forest stands are dominated y conifers or hardwoods; canopy closure often approaches 100 percent.

Mature - Forest has begun to differentiate into distinct canopy layers. Overstory dominant and codominant trees are conifers greater than 20" DBH, understory trees will be conifer-hardwood mix.

[8,9] Vegetative Treatment Prescription:

<u>Plant Community Abbreviations</u>- TO (Tanoak), DF (Douglas-fir), JP (Jeffery Pine), WO (White oak)

<u>Silvicultural Prescriptions</u>:

<u>CT</u> - Commercial Thin, removal of commercial conifers to encourage growth of remaining trees

<u>GS</u> - Group Selection, harvest in small patches (<3 acres) where there is a lack of conifer regeneration because of intense hardwood brush competition

<u>SR</u> - Structural Retention, regeneration timber harvest conducted with the partial objective of opening a forest stand to the point where favored tree species will be reestablished while leaving 16 large trees per acre

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4

SR* -Structural Retention, where less than 16 (but more than 7) large trees would be left per acre.**

ModGS - Modified Group Selection, small patch harvest where a vigorous sugar or Ponderosa pine or non-tanoak hardwood is left and surrounding commercial and non-commercial conifers would be removed.

CT/ModGS_60 - Application of CT and ModGS treatments while leaving 60% average canopy closure,**

DM/UR - Density Mgmt / Understory Reduction - Cutting of trees for the primary purpose of widening their spacing so that growth of remaining trees can be accelerated. Density management harvest can also be used to improve forest health, to open the forest canopy, or to accelerate the attainment of old growth characteristics if maintenance or restoration of biological diversity is the objective.

Restoration Thinning - Thinning is applied in dryer areas containing oaks and pines. On these drier sites, vigorous pines and oaks would be the preferred leave species. Leave basal areas would be fairly low (60 to 80 ft2/acre) in order to restore the site to a pine/oak savannah condition. Once restored, maintenance underburning would maintain the site.

Variable Canopy Thinning - Thinning that reduces stand densities, promote species diversity, and maintain vigorous crowns. Vegetation in stands less than 50 years would be cut in order to accelerate growth, promote stand differentiation, and maintain the non-tanoak hardwood component for future stand diversity.

VRM* (Visual Resource Management) – Result of the stand treatment would be mitigated to avoid drawing the attention of a casual observer.

SL - Understory / Slash Treatments, UB - Underburn, HP - hand piling of slash and subsequent burning of piles at a later date, UT - thinning / slashing of understory vegetation, LS - lop and scatter of harvest slash, PL – Site to be planted . BB – broadcast burning in natural openings

JP (Jeffrey Pine) Restoration - Prescribed burning, usually broadcast burning. Certain habitats may include understory thinning or slashing of certain species up to six inches dbh and hand pile and burn.

PR – Pruning

WO(White Oak) Restoration - Includes understory thinning of small oaks and/or slashing of invading conifers, hand pile and burn and/or underburning.

Young Stand Management - Includes treatments such as brushing, precommercial thinning (PCT), understory thinning which thins shrubs, hardwoods and conifers (UT), hand piling and burning (HB) and/or underburning (UB). Some treatments have been addressed in a recent Categorical Exclusion. They are included in this document for reference.

PL – description (in SR and GS units)

[10]Potential Treatment Acres– Excludes the No Treatment portion of the Riparian Reserve and the units with "No Treatment" for both alternatives.

Acres by Yarding System:

[11]Tractor/Ground Based – Tractor Yarding. Machine size dependent upon purpose (timber harvest to small forest product removal, stewardship)

[12]Cable – Cable yarding

ALTHOUSE SUCKER LANDSCAPE MANAGEMENT PROJECT- PROPOSED TREATMENT TABLE

TRSU[1]	Total Unit Acres[2]	Land Use Allocation Acres				Stand Seral Stage[7]	Alternative 2-Vegetation Treatment Prescription[8]	Alternative 3-Vegetation Treatment Prescription[9]	Alternative 4-Vegetation Treatment Prescription[9]	Potential Treatment Area in Acres[10]		Tractor/Cable Roadside Biomass[14]			Biomass Acres		
		Riparian Reserve (Outside No Treatment Buffer)[3]	Matrix[4]	LSR[5]	No Treatment Riparian Buffer[6]					Riparian Reserve[15]	Matrix or LSR	Tractor/ Ground Based [11]	Cable [12]	Heli[13]	Alt 2	Alt 3	Alt 4

[13]Helicopter

[14]Acres of Units that would be available for biomass removal. Harvest units would include their entire area. Other treatment areas would be limited to 200 feet along the roadside.

[15]Riparian Reserve – Includes: aThinning from below 60%min. cc, b Fuel hazard reduction, cYoung stand management.

CAR – Communities at Risk (fuels category that relates populated forested areas vs. remote areas)

Appendix C — Road Information

Table C-1 Road Maintenance

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
38 S 07 W 27.00C	Thompson Crk	1.51	BLM	BST	4	1.51							M1166 / M656B	Maintenance will be performed by BLM crews as part of the routine road maintenance operating plan.
39 S 07 W 04.00	Upper Bear Ck Dv	0.2	BLM	NAT	1	0.2								
39 S 07 W 09.01A	Thompson Dv E	1.5	BLM	GRR	3	1.5							M1166 / M656B	
39 S 07 W 09.02	Bear Ck Dv W	2.72	BLM	ABC	3	2.72					Yes		M656B	
39 S 07 W 09.03	Bear Ck Div Sp	0.52	BLM	NAT	3	0.52							M1166 / M656B	
39 S 07 W 09.04	Bear Ck Div Sp A	2.16	BLM	ABC	3	2.16							M656B	
39 S 07 W 09.05	Bear Ck Dv W	0.75	BLM	ABC	2	0.75							M656B	
39 S 07 W 09.06	Bear Remains Sp	0.53	BLM	ABC	3	0.53								
39 S 07 W 09.07	Bare Nelson C Sp	0.28	BLM	NAT	1	0.28							M656B	
39 S 07 W 12.00	Little Grayback Sp	0.28	BLM	NAT	2	0.28					Yes			
39 S 07 W 13.00	Little Grayback C	0.49	BLM	NAT	2				0.49		Yes			

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
39 S 07 W 13.01	Little Grayback Sp	0.14	BLM	PRR	2	0.14								
39 S 07 W 15.00	E Fk Bear Sp	0.42	BLM	NAT	2	0.42		0.42						
39 S 07 W 15.01	Bear East Spur	0.31	BLM	NAT	2				0.31					
39 S 07 W 16.00A	E Fk Bear Crk	0.8	BLM	PRR	3	0.8		0.8					M1166 / M656B	
39 S 07 W 16.00B	E Fk Bear Crk	1.46	BLM	PRR	3	1.46		1.46					M1166 / M656B	
39 S 07 W 16.00C	E Fk Bear Crk	0.7	BLM	NAT	2	0.7		0.7					M656B	
39 S 07 W 21.00A	Bear Crk	1.25	BLM	BST	4	1.25		1.25					M1166 / M656B	Maintenance will be performed by BLM crews as part of the routine road maintenance operating plan.
39 S 07 W 21.00B	Bear Crk	1	BLM	BST	4	1		1					M1166 / M656B	Maintenance will be performed by BLM crews as part of the routine road maintenance operating plan.
39 S 07 W 21.00C	Bear Crk	1.1	BLM	BST	4	1.1		1.1					M1166 / M656B	Maintenance will be performed by BLM crews as part of the routine road maintenance operating plan.
39 S 07 W 21.01	Kelly Crk	3.54	BLM	ABC	3	3.54					Yes		M656B	
39 S 07 W 21.02A	Bear Caves Rdg	0.2	BLM	ABC	2	0.2							M1166 / M656B	
39 S 07 W 21.02B	Bear Caves Rdg	0.61	BLM	NAT	2	0.61		0.61						
39 S 07 W 21.03	Bear Caves Rdg	0.1	BLM	NAT	1				0.1					
39 S 07 W 21.04A	Bear Caves Rdg	0.42	BLM	ABC	2	0.42		0.42					M1166 / M656B	

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
39 S 07 W 21.04B	Bear Caves Rdg	0.62	BLM	NAT	2	0.62		0.62					M1166 / M656B	
39 S 07 W 24.00	Little Grayback	2.2	BLM	ABC	3	2.2		2.2			Yes			
39 S 07 W 24.01A	Sucker Crk	0.08	BLM	ABC	1				0.08					
39 S 07 W 24.01B	Sucker Crk	0.73	BLM	ABC	1	0.33			0.4					
39 S 07 W 24.02A	Little Grayback	1.93	BLM	PRR	2	1.93					Yes	Yes		
39 S 07 W 24.02B	Little Grayback	2.5	BLM	NAT	2	2.5		2.5			Yes			
39 S 07 W 24.02C	Little Grayback	1.13	BLM	NAT	2	1.13		0.68			Yes			
39 S 07 W 27.00A	Holland Mainline	0.63	BLM	PRR	3	0.63				Gate			M1166	Road To Be Closed Seasonally
39 S 07 W 27.00B	Holland Mainline	0.51	BLM	ABC	3	0.51							M1166	Road To Be Closed Seasonally
39 S 07 W 27.00C	Holland Mainline	0.8	BLM	ABC	3	0.8							M1166	Road To Be Closed Seasonally
39 S 07 W 27.00D	Holland Mainline	1.18	BLM	ABC	3	1.18							M1166	Road To Be Closed Seasonally
39 S 07 W 27.00E	Holland Mainline	0.79	BLM	ABC	3	0.79							M1166	Road To Be Closed Seasonally
39 S 07 W 27.01A	Robinson Hill P	0.55	BLM	ABC	3	0.55							M1166	Road To Be Closed Seasonally
39 S 07 W 27.01B	Robinson Hill P	0.3	BLM	ABC	3	0.3							M1166	Road To Be Closed Seasonally

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
39 S 07 W 27.01C	Robinson Hill P	0.19	BLM	NAT	2	0.19				Inaccessible			M1166	Inaccessible
39 S 07 W 27.02A	Robinson Hill A	1.09	BLM	GRR	3	1.09							M1166	Road To Be Closed Seasonally
39 S 07 W 27.02B	Robinson Hill A	0.18	BLM	NAT	2	0.18							M1166	Road To Be Closed Seasonally
39 S 07 W 27.03	Robinson Hill B	0.74	BLM	GRR	2	0.74							M1166	
39 S 07 W 27.04	Robinson Hill Sp	0.25	BLM	NAT	2				0.25					
39 S 07 W 27.05	Robinson Hill Sp	0.23	BLM	GRR	3				0.23					
39 S 07 W 27.06	Robinson Hill Sp	0.15	BLM	NAT	2	0.15								
39 S 07 W 27.07	Robinson Hill Sp	0.11	BLM	NAT	2				0.11				M1166	
39 S 07 W 27.08	Holland Sp	0.6	BLM	NAT	2	0.6								
39 S 07 W 27.09A	Robinson Hill Sp	0.23	BLM	ABC	3	0.23							M1166	Seasonally Closed
39 S 07 W 27.09B	Robinson Hill Sp	0.21	BLM	GRR	2	0.21				Earth Berm				Close and Lower Maintenance Level
39 S 07 W 27.09C	Robinson Hill Sp	0.14	BLM	NAT	2	0.14				Earth Berm				Close and Lower Maintenance Level
39 S 07 W 27.10A	Robinson Hill Sp	0.18	BLM	ABC	2	0.18								Road Closed On A Seasonal Basis
39 S 07 W 27.10B	Robinson Hill Sp	0.01	BLM	NAT	2	0.01								Road Closed On A Seasonal Basis

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
39 S 07 W 35.00A	Holland Sp A	1.35	BLM	PRR	3	1.35								Road Closed On A Seasonal Basis
39 S 07 W 35.00B	Holland Sp A	0.3	BLM	PRR	3	0.3								Road Closed On A Seasonal Basis
39 S 07 W 35.01	Claim Ridge B	0.29	BLM	NAT	2				0.29					
39 S 07 W 35.02	Claim Ridge A	0.21	BLM	ABC	3				0.21					
39 S 07 W 35.03	Claim Ridge P	1.63	BLM	ABC	3	1.63								Road Closed On A Seasonal Basis
39 S 07 W 35.04	Claim Rdg E	0.66	BLM	NAT	2				0.66					Full
39 S 07 W 35.05	Claim Ridge Sp	1.51	BLM	ABC	3	1.51							M1166	Seasonal Closure
40 S 07 W 01.00	Sucker Ck Spit	2.7	BLM	NAT	2	1.6		1.6	1.1		Yes			
40 S 07 W 01.01	French Peak Sp	0.51	BLM	ABC	2	0.51					Yes	Yes		
40 S 07 W 01.02	French Peak Sp	0.33	BLM	ABC	2	0.33					Yes			
40 S 07 W 01.03	French Peak Sp	0.3	BLM	NAT	2	0.3								
40 S 07 W 01.04	French Peak Sp	0.17	BLM	ABC	2	0.17							M1166	
40 S 07 W 01.05	Golden Sucker Sp	0.24	BLM	NAT	2	0.24		0.24			Yes			Reconstruct Junction
40 S 07 W 03.00	Republican Gulch	0.36	BLM	NAT	1	0.36								

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
40 S 07 W 03.01A	Republican Gulch Sp	0.03	BLM	GRR	1	0.03								
40 S 07 W 03.01B	Republican Gulch Sp	0.87	BLM	NAT	1	0.87								
40 S 07 W 03.02	Republican Gulch Sp	0.67	BLM	NAT	2	0.67								
40 S 07 W 04.00A	Tarter Gulch	1.94	BLM	ABC	3	1.94					Yes		M1166 / M656B	
40 S 07 W 04.00B1	Tarter Gulch	0.59	BLM	ABC	3	0.59					Yes		M1166 / M656B	
40 S 07 W 04.00B2	Tarter Gulch	0.35	BLM	ABC	3	0.35					Yes		M1166 / M656B	
40 S 07 W 04.00B3	Tarter Gulch	0.97	BLM	ABC	3	0.97					Yes		M1166 / M656B	
40 S 07 W 04.00C	Tarter Gulch	2.19	BLM	ABC	2	2.19		2.19			Yes	Yes	M1166	
40 S 07 W 04.01	T Gul Spur	0.11	BLM	NAT	2	0.11					Yes			
40 S 07 W 10.00	Republican Gulch	3.3	BLM	ABC	3	3.3								
40 S 07 W 10.01	Tarter Gulch Sp	0.37	BLM	GRR	3				0.37					
40 S 07 W 11.00	Tartar Gulch A Sp	0.66	BLM	ABC	3	0.66							M1166	
40 S 07 W 11.01	Tartar Gulch B Sp	1.78	BLM	ABC	3	1.78					Yes		M1166	
40 S 07 W 11.02A	Longview Tartar	0.48	BLM	ABC	3	0.48							M1166 / M656B	

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
40 S 07 W 11.02B	Longview Tartar	0.11	PVT	ASC	3	0.11							M1166 / M656B	
40 S 07 W 11.02C	Longview Tartar	0.85	PVT	ASC	3	0.85							M1166 / M656B	
40 S 07 W 11.02D1	Longview Tartar	0.2	BLM	ASC	3	0.2							M656B	
40 S 07 W 11.02D2	Longview Tartar	0.93	BLM	NAT	2	0.93							M656B	
40 S 07 W 11.05A	Bolen Lake	0.48	BLM	PRR	2	0.48							M656B	
40 S 07 W 11.05B	Bolen Lake	0.19	PVT	PRR	2	0.19							M1166 / M656B	
40 S 07 W 12.00	Sucker Creek Sp	0.56	BLM	NAT	2	0.56					Yes			
40 S 07 W 13.00	Yeager Creek	0.91	BLM	NAT	2	0.91		0.91						
40 S 07 W 13.01	Longview Tarter Sp	0.1	BLM	NAT	1				0.1					
40 S 07 W 13.02	Longview Tarter Sp	0.23	BLM	NAT	1				0.23					
40 S 07 W 13.03		0.74	BLM	ABC	2	0.74							M656B	Close / Maint Level 1
40 S 07 W 13.04		0.1	PVT	NAT	2	0.1							M1166 / M656B	Close / Maint Level 1
40 S 07 W 14.00	Bolen Lake Sp	0.93	BLM	ABC	2	0.93				Gate	Yes		M656B	Install Gate
40 S 07 W 15.00A	Mccloskey Access	0.7	PVT	NAT	2	0.7		0.7					M1166 / M656B	Replace 2 CMP Ruts/Outslope and rock with 6" of aggregate. Contact Rough and Ready

Road Number	Road Name	Road Mile	Who Controls	Surface Type	Maint. Level	Approx. Miles of Proposed Treatment: Maint.	Const.	Renov.	Decom.	Road Closure Type	POC	PL	Agreement Number	Comments
40 S 07 W 17.00	Pithouse Ck Sp	0.26	BLM	PRR	2	0.26		0.26			Yes	Yes		
40 S 07 W 18.00	Althouse Ck Sp	2.16	BLM	PRR	2	2.16		2.16			Yes	Yes		
40 S 07 W 18.01	Althouse Ck Sp	1	BLM	NAT	2	1		1						
40 S 08 W 23.01	Little Elder A Sp	0.52	BLM	ABC	3	0.52								
40 S 08 W 23.03	Little Elder Sp	0.12	BLM	NAT	2				0.12					
40 S 08 W 24.00B	Little Elder Sp	0.77	PVT	NAT	2	0.77								
40 S 08 W 24.00C	Little Elder Sp	0.41	BLM	NAT	2	0.41								
40 S 08 W 23.00B	Little Elder Ml	1.14	BLM	ABC	3	1.14								
40 S 08 W 24.00A	Little Elder Sp	0.35	BLM	ABC	2	0.35								
40 S 08 W 23.00A	Little Elder Ml	0.95	BLM	ABC	3	0.95								
40-7-5 Access	Indian Hills	1.24	PVT	NAT		1.24								Needs R/W Agreement
Totals		**82.07**				**77.02**		**22.82**	**5.05**					

Table C-2 Road Construction and Obliteration

New Roads Construction

Road Number	Miles	Surface Type	Const Miles	Renov Miles	Oblit Miles	Road Closure Type	POC	Comments
39-7-11A Road	0.45	NAT	0.45			Earth berm	No	New construction near ridge top. Alt 2 and 4only
40-7-5A	0.24	NAT	0.1	0.14		Existing Gate closes system	No	New construction across private. Need R/W agreement. First segment of 40-7-8A Alt 2, 3, and 4
40-7-8A	0.46	NAT	0.46			Earth berm	No	New construction across private then road construction near ridge top. Need R/W agreement Alt 2, 3, and 4
Total New Construction			1.01					Alt 2 and 4, 1.01 miles new construction. Alt 3 0.56 miles new construction

Temporary Spur Roads

Road Number	Miles	Surface Type	Const Miles	Renov Miles	Oblit Miles	Road Closure Type	POC	Comments
39-7-26A	0.09	NAT	0.09		0.09	Obliterate	No	Alt 2, 3, & 4
39-7-9A	0.35	NAT	0.35		0.35	Obliterate	No	Alt 2, 3, & 4
39-7-9B	0.12	NAT	0.12		0.12	Obliterate	No	Alt 2, 3, & 4
39-7-9C	0.16	NAT	0.16		0.16	Obliterate	No	Alt. 2, 3,& 4

40-7-11B	0.17	NAT	0.17		0.17	Obliterate	No	Alt 2 & 4 only
40-7-11C	0.22	NAT	0.22		0.22	Obliterate	Yes	Alt 2, 3, & 4
40-7-12A	0.02	NAT	0.02		0.02	Obliterate	No	Alt 2, 3, & 4
40-7-8B	0.33	NAT	0.33		0.33	Obliterate	No	Alt 2, 3, & 4
40-7-8C	0.16	NAT	0.16		0.16	Obliterate	No	Alt 2, 3, & 4
Total new temp spurs	1.62		1.62		1.62			Alt 2 & 4, 2.31 miles of new temp spurs. Alt 3 2.14 miles of new temp spurs
Open Existing temp spurs								
40-7-1B	0.13	NAT		0.13	0.13	Decommission	Yes	Open existing spur Alt 2, 3, & 4
40-7-3A	0.47	NAT		0.47	0.47	Decommission	No	Open existing spur. Alt 2, 3, & 4
40-7-11A	0.50	NAT		0.50	0.50	Decommission	No	Open existing spur. Alt 2 and 4 only.
Total	1.1			1.1	1.1			Alt 2 & 4 1.1 miles open existing spurs. Alt 3 0.60 miles open existing spurs

Footnotes: BST=Bituminous Surface Treatment **ASC**= Aggregate Surface Coarse **GRR**= Grid Rolled Rock **PRR**= Pit Run Rock **NAT**= Natural Surface **H** = Construct Helicopter landing (approx. 100' x 200')

Maintenance may include surface grading, roadside brushing, for safety, spot rocking and maintaining existing drainage structures. Maintenance of natural surface roads may also include correcting drainage and erosion problems (e.g., improving or installing drainage dips, installing other drainage structures where needed, eliminating outside road edge berms or other features that are obstructing drainage where they exist).

Full Decommissioning consists of ripping of the roadbed to promote the establishment of vegetation and promote drainage consistent with the surrounding undisturbed areas. Existing culverts may be

removed. Native grass seeding of the road prism, fill slope and cutbank, and mulching of the Road prism may be included to minimize initial erosion potential prior to natural revegetation. An earth berm barricade may be constructed at the beginning of each road to prevent use of the road prism following decommissioning.

Road Renovation consists of reconditioning and preparing the subgrade for heavy truck use, cleaning and shaping drainage ditches and structures, and trimming or removing vegetation from cut and fill slopes.

Appendix D — Wildlife Species and Habitats

Spotted Owl Habitat McKelvey Rating System

Spotted owl habitat within the project area was evaluated based on the McKelvey model. Operations Inventory polygons were given an owl habitat suitability rating from 1 to 6 using aerial photo interpretation, ground visits, and roadside reconnaissance.

The McKelvey Rating System is based on a model that predicts spotted owl population based on habitat availability. Stands were examined for criteria such as canopy layering, canopy closure, snags, woody material and other features. Biological potential of a stand to acquire desired conditions is also taken in consideration. The McKelvey Rating System uses the following six classes:

The McKelvey Classification System is described below:

Class 1 - Meets all life requirements (optimal). Nesting, foraging, roosting, and dispersal. Canopy closure greater than 60%. Canopy structure usually multi-layered and diverse and includes snags, mixed species, and large wolf trees.

Class 2 - Meets foraging, dispersal, and roosting. Canopy closure greater than 60%. Open enough below canopy to permit flight. Canopies can be single layered. Class 1 & 2 together are considered suitable owl habitat nesting, roosting and foraging (NRF).

Class 3 - Meets no known requirements for spotted owls. Does not provide nesting, foraging, roosting, or dispersal. Canopy closure 40% or less. Does not meet requirements due to some kind of disturbance, but has the biological potential to develop into Class 1 or 2. This class includes clear-cuts, plantations, and thinned timber that could grow into suitable habitat given enough time.

Class 4 - Meets no known requirements for spotted owls. Does not provide nesting, foraging, roosting, or dispersal. Canopy closure 40% or less. Does not meet requirements due to site limitations and would not likely have the potential to develop into class 1 or 2. Examples could include oak woodlands, serpentine areas, etc. Other examples include roads, rock pits, brush fields, nonforest, or very low stocking. To enable quantification and display of dispersal habitat, Class 5 was created as a subset of Class 3, and Class 6 was created as a subset of Class 4. These stands feature scattered clumps of cover that could offer short-term roosting cover to owls as they disperse across the landscape.

Class 5 - Provides for spotted owl dispersal habitat only. Canopy closure between 40 and 60%. Needs to be open enough below canopy to allow for flight and avoidance of predators. Has the biological potential to develop into nesting, foraging, or roosting habitat.

Class 6 - Provides for spotted owl dispersal habitat only. Canopy closure between 40 and 60%. Needs to be open enough below canopy to allow for flight and avoidance of predators. Not currently meeting nesting, roosting or foraging requirements due to site limitations and would not likely have the potential to develop into Class 1 or 2. Examples could include low site lands, woodlands, serpentine areas, etc.

SPECIAL STATUS SPECIES ASSESSMENT
PROJECT NAME: Althouse Sucker Landscape Management Plan

Prepared by: Robin A. Snider **Date: 5/8/07 (updated 1/8/08)**

Signature: **Date:**

On July 26, 2007 a new Special Status Species list went into affect (IM No. OR-2007-072). This new list has two categories, Sensitive and Strategic. The former categories of Bureau Assessment and Bureau Tracking no longer exist. As a result, species were removed from the list and no additional species have been added at this time. Since the information is still relevant and available, former Bureau Sensitive and Assessment species are addressed in this EA. The table below provides additional information on special status species known or suspected to occur within the Grants Pass Resource Area, based on the previous USDI Bureau of Land Management OR/WA Special Status Species List (March 14, 2005). Each of these species was considered and evaluated for this project. The method(s) used to assess and review the potential effects to these species followed the techniques described in the OR/WA Special Status Species Policy (IM OR-2003-054). The following documents the basic conclusions of this assessment by species. A description of the table's headings and letter codes are located at the bottom of the table.

SPECIAL STATUS SPECIES IN GRANTS PASS RA

SPECIES	3/14/05 STATUS	RANGE (Y/N)	Presence	PROJECT SPECIFIC COMMENTS/ BASIC CONCLUSIONS
Birds – BS & BA				
American peregrine falcon	BS, SE, 2	Y	A	No nesting habitat within the project area, but they could forage within the project area.
Arctic peregrine falcon	BS, SE,	N	N/A	N/A
Bald eagle	FT, ST, 4	Y	P	No project activities would adversely affect individuals.
Black-backed woodpecker	BS, CR, 4	Y	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Ferruginous hawk	BS, CR, 4	N	N/A	N/A
Flammulated owl	BS, CR, 4	Y	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Lewis' woodpecker	BS, CR, 2	Y	P	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Northern goshawk	BS, CR, 4	Y	S	No known sites exist within the project area. Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.

SPECIES	3/14/05 STATUS	RANGE (Y/N)	Presence	PROJECT SPECIFIC COMMENTS/ BASIC CONCLUSIONS
Northern spotted owl	FT, ST, 1	Y	P	Seasonal Restrictions identified in the PDFs (EA p. 25, 26). would protect known sites from project activity disturbance. Proposed actions will not preclude species from moving between LSRs and physiographic provinces. Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts have been addressed in detail in the EA.
Marbled murrelet	FT, ST, 2	N	N/A	N/A
Purple martin	BS, CR, 2	Y	A	No habitat within the project area.
Three-toed woodpecker	BS, CR, 4	N	N/A	N/A
White-headed woodpecker	BS, CR, 2	Y	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
White-tailed kite	BA, 2	Y	A	No habitat within the project area.
Amphibian – BS & BA				
Black salamander	BA, P, 2	Y	U	Coarse woody debris would be retained (EA p. 25, 26). adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Foothill yellow-legged Frog	BA, V, 2	Y	P	Culvert installation, road decommissioning, and road renovation may have negative short term impacts on foothill yellow-legged frog habitat. However, sediment delivery to streams due to project activities at all three sites would be highly localized, immeasurable, and of short duration and PDFs would minimize potential impacts from sedimentation (EA p. 25, 26).
Oregon Spotted frog	FC, CR, 1	N	N/A	N/A
Siskiyou Mt. salamander	BS, V, 2	N	N/A	Project is outside of range. No known sites.
Reptiles – BS & BA				
Northwestern pond turtle	BS, CR, 2	Y	S	Suspected within the watershed at large water sources, but not expected to occur in project units.
Mammals – BS & BA				
Fisher	FC, CR, 2	Y	S	Temporary human disturbance, both temporally and spatially would be inconsequential. Adequate levels of snags and coarse woody debris would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Fringed myotis	BA, V, 2	Y	S	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Pacific pallid bat	BA, V, 2	Y	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Townsend's big-eared bat	BS, CR, 2	Y	P	Mine adits will be protected with 250' no harvest buffers. Seasonal restrictions will further protect maternity and/or hibernating colonies from disturbance.
Invertebrates – BS & BA				
Chase sideband snail	BS, 1	N	N/A	N/A
Evening fieldslug	BS, 1	N	N/A	N/A

SPECIES	3/14/05 STATUS	RANGE (Y/N)	Presence	PROJECT SPECIFIC COMMENTS/ BASIC CONCLUSIONS
Mardon skipper butterfly	FC, 2	N	N/A	N/A
Oregon shoulderband snail	BS, 1	Y	U	Coarse woody debris would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Scale lanx snail	BS, 1	N	N/A	N/A
Siskiyou hesperian snail	BS, 1	N	N/A	N/A
Siskiyou short-horned grasshopper	BS, 1	Y	A	No habitat present in the project area.
Travelling sideband snail	BS, 1	Y	U	Coarse woody debris would be retained (EA p. 25, 26),adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to the species and/or habitat at the watershed scale.
Vernal pool fairy shrimp	BS, 1	N	N/A	N/A

Table Headings and Letter Code Definitions

Species: are listed by taxon. Bureau Sensitive and Bureau Assessment are combined, and then Bureau Tracking is listed.
Status: lists the Oregon BLM, Oregon state and then Oregon Natural Heritage Program codes in that order.

Oregon BLM Codes:

FE - USFW Endangered - in danger of extinction throughout a significant portion of its range
FT - USFW Threatened - likely to become endangered species within the foreseeable future
FC - USFW Candidate - proposed and being reviewed for listing as threatened or endangered
SM - Survey & Manage - Forest plan ROD directs protection of known sites and/or survey for new sites
BS - Bureau Sensitive (BLM) - eligible for addition to Federal Notice of Review, and known in advance of official publication. Generally these species are restricted in range and have natural or human caused threats to their survival.
BA - Bureau Assessment Species (BLM) - not presently eligible for official federal or state status, but of concern which may at a minimum need protection or mitigation in BLM activities.
BT - Bureau tracking (BLM) - not considered as a special status species for management purposes. Tracking will enable early warning for species which may become of concern in the future. Districts are encouraged to collect occurrence data on species for which more information is needed to determine status.

Oregon State Codes:

SE - State Endangered - in danger of extinction in the state of Oregon
ST - State Threatened - listed as likely to become endangered by the state of Oregon
CR - State Critical - listing is pending, or appropriate, if immediate conservation action not taken
V - State Vulnerable - listing not imminent, and can be avoided through continued or expanded use of adequate protective measures and monitoring
P - State Peripheral or naturally rare - populations at the edge of their geographic range, or historically low numbers due to limiting factors

U - State Unknown - status unclear, insufficient information to document decline or vulnerability

ONHP Codes:

1 - Oregon Natural Heritage Rank, threatened with extinction throughout its range
2 - Oregon Natural Heritage Rank, threatened with extinction in the state of Oregon
3 - Oregon Natural Heritage Rank, more information is needed before status can be determined, but may be threatened or endangered in Oregon or throughout range
4 - Oregon Natural Heritage Rank, of conservation concern. May be rare, but are currently secure. May be declining in numbers or habitat but still too common to be considered as threatened or endangered. May need monitoring.

Range: indicates yes or no, if the breeding range overlaps with the Grants Pass Resource Area. If not within the range, both presence and basic conclusion on not applicable (N/A). For invertebrates in which there is inadequate data to determine ranges, 'U' is used for unknown.

Presence: indicates 'P' if a species is known to occur in the project area, 'S' suspected to occur based on known sites adjacent to the project area, or suitable breeding habitat exists, 'U' uncertain that the species occurs within the project area based on insufficient data, 'A' absent from the project area based on no known sites and/or no suitable breeding habitat within the project area, and 'T' possibly transitory species utilizing habitats within the project area during migration.

Basic Conclusion: describes the facts, context and intensity to provide the rationale for the conclusion of the proposed action(s) on the species and its habitat.

PROJECT NAME: Althouse Sucker Landscape Management Project
2004 MIGRATORY BIRD SPECIES ASSESSMENT

Prepared by: Robin Snider **Date: May 8, 2007**

Signature: **Date:**

The following contains a list of Northern Pacific Forest Bird Conservation Region migratory birds that occur within the Grants Pass Resource Area (USFWS, 2002). Each of these species was considered and evaluated for this project. The following documents the basic conclusions of this assessment by species, and complies with the Migratory Bird Treaty Act and Executive Order 13186 to protect migratory birds. Two key principles of these are 1) focus on bird populations and their habitats rather than on individuals, and 2) focus conservation efforts on USFWS Birds of Conservation Concern.

SPECIES[1]	PRESENCE[2]	BASIC CONCLUSION[3]
Lewis's woodpecker	P	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to individuals and/or habitat at the watershed scale.
Olive-sided flycatcher	P	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to individuals and/or habitat at the watershed scale.
Rufous hummingbird	S	Untreated areas would be left. Ground disturbance from treatment activities and prescribed fire will stimulate growth of shrubs and herbaceous plants. Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to individuals and/or habitat at the watershed scale.
Peregrine falcon	A	No nesting habitat within the project area.
Flammulated owl	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to individuals and/or habitat at the watershed scale.
White-headed woodpecker	U	Adequate levels of snags would be retained (EA p. 25, 26). Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to individuals and/or habitat at the watershed scale.

[1] USFWS Birds of Conservation Concern 2002 that breed within the Grants Pass Resource Area.
[2] Indicates 'P' if the species is known to occur in the project area, 'S' suspected to occur based on known sites adjacent to the project area, or suitable breeding habitat exists, 'U' uncertain that the species occurs within the project area based on insufficient data, 'A' absent from the project area based on no known sites and no suitable breeding habitat within the project area, and 'T' possibly transitory species utilizing habitats within the project area during migration.
[3] Describes the facts, context and intensity to provide the rationale for the conclusion of the proposed action(s) on the species and its habitat.

Summary of Habitat Relationships and Biological Objectives

Focal Species[1]	Conservation Focus[3]	Key Habitat Relationships			
		Vegetative Composition	Vegetation Structure	Landscape/ Patch Size	Special Considerations
Lewis's woodpecker[2]	large snags large conifer trees	Cottonwood Herbaceous, shrubs, ponderosa pine	>0.8 snags/acre >16 in dbh; >0.8 trees/acre >21 dbh; canopy cover 10-40%; shrub cover 30-80% trees >20 dbh; 2.5 snags/ha >12 dbh; tree canopy cover 10-40%		dependent on insect food supply; competition from starlings detrimental pine-oak sites may be most suitable
Olive-sided[2] Flycatcher	Early seral, mature and old growth forest edges with snags	Mt. & Western Hemlock; Noble & Silver fir	Retain >3 2.5 acre areas with 4-12 trees/acre >40 ft. tall; rest avg. 1-2 trees/acre >40 ft. tall		Harvest units >50 acres; retain understory hemlocks & true firs, & large snags
Rufous Hummingbird[2]	Early seral habitats; Nectar producing plants	Salmonberry, currant, penstemon, paintbrush	Diverse vegetative structure		Open space for aerial courtship display
Peregrine Falcon	Cliffs		Diverse vegetative structure		
Flammulated Owl	Large snags	Ponderosa pine and Jeffery pine; mixed conifer	Large diameter snags (min 12 dbh); mature forests; open canopy		Dependent on large primary cavity excavators (Pileated's, flicker's & sapsuckers)
White-headed woodpecker	Mix of mature cone producing pine species	Ponderosa Pine mix	50-70% canopy closure, >21" dbh snags & stumps for nesting cavities; >10 trees/acre >21" dbh		

[1] USFWS. 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, VA. 99pp. Only those that breed within the Grants Pass RA.
[2] Habitat specifications from Partner's in Flight Conservation Plans for Western Coniferous Forests, Westside Lowlands and Valleys and the Columbia Plateau.
[3] Habitat requirements of focal species highly associated with important attributes or conditions within each habitat type (PIF Westside Lowlands and Valleys and the Columbia Plateau, p. 3).

Appendix E — Botany Species and Habitats

Special Botanical Species Present in the Project Area

Species	Habitat	Protection Status	# of Sites in the Project Area	# of Sites in Treatment Units	# of Sites on the District
		Vascular Plants			
Allium bolanderi var. bolanderi	Bolander onion	Bureau Tracking	2	2	99
Arabis modesta	Rogue Canyon rockcress	Bureau Assessment	1	0	20
Calochortus howellii	Greene's mariposa lily	Bureau Tracking	20	6	156
Camissia howellii	Howell's camas	Bureau Sensitive	1	1	146
Carex praticola	Meadow sedge	Bureau Tracking	1	0	2
Castilleja berviobata	Short-lobed red paintbrush	Bureau Tracking	8	6	79
Cypripedium californicum	California lady's slipper	Bureau Sensitive	2	2	48
Cypripedium fasciculatum	Clustered lady's slipper	Bureau Sensitive; Survey and Manage C	109	23	911
Cypripedium montanum	Mountain lady's slipper	Bureau Tracking; Survey and Manage C	20	10	492
Darlingtonia californica	California pitcher plant	Bureau Tracking	1	1	57
Delphinium nudicaule	Red larkspur	Bureau Assessment	3	2	19
Dichelostemma ida-naia	Firecracker flower	Bureau Tracking	3	1	3
Draba howellii	Howell's whitlow grass	Bureau Sensitive	1	0	1
Epilobium oreganum	Oregon willowherb	Bureau Sensitive	1	1	17
Erythonium howellii	Howell's adder's tongue	Bureau Sensitive	102	59	162
Eucephalus vialis (Aster vialis)	Wayside aster	State Threatened; Survey and Manage A	2	2	124
Festuca elmeri	Elmer's fescue	Bureau Assessment	2	2	90
Heuchera merriamii	Merriam's alumroot	Bureau Tracking	2	0	2
Hieracium greenei	Greene's hawksweed	Bureau Tracking	1	0	51
Lewisia oppositifolia	Opposite leaved lewisia	Bureau Tracking	1	1	31

Limnanthes gracilis var. gracilis	Slender meadowfoam	Bureau Sensitive	7	5	98
Microseris howellii	Howell's microseris	State Threatened	2	2	205
Species	**Habitat**	**Protection Status**	**# of Sites in the Project Area**	**# of Sites in Treatment Units**	**# of Sites on the District**
Mimulus douglasii	Douglas' monkeyflower	Bureau Tracking	2	1	236
Saxifragopsis fragarioides	Joint leaved saxifrage	Bureau Assessment	7	4	7
Sedum laxum ssp. Heckneri	Heckner's stonecrop	Bureau Tracking	1	1	16
Senecio hesperius	Western senecio	Bureau Sensitive	8	8	171
Silene lemmonii	Lemmon's campion	Bureau Tracking	2	1	6
Solanum parishii	Parish's horse nettle	Bureau Assessment	1	1	127
Non-Vascular Plants					
Chaenotheca ferruginea	Lichen	Bureau Tracking; Survey and Manage B	71	19	214
Chaenotheca furfuracea	Lichen	Bureau Tracking	3	0	96
Fabronia pusilla	Moss	Bureau Tracking	3	2	199
Fissidens grandifrons	Moss	Bureau Tracking	2	1	119
Hedwigia stellata	Moss	Bureau Tracking	4	3	69
Lecanora pringlei	Lichen	Bureau Tracking	2	1	61
Sulcaria badia	Lichen	Bureau Assessment	3	2	58
Tripterocladium leucocladulum	Moss	Bureau Assessment	2	0	161
Fungi					
Clavariadelphus pistlaris	Fungus	Survey and Manage B	2	1	3
Gelatinodiscus flabidus	Fungus	Bureau Tracking; Survey and Manage B	16	5	79
Otidea leporina	Fungus	Survey and Manage B	2	1	6
Phaeocollybia olivacea	Fungus	Bureau Sensitive; Survey and Manage B	1	1	12
Plectania milleri	Fungus	Bureau Tracking; Survey and Manage B	2	1	177

Vascular Plant Descriptions

Bureau Tracking species are not described as they do not require protection.

Arabis Modesta is native mustard that grows on rocky walls and bluffs at 500 to 1,500 feet elevations. It is also known to grow in damp, partially shaded banks and slopes. Its range is Jackson and Josephine Counties, OR and Siskiyou County, CA.

Camissia howellii is a native camas that grows on dry, open slopes on serpentine soils. It is only known to grow in Jackson and Josephine Counties, OR.

Cypripedium fasciculatum is a native orchid that grows in the shade of mature coniferous forest canopies, but most frequently is found in mixed successional forests in overstory openings, and edges where the shade is provided by shrubs, saplings, and large perennial forbs. Because of its strong connection with mycorrhizal fungi and a pollinator that preys on fungal gnats, the habitat includes a rich organic layer that supports microflora. This species has a scattered range in Washington, Oregon, Idaho, Montana, Wyoming, Colorado, Utah, and California.

Cypripedium montanum is a native orchid that grows in wooded communities with 60-80 percent canopy closure. This species is found in California, Oregon, Washington, Idaho, Montana, and Wyoming.

Delphinium nudicaule is a native larkspur that grows in talus and well drained gravely soils on rocky slopes. The sites often have an open exposure but plants may be found among shrubs and woods. The range for this species is Jackson and Josephine Counties in Oregon, it is also known from California.

Draba howellii is a native mustard that typically grows in north-facing rock crevices above 4,000 feet elevations. It is known from Josephine and Curry Counties in Oregon and Northern California.

Epilobium oreganum is a native perennial plant that grows in *Darlingtonia* fens and other wet serpentine places at lower elevations. It is only known from Josephine County in Oregon, but its range includes nine counties in northern California.

Erythonium howellii is a native lily that grows in open woods, often on serpentine soils. The northern extent of this plants range in Jackson and Josephine Counties, OR and extends down to the Trinity Mountains in California.

Eucephalus vialis is a native aster that grows in coniferous forests typically on relatively dry upland sites dominated by Douglas-fir, at elevations ranging from 500 to 3,200 feet. It is known from Curry, Josephine, Jackson, Douglas, Lane, Linn, and Marion Counties, OR.

Festuca elmeri is a native grass that grows on wooded slopes in dry woods with oaks often present. It does not tolerate deep shade. This species is found in Josephine, Douglas, and Jackson Counties in Oregon and the Klamath Mountains and Coast Range in California.

Limnanthes gracilis is a native annual plant that grows in sunny vernally wet meadows and along stream edges in valleys and low foothills, including serpentine soils, at elevations below 2,500 feet. It is known from Douglas and Josephine Counties, OR and historically from Jackson County, OR.

Microseris howellii is a native perennial plant that grows in dry rocky areas on serpentine soils, between 1,000 and 3,500 feet elevation. It is only known from Curry, Josephine and Jackson Counties, OR.

Saxigragopsis fragarioides is a native perennial plant that grows in rocky crevices at elevations between 4,500 and 9000 feet. It is known from Washington and the Klamath Mountains in Oregon and California.

Senecio hesperius is a native sunflower that grows on serpentine soils at elevations below 2,500 feet, on gentle to moderate slopes, generally in open Jeffery pine savannahs. This plant is only known from southern Josephine County, OR.

Solanum parishii is a native nightshade that grows on grassy and brushy slopes up to 6,000 feet elevation. It is known from Curry, Josephine and Jackson Counties in Oregon, northern California and three counties in southern California.

Nonvascular Plant Descriptions

Chaenotheca ferruginea is a pin-lichen that prefers habitats that are open gappy, well-lit sites including conifer stands, oak balds with occasional remnant conifer snags, conifer snags around rocky outcrops, and the edges of beaver ponds and bogs. It grows on large, old, conifers with highly textured bark on the side of the trunk that is not subject to rain. This species is widely distributed in northern North America.

Sulcaria badia is lichen that grows primarily on hardwood trees, usually Oregon white oak, occasionally on conifers. This species is only found in Oregon and California.

Tripterocladium leucocladulum is a moss that grows on soil, rock, and trees. This species is only known from western North America.

Fungi Descriptions

Clavariadelphus pistlaris is a club fungus that grows on soil or duff under mixed deciduous-conifer forests or deciduous forests. This species occurs in the Pacific Northwest in Washington, Oregon, and California.

Gelatinodiscus flavidus is a cup fungus that grows on the twigs and foliage of Alaska yellow cedar. This species occurs in Oregon and Washington within the range of the Pacific Northwest.

Otidia leporina is a cup fungus associated with spruce, Douglas fir, and western hemlock. It is occurs in Oregon and California within the range of the Pacific Northwest.

Phaeocollybia olivacea is a gilled mushroom that grows in mixed forests containing pine or oak species in costal lowlands. This species is only known to occur in western United States from the central Oregon coast south to Santa Cruz County, CA.

Plectania milleri is a cup fungus that is associated with mixed conifers. This species occurs in Oregon within the range of the Pacific Northwest.

Noxious Weeds Survey Findings			
Species	**Common Name**	**Designation**	**Section**
Rubus discolor	Himalayan blackberry	B	**39S-7W**-21, 13
Cytisus scoparius	Scotch broom	B	**39S-7W**-21, 29; **40S-7W**-3, 4, 8, 9, 11, 18, 19
Centaurea pratensis	Meadow knapweed	B	**39S-7W**-21, 24; **40S-7W**-1, 10, 12, 15; **40S-8W**-24

Noxious Weed Descriptions

Himalayan blackberry (*Rubus discolor*) is a perennial bramble introduced from western Europe that forms large impenetrable thickets of prickly canes. It colonizes disturbed sites including waste areas, pastures, forest plantations, roadsides, and waterways. Detrimental effects include displacement of native species, decrease of plant diversity, reduced forage, inaccessibility by humans and animals. Successful control methods include mechanical, prescribed burning, and chemical.

Scotch broom (*Cytisus scoparius*) is a perennial shrub native to Europe and Africa. It was introduced into the United States as an ornamental, and later used to stabilize roadcuts. Scotch broom invades roadsides, pastures, and other disturbed places. It produces a large amount of long-lasting seed (up to 80 years). It can form dense fields that displace native plants and degrade habitat for wildlife. Successful control methods include manually pulling the entire plant, herbicide application, controlled burning, and a combination of cutting and herbicide treatment.

Meadow knapweed (*Centaurea pratensis*) is a perennial herb that is a fertile hybrid between black knapweed (*C. nigra*) and brown knapweed (*C. jacea*), which are both native to Europe. Meadow knapweed was originally introduced as a potential forage species. This species invades moist sites, including irrigated pastures and moist meadows, river banks, streams, irrigation ditches, and opening in forested areas. It primarily reproduces by seed, but root crown fragments will resprout when disturbed by heavy equipment or cultivations. Meadow knapweed seed are carried in rivers, streams, or irrigations water, in hay or by vehicles along roadsides. Successful control methods include grazing, herbicide application, mowing, and manual digging if only a few plants if only a few plants area present, competitive planting, and biological controls.

Appendix F — Alternatives Considered but Eliminated from Detailed Analysis

The EA team considered alternatives identified by the project team and from public input, but were not analyzed in detail. Alternatives considered but eliminated include:

- Treat older seral stands with Density Management/Understory Reduction (DM/UR) and Restoration thinning (RT)

The project team developed an alternative that would treat older seral stands with DM and RT only. However after evaluating the alternative, the team concluded that the alternative would neither meet the Purpose and Need of the project or direction in the RMP. The Purpose and Need for the project included offering a sustainable supply of timber to local and regional economies and to produce 1.5- to 6 mmbf. Although the project proposes DM/UR implementing only DM and RT would not meet the volume objective.

One of the primary objectives identified in the RMP is to implement the O&C Lands Act, which requires the Secretary of the Interior to manage O&C lands for permanent forest production in accord with sustained yield principles (RMP p. 17). The need for harvest treatments in the Althouse-Sucker planning area is to meet the direction in the Medford RMP/ROD to provide a sustainable supply of timber that would trend toward a forest composed of stands representing a variety of structures, ages, sizes, and canopy configurations (ROD/RMP p. 192). To meet sustained yield, the RMP programmed structural retention in stands greater than 150 years old and selection harvest in stands older than 80 years old. The DM and RT alternative would not be consistent with the RMP direction to manage O&C land for commodity production.

- Implement Natural Selection

A comment suggested implementing a natural selection alternative across the watershed. However, no specific proposal was submitted to analyze the extent or intensity of proposed actions.

A natural selection alternative was analyzed and selected for treatment on more than 500 acres under the South Deer EA. The BLM selected the alternative due to the unique approach to forest management and to test the purported benefits. Unfortunately, the activity was protested and the date of implementation is uncertain. BLM is hopeful that implementation will commence with monitoring to determine the efficacy and success of the alternative to meet the project area and social needs.

- No road building

BLM considered an alternative that would not include development of new roads. However, the BLM determined that a proposal without new roads would not provide access to meet the need to treat many forest units. Further, a proposal with no new roads would not provide an

economically viable sale, as helicopter and fuel costs have greatly increased. Economic viability is a key component of the Purpose and Need for this project, as some of the timber sale receipts would go to O&C counties

- No Building roads into 40S-7W-9

The planning team initially proposed a road into Section 9; but due to environmental concerns the proposal was dropped from further analysis. Specifically, the road would have crossed several stream channels.

- Treat only young stands and fuels

Treating young stands is integral to all alternatives. Likewise, the alternatives include fuels reduction for both natural and activity generated fuels. A proposal that does not include timber harvest would not meet the Purpose and Need for the project to provide an economically viable timber sale and to provide forest products on a sustained yield basis. However, the No Action Alternative provides the option to not harvest forest stands.

- Do not degrade Northern Spotted Owl (NSO) suitable or critical habitat

By definition, even treatments, such as hazardous fuels reduction treatments that only treat small diameter material in the understory, would "degrade" suitable spotted owl habitat. These treatments may have short term effects to prey species, but suitable habitat would be maintained because key habitat characteristics (canopy cover, coarse large wood, etc.) would remain after project implementation; therefore, they are not likely to cause measurable changes in the function of spotted owl habitat within these stands. Selecting the No Action Alternative is always available to the Decision Maker and if selected, would not degrade Northern Spotted Owl habitat.

The project team considered an alternative that would only degrade mid- and late seral stands that serve as suitable spotted owl habitat. This alternative would not remove or downgrade suitable habitat. Treatments examined included Density Management/Understory Reduction (DM/UR) and Restoration thinning (RT). However, implementing only DM/UR and RT would not meet the Purpose and Need for the project, which includes offering an economically viable timber sale and developing forest stands across the landscape composed of a variety of structures, ages, sizes, and canopy configurations. It would also prevent regeneration of currently suppressed stands designated for future timber production.

No alternatives would remove suitable nesting, roosting, or foraging (NRF) habitat in the designated spotted owl critical habitat unit OR-72. Approximately 15 acres of hazardous fuel reduction treatments are proposed in NRF habitat in CHU-72. These treatments are designed to reduce fire danger and increase stand vigor, while maintaining spotted owl habitat. Key habitat characteristics (e.g., canopy cover, coarse large wood, etc.) would remain after project implementation.

Some older stand treatment units in Alternative 3 provide commercial harvest volume, while retaining a denser canopy closure with a more complex forest structure. Through the various silvicultural treatments, this alternative seeks to maintain habitat characteristics for late-successional dependent species throughout the watershed by retaining more of these habitat characteristics within the treated stands.

- Avoid removing trees in the riparian areas

Comments suggested treatments in the riparian zone should be carefully considered or not implemented due to water quality and aquatic habitat concerns. Riparian zones with highly moisture dependent vegetation (e.g., willows, alders) typically grow on edges of streams, in seep areas, and near springs. The Northwest Forest Plan established Riparian Reserves as one element in the comprehensive Aquatic Conservation Strategy (ACS). Riparian Reserves include riparian zones, but extend at least 100 feet beyond the typical riparian zone. The purpose of Riparian Reserves includes maintaining and restoring riparian structure and functions, and improving travel and dispersal corridors for terrestrial species (ROD p. 7). NWFP Standards and Guides pertaining to riparian management identify appropriate objectives for treatments within Riparian Reserves, including stocking control, re-establishment and management of stands, and promoting desired vegetation characteristics.

As recommended in the Althouse Creek and Sucker Creek watershed analyses and supported by field surveys and fuel models, thinning and fuel reduction in Riparian Reserves are warranted to reduce stocking, increase stand resiliency, and improve riparian conditions for large wood recruitment and use as wildlife migration corridors. In this EA the purpose for managing Riparian Reserves is to restore and maintain the ecological health of watersheds and aquatic ecosystems.

Thinning in the Riparian Reserve would meet the stated objectives in the EA and comply with direction in the NWFP for riparian treatments. These light thinning activities not adversely diminish aquatic conditions or ecosystem function at the watershed or ecosystem scale as defined in the ACS. Improvements of Riparian Reserve functions would have long-term benefits that include increased large wood recruitment, increased shade, and improved wildlife corridors.

- No harvest in key watersheds

Key watersheds are designated to "serve as refugia for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species" (RMP/ROD .p. 22). In this case, only 1,330 acres, about 3% of the Upper Sucker Creek Key watershed consists of BLM land. The analysis found that the project activities would not affect species or populations.

The timber harvest proposals in Althouse Sucker within the key watershed are also on matrix (or GFMA) allocated land within the RMP. Objectives for matrix land include providing a sustainable supply of timber and providing a variety of habitats (RMP pp. 38-39). Management Actions/Direction (RMP/ROD p. 23) for Key Watersheds focuses on roads and stream and watershed restoration. The Althouse-Sucker project includes decommissioning 1.1 miles of

road, riparian reserve protection, and thinning riparian reserve are intended to maintain and improve aquatic and riparian ecosystems.

- No Structural Retention/logging of mature stands

The RMP establishes land allocations and objectives. Objectives for matrix land include providing a sustainable supply of timber and providing a variety of habitats (RMP pp. 38-39). The project is consistent with the RMP, as it will produce timber and create a diversity of habitats. The Althouse-Sucker project follows direction in the RMP, which identified structural retention harvest as the primary method for achieving the sustainable volume goals and objectives for matrix land. No structural retention treatments would occur in designated LSRs; however, the structural retention prescription is a viable option outside of the LSR.

A specific no harvest alternative would be in conflict with this land allocation objective. From a project decision perspective, "no harvest" in any particular area is within the scope of the No Action Alternative that is available to the Decision Maker.

Views about the appropriateness of the NWFP's land allocation objectives are outside the scope of this project and EA. The BLM is obligated to work within the management direction of the NWFP and the Medford District RMP.

- Increase non-motorized recreation

There are a variety of dispersed recreational areas that occur on BLM-administered lands throughout the Illinois Valley. Further, Oregon Caves provides local recreation opportunities. Therefore, development of additional recreational areas was considered but not developed within this project area.

- Consider variable density thinning

Variable density thinning is included in Alternatives 3 and 4 in younger stands. Variable density thinning treatments in mid to late-seral stands would not meet the Purpose and Need. However, the proposed marking guidelines would result in a variable canopy cover in all commercial thinning and density management harvest stands proposed for treatment and to a lesser extent in regeneration harvest prescriptions.

- No logging within a mile of residences

The RMP establishes land allocations and objectives. Objectives for matrix land include providing a sustainable supply of timber and a variety of habitats (RMP pp. 38-39).
A specific no harvest alternative would be in conflict with this land allocation objective. From a project decision perspective, "no harvest" in any particular area is within the scope of the no action alternative that is available to the decision maker.

Views about the appropriateness of the NWFP's land allocation objectives are outside the scope of this project and EA. The BLM is obligated to work within the management direction of the NWFP and the Medford District RMP.

Appendix G – Response to Public Comments

BLM identified a number of issues through internal scoping, interdisciplinary team process, and public input (see Chapter 4); the following issues were considered during project development and analysis but not analyzed in the EA.

- Areas of Critical Environmental Concern/Research Natural Area (ACEC/RNA)

A portion of the Brewers Spruce ACEC/RNA is located in the northwest corner of the project area. No project activities are proposed within the ACEC/RNA.

- Support for fuels/variable density/young stands

Comments recommended and supported fuel reduction, variable canopy density, and young stand management. BLM agrees with the need for these activities and incorporated them into the project alternatives.

- Fuels should focus on areas of high fuel loads (FCC 3), pines/savannahs

The proposed fuel treatments include enhancing wildlife habitat through fuels treatments in oak, pine, and meadow vegetation/habitat types. Areas targeted for fuels treatment were identified as having a high fire hazard with ladder fuels, ground fuels, and a low canopy base height.

- OHV use

OHV use has been identified in select meadows in the project area. The identified areas are accessible. There are no proposals in this project that would increase access. There are no proposed actions, providing designated OHV use. BLM recognizes that some comments suggested that there is a potential for increased OHV use in managed stands. While this has not been observed or identified in the project area, PDF's including decompacting roads and barricading skid roads would decrease future potential use. Therefore, there are no expected increases due to proposed project activities. Future OHV use may increase in the watershed depending on private access, rider responsibility, and local enforcement across all lands. Use across the watershed, rider behavior, and local law enforcement is outside the scope of this EA.

- Treat fuels around homes and communities.

Eighty-nine percent of the project area falls within the Wildland Urban Interface (WUI), defined as the area where structures and other human development meet or intermingle with undeveloped wildland areas. Nearly all the fuel reduction activities proposed fall within the WUI.

- Address effects to late-successional species, such as the goshawk, bats, Canada lynx, wood peckers, pine martin, California wolverine, pygmy nuthatch, red tree vole, great gray owl, bald eagles, and other special status species.

As stated in the EA only federally listed, Survey and Manage, Bureau Sensitive, or Bureau Assessment species known or suspected to be present within the project area and impacted by the proposed actions were addressed in the wildlife section. These species included several late-successional forest habitat species, such as the Northern Spotted Owl, fisher, bald eagle, great gray owl, northern goshawk, red tree vole, mollusks, and bats. Other late-successional species listed in the comment were not specifically mentioned because the habitat effects to Northern Spotted Owls generally encompass the effects to other late-successional forest habitat dependent species. Additionally, the Canada lynx is not suspected to occur in southwestern Oregon, and the California wolverine is not documented or suspected to occur on the Medford District.

- Review Trombulak and effects to wildlife and soils from road building

The potential road building effects to wildlife were discussed in the Althouse Sucker EA. Issues presented in the Trombulak and Frissell (2000), as well as in the Marsh and Beckman (2004) were addressed and considered in the wildlife effects section. As stated in the EA, with the exception of one proposed temporary road, all road construction would occur within units already receiving treatments. Therefore, limited edge effects to wildlife species from road building are anticipated to occur.

Concerning soils the relevant issues identified include soil density or compaction, erosion, sediment, productivity and effects on peak flows. Each is addressed in the EA.

Regarding findings in Megahan (1981), Swanston and Dyrness (1973), and Scott et al. (1980) addressing affects to soils from ground-based harvest activities:

These studies examined clear-cut harvest on granitic soils and were used to provide data to establish ground-based harvest designs and methods that were put into practice in the RMP in 1995. However, there are no granitic soils or proposed clear-cuts in the Althouse-Sucker Project Area. Further, the BLM uses designated skid roads (approved prior to yarding) to limit the area disturbed by tractor yarding. Soil displacement is also limited to within units and outside of riparian no treatment buffers by waterbarring to divert and breakup surface runoff and decompaction (winged ripping) to increase infiltration and decrease compaction, and therefore, surface runoff. Also, within Riparian Reserves, tractor operations would only be allowed on existing non-recovered tractor skid roads. To summarize, the BLM allows tractor yarding but controls practices to limit effects to localize any soil loss, sedimentation, and soil productivity reductions to levels allowed within the RMP.

- EIS is needed for logging 28,000 acres

At the Illinois River Basin scale, the concern was that BLM projects collectively may lead to cumulative effects. Information found on websites and disseminated throughout the Illinois Valley indicated that the BLM proposes 28,000 acres of harvest in the Illinois Valley.

Unfortunately this misleading information created anguish within the community and resentment toward the BLM.

To evaluate cumulative effects of proposed BLM activities, proposed activities need to be considered across the Illinois River landscape (>630,000 acres). At this broad scale, the NWFP and RMP are appropriate citations, as they address activities across the landscape. Under the NWFP and adopted by the RMP, > 70% of the BLM lands are in reserves for protection of wildlife and watersheds. Under the plan, timber harvest declined dramatically, road decommissioning has occurred, riparian conditions have improved, road building and ground-based harvest has decreased, and watershed restoration activities have occurred. Based on the changes in management across the landscape, there is an improving trend in resource conditions across BLM lands

The proposed Illinois Valley projects maintain this improving trend. The maximum number of acres proposed for timber harvest in the Althouse-Sucker Project area is 1,118. Collectively, the landscape plans developed in the Illinois Valley propose to commercially harvest approximately 2,200 acres. Further, 70% of these acres are prescribed for thinning. The 2,200 acres represent 0.3% of the watershed.

Further, each project evaluated cumulative effects analysis at the project, and sub-watershed scale and included private land actions (Sections: Soil and hydrology, botany, fisheries, wildlife, fuels). In all cases, due to the small proportion of acres treated within each subwatershed, RMP protection measures, reserves for watershed and habitat protection, road improvements and no forest clearing, project activities were found to not create cumulative effects.

Considering the management direction under the RMP together with the small scale and low intensity of projects proposed, BLM projects are not generating or adding to the Illinois basin cumulative effects.

- Provide a unit by unit assessment of soil chemistry, productivity, ecological integrity

Soil units for the entire project area were identified and discussed. Field soil sampling, testing, and data analysis for each unit would require extensive specialized staff time. The result of such an effort would reveal little in terms of assessing project activity effects and would not provide necessary data to the decision maker to make an informed decision. Existing soil survey information and BLM Timber Productivity Classification combined, RMP protection requirements and spot field checks already provide sufficient information to make decisions regarding appropriateness of activities.

- Future vegetation patterns and global warming

BLM recognizes the concern for global warming and the controversy regarding the trend. There is uncertainty and debate regarding the trend and anticipated effects. Likewise, BLM is uncertain as to the response to the ecosystem and vegetation adaptations to the warming. However, there are currently no indications or information that forest thinning in a fraction of the

watershed exacerbates global warming conditions. Any predictions as to ecosystem adaptation or changes to the vegetative landscape would be highly speculative.

- Illegal dumping occurs on BLM land in the Holland area

Illegal dumping occurs on most of the Medford District's BLM lands; this is not a unique situation. Dump sites within the Grants Pass Resource Area are inventoried, recorded and removed as funding allows.

Appendix H — Literature Cited

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