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July 1999

Environmental Assessment for the Appleseed Project

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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Medford District Office
3040 Biddle Road
Medford, Oregon 97504



IN REPLY REFER TO

1792(116)
Appleseed EA
A3495(WHY:cn)

JUL 2 1999

Dear Interested Public:

Attached is the Appleseed Environmental Assessment and a "DRAFT" Finding of No Significant Impact (FONSI) which applies only to certain areas of the Appleseed project. The FONSI covers projects planned within areas which have all required surveys completed.

Before a FONSI can be issued, surveys are required by the Bureau of Land Management (BLM) Resource Management Plan (RMP) for cultural resources and Threatened and Endangered or Survey and Manage designated plant and animal species. Appropriate design features are incorporated into the Appleseed project in order to protect species and minimize impacts to resources.

Due to several factors such as the size of the Appleseed project, weather parameters for species surveys, and available workforce, not all wildlife surveys have been completed within the Appleseed Project at this time. The portions of the Appleseed project which are cleared for management activities include all proposed grassland/shrubland/woodland areas and proposed conifer and related treatments in the Spencer Gulch and Lomas areas. A map showing these areas is available on request.

The primary purpose of a public review is to allow the public an opportunity to comment on the agency's determination that there are no significant impacts associated with the proposed action and, therefore, an Environmental Impact Statement (EIS) is not necessary.

The following are the types of comments which will be the most helpful in the decision process: (1) as specific as possible; (2) address merits of alternatives analyzed; (3) identification of new issues not analyzed in the EA, which could be used to modify the alternatives, including the proposed action alternative, or to develop new alternatives; (4) new information; (5) address adequacy of predictive methodologies; and (6) factual corrections.

All comments should be made in writing and mailed to the Ashland Resource Area, 3040 Biddle Road, Medford, OR 97504. The public comment period will end on August 12, 1999. Any questions should be directed to Bill Yocum, Environmental Planner, at (541)770-2384.

Sincerely,

Richard J. Drehobl
Field Manager
Ashland Resource Area

Attachments(2)

- Environmental Assessment
- Draft FONSI

FINDING OF NO SIGNIFICANT IMPACT
for
OR-110-99-16

Finding of No Significant Impact (FONSI)

The Bureau of Land Management's Medford District has analyzed a proposal for issue of an O & C Road Permit in the Ashland Resource Area. Design features and analysis of this proposal are discussed and supported in the *Medford District RECORD OF DECISION AND RESOURCE MANAGEMENT PLAN* of June 1995.

The proposed action and project design features are further described in the attached Environmental Assessment (EA) # OR-110-99-16. This FONSI and attached EA are tied with the *Medford District RECORD OF DECISION AND RESOURCE MANAGEMENT PLAN* of June 1995. All documents may be reviewed at the Medford District Office.

The proposed O & C Road Permit is located in the Ashland Resource Area of the Medford District, Bureau of Land Management. The proposed action is not considered to be precedent setting and is considered to be a normal action in implementing the ROD.

There are no floodplains, wetlands, wild and scenic rivers, known hazardous waste areas, areas of Native American religious concern, prime nor unique farmlands within the project area. The project area does not qualify for potential wilderness designation, nor has it been nominated as an Area of Environmental Concern. No adverse significant impact is anticipated to fisheries, air quality, lands, and minerals. No threatened or endangered plants or cultural or paleontological resources were observed in the area. Should threatened or endangered plants or cultural or paleontological resources be discovered they would be protected.

The estimation of impacts was based on research, professional judgement, and the experience of the interdisciplinary team. This method of estimating effects on the environment reduces the uncertainties to a level which does not involve highly unknown or unique risks. The design features identified in the attached EA would assure that no significant site specific nor cumulative impacts would occur to the human environment other than those already addressed in the Medford District Resource Management Plan /EIS.

FONSI Determination

On the basis of the information contained in the EA and all other information available to me as is summarized and above, it is my determination that none of the alternatives analyzed constitute a significant impact affecting the quality of the human environment greater than those addressed in the Medford District Resource Management Plan /EIS. Therefore, a new EIS or a supplement to the existing EIS is unnecessary and would not be prepared.

Area Manager

Date

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT

EA COVER SHEET

RESOURCE AREA: Ashland OR-110-98-36 ACTION/TITLE: Appleseed Project
LOCATION: T.37 S., R.3 W., Sections 30 & 31, T.37 S., R.4 W., Sections 27, 29, 31-35, T.38 S., R.2 W.,
Section 31, T.38 S., R.3 W., Sections 7-9, 15-22, 29, 31, 36, T.38 S., R.4 W., Sections 1-15, 17-31, 34, &
35, T.39 S., R.2 W., Section 6, T.39 S., R.3 W., Sections 1-10, 14, 15, 17, 18, & 21, T.39 S., R.4 W.,
Sections 1, 2, 11, & 12, Willamette Meridian

List of Preparers	Title	Resource Values
Brad Tong	Botanist	Special Status Plants
Fred Tomlins	Outdoor Rec. Planner	Cultural, Recreation
George Arnold	Wildlife Biologist	T&F Animals, Wildlife
Greg Chandler	Fuels Mgt. Spec	Fire Management
Jeannine Rossa	Fisheries Biologist	Aquatic, Riparian
John Samuelson	Forest Engineer	Roads and Quarries
Ken Brown	Forester	Logging Systems
Kenny McDaniel	Forester	Silviculture
Matt Broyles	Wildlife Biologist	T&F Animals, Wildlife
Nancy Stevens	Range Spec	Grazing
Paul Hosten	Ecologist	Grass/Brush/Woodlands
Scott Haupt	Forester	Silviculture
Steve Armitage	Forest Manager	Forest Management
Ted Hass	Soil Scientist	Soils, Water, Riparian
Tom Sensenig	Ecologist	Research/Monitoring
Victoria Arthur	Wildlife Biologist	T&F Animals, Wildlife

Environmental Coordinator

Bill Yocum

ASHLAND RESOURCE AREA
APPLESEED PROJECT
ENVIRONMENTAL ASSESSMENT

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Chapter I Purpose and Need for Action

A. INTRODUCTION

The Bureau of Land Management (BLM) proposes to reduce the density of vegetation for the purpose of restoring the Applegate ecosystem to a healthy, sustainable condition, and to contribute to the local economy. The Applegate Project area encompasses 43,380 acres of which approximately 24,000 acres are managed by BLM.

Lack of fire in the forest ecosystem (Applegate Project area) has changed the forest structure, plant species composition, and density. Fire suppression has prevented the majority of low to moderate severity fire events, and has allowed heavy fuel accumulations across the landscape. The probability of a major, stand-replacement fire (catastrophic event) has greatly increased over historic levels.

An interdisciplinary team (ID Team) of resource specialists was formed with the objective to design operational projects which move BLM administered lands towards meeting ecosystem health objectives. The team's goals were set by the Ashland Area Manager. They are: 1) To have operational projects which would comply with the Record of Decision (ROD) for the Medford District Resource Management Plan and the Northwest Forest Plan; and 2) projects should pay for themselves utilizing the value of existing resources in the project area, thereby minimizing the financial burden to taxpayers.

Four steps to restore forest health include:

1. Density reduction of trees and shrubs by thinning and/or reintroducing fire into the system.
2. Protection and/or restoration of special habitats and areas designated important for connectivity, including riparian and late-successional habitat.
3. Moving forested landscapes toward dominance by larger, older trees.
4. Promoting, maintaining, and restoring shade intolerant species on most slopes (such as ponderosa pine trees on appropriate sites).

Two action alternatives were developed for this project. A description of these alternatives can be found in Chapter II of this document.

B. CONFORMANCE WITH EXISTING LAND USE PLANS

The action alternatives proposes to reduce the density of vegetation in the Medford District is in conformance with the *Medford District Record of Decision and Resource Management Plan (RMP) (USDI BLM 1995)*. This Resource Management Plan incorporates the earlier *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and the Standards and Guidelines for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA FS; USDI BLM 1994)*. This EA complements the: *Applegate Adaptive Management Area. Ecosystem Health Assessment (USDA FS; USDI BLM 1994)*. *Applegate River Watershed Assessment: Aquatic, Wildlife, and Special Plant Habitat (USDA FS; USDI BLM 1995)*. *Middle Applegate Watershed Analysis (USDI BLM 1995)*. *Medford District Integrated Weed Management Plan EA (USDI BLM 1998)*. *Applegate Adaptive Management Area Guide (USDA FS; USDI BLM 1998)*.

C. RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

The action alternatives are in conformance with the direction given for the management of public lands in the Medford District by the Oregon and California Lands Act of 1937 (O&C Act) and the Federal Land Policy and Management Act of 1976 (FLPMA). The BLM is directed to manage the lands covered under the O&C Act for permanent forest production under the principles of sustained yield. Public lands managed by BLM that are not covered by the O&C Act are managed under the direction of FLPMA. The Federal Land Policy and Management Act says, unless otherwise specified by law, these lands shall be managed on the basis of multiple use and sustained yield.

This environmental assessment (EA) is being prepared to determine if the proposed action and any of the alternatives would have a significant effect on the human environment thus requiring the preparation of an environmental impact statement (EIS) as prescribed in the National Environmental Policy Act of 1969. It is also being used to inform interested parties of the anticipated impacts and provide them with an opportunity to comment on the various alternatives.

The FSEIS analyzed the environmental effects of 10 alternatives for managing the resources on BLM lands west of the Cascade Mountains. The ROD selected Alternative 9 for implementation. The analysis in the FSEIS determined that the Matrix and AMA lands in the Medford District would be available for timber harvest as long as certain standards and guidelines were followed. This EA will be subordinate to the FSEIS and will not reanalyze the decisions made in the ROD.

D. SUMMARY OF SCOPING ACTIVITIES

There was an early and open process for determining the scope of issues to be addressed and for identifying issues related to the action alternatives. Invitation for participation of affected federal, local agencies, and interested persons was accomplished by letters, phone calls, field tours, and individual meetings. Issues and concerns were taken into consideration throughout the development of this project.

Humbug drainage residents, Slagle Creek drainage residents, and Headwaters provided comment and concerns later in this environmental assessment process. Their concerns were centered around proposed activities in Humbug, Long Gulch, and the Slagle Creek area. Based on their concerns mitigating measures 1, 2, 3, 4, 5, and 6 were added to the Environmental Consequences Chapter so the impacts would be reviewed by the ID Team and analyzed in detail.

E. ISSUES OF CONCERN

The following issues were identified throughout the scoping process. Not every issue was analyzed in detail by this EA. All of the issues were reviewed by the ID Team.

1. Major Issues

- a. **Dense Stands/Forest Health** - Many of the stands, both conifer and hardwood, are overly dense. Dense stands are not vigorous (i.e., slow growth rates, too much competition for water and nutrients, susceptible to insects and drought) and could constitute a fire hazard.
- b. **Landscape Fire Hazard** - With effective fire suppression of low intensity fire, the amount of vegetation (fuel

loading) and fire hazard continues to increase.

- c. **Wildlife** - Logging operations would result in localized, short-term noise disturbances affecting big game and nesting birds.
- **Removal of trees and shrubs** would result in habitat losses for some wildlife species.
- d. **Threatened & Endangered and Special Status Plants and Animals** - Many special status plant and animal species are known to be in this area. Habitats and populations need to be protected from activities. Critical habitat is present for the Northern spotted owl. Habitat is also present for Cypripedium orchids, Siskiyou mountains salamander, and specific mollusks.
- e. **Fisheries** - Salmon, steelhead, and trout are fish that are present in the Applegate River and associated tributaries. Populations would need to be protected from activities.
- f. **Harvesting & Soil Productivity** - Harvesting can be achieved using numerous methods. Impacts are different depending on the method chosen. Ground-based systems are usually less costly but can impact soil productivity capabilities. Aerial systems are usually most costly but reduce impacts to soil productivity.

Harvesting has a short-term impact on local residents by: increasing noise from helicopter operations, increasing log truck traffic to existing roads, and modifying the visual backdrop to the surrounding hillsides.
- g. **Access** - Roads (long term access) are needed for long-term management. Roads intensify interactions with hunters, local residents, and off-highway vehicles (OHV).

Chapter II Alternatives

A. INTRODUCTION

Two action alternatives have been developed to achieve the need for improving forest health and reducing long-term fire hazard reduction in the Appleseed Project. The major issues identified in Chapter I were used to help develop these alternatives.

B. ALTERNATIVES

The action alternatives (Alternative II and III) are designed to move the Appleseed Project ecosystem towards a healthy, sustainable condition, and to contribute to the local economy.

1. Alternative I - No Action

For this EA, the no action alternative is defined as not implementing any vegetation management projects for the purpose of moving the Applegate ecosystem towards a healthy, sustainable condition. Forest management would continue at the present minimal level.

2. Action Alternative II - Variable Prescription

This alternative would reduce the commercial and non-commercial vegetative density by thinning the profile (variable prescriptions) in the management units across the landscape. The variable prescriptions change with the vegetation condition class of the stand (silvicultural prescription in EA file).

ENVIRONMENTAL ASSESSMENT

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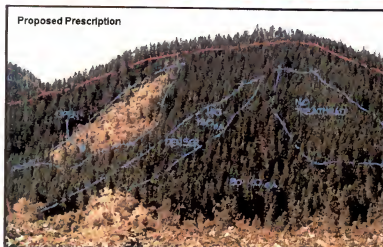
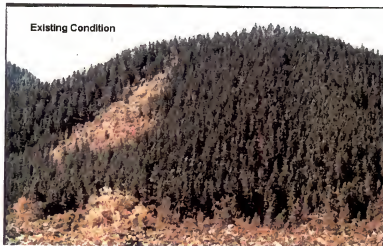
APPLESEED PROJECT



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
ASHLAND RESOURCE AREA

EA No. OR-110-98-36

BLM has an on-going photo simulation project in the Applegate area. Below is an example of computer simulated photos applying a variable prescription and predicting impacts directly after harvest. This area is in the Appleseed project area as seen from Hwy 238. Visual impacts are reduced through time with the establishment of additional forest floor vegetation and tree canopy closure. Please be aware that this simulation only represents an example of the forested landscape, not all forest conditions. BLM expects the majority of the conifer treatment areas for Appleseed to display similar visual impacts to this simulation.



3. Action Alternative III - 16 to 25 trees/acre.

This alternative would reduce the mature, commercial, conifer density by retaining 16 to 25 large trees per acre with a minimum of 40% canopy cover in management units across the landscape. The remainder of the vegetative stands (non-commercial) would be thinned as proposed in Alternative II.

4. Alternatives Considered but Eliminated from Analysis.

In addition to the alternatives analyzed in detail in this EA, the ID team considered other alternatives that could move the Applegate ecosystem towards a healthy, sustainable condition. A description of each alternative considered and why it was dismissed from detailed analysis is given in Appendix A.

C. FEATURES COMMON TO ALL ACTION ALTERNATIVES (Project Design Features)

Project design features (PDFs) are included for the purpose of mitigating or reducing anticipated adverse environmental impacts which might stem from the implementation of the action alternatives. This section outlines these PDFs which would be common to Alternatives II and III.

1. Conifer Treatments

Total area of conifer forest on public land within Appleseed project = 15,220 acres.
Total area being proposed for commercial treatment (thinning/stand density) = 7,980 acres.
Total area being proposed for non-commercial treatment (thinning) = 5,850 acres .

Appendix B & C lists reasons for not selecting areas for treatments.

Titles of prescription type are: 1) P-Pine Regen, 2) DF Regen O.R., 3) Dry DF/Group Selection, 4) Moist DF/Group Selection, 5) Mistletoe RX, 6) Wildlife Connectivity and, 7) Poles CT. Prescription definitions, prescription acres, percent of treatment area by prescription, and a detailed map are located in the EA file.

2. Grassland/Shrubland/Woodland Treatments

Total area of above communities on public land within Appleseed project = 11,299 acres.

Total area being proposed for thinning = 2,805 acres (25%).

Different types of activities for thinning include: 1) Ceanothus Patchy Broadcast Burn, 2) Diffuse Patchy Broadcast Burn, 3) Economic Mosaic, 4) Grassland Maintenance Burn, 5) Hardwood No-thin, Intense Shrub Removal, 6) Hardwood No-thin, Moderate Shrub Removal, 7) Intense Patchy Broadcast Burn, 8) Mixed Shrub Burn, 9) Summer Broadcast Burn, and 10) Underburn. Prescription definitions, prescription acres, percent of treatment area by prescription, and a detailed map are located in the EA file.

3. Roads

Before Project: existing roads = 176 miles
After Project: existing roads = 171 miles

Proposed restoration to existing roads = 1.2 miles
Proposed new road construction = 7.5 miles

Proposed decommission of proposed new temporary road construction = 0.4 miles

Proposed decommission of existing roads = 12.3 miles

A detailed map is located in the EA file.

4. Riparian/Streams

Both intermittent and perennial streams are present in the project area. For intermittent streams, Riparian Reserve boundaries on each side of the channel are "...a distance equal to the height of one site-potential tree, or 100-foot slope distance...whichever is greatest." (NWFP ROD, pg. C-31).

Portions of Riparian Reserves areas would be treated in the Applesced project area. Treatments would be similar to the upland prescriptions for each particular vegetation type. The variety of treatments include "thinning from below" at several different prescription levels, underburning, precommercial thinning, brushland thinning, and handpiling and burning. To maintain and improve conditions within Riparian Reserves being treated:

- maintain all existing downed wood; increase downed wood in areas lacking 120 lineal feet/acre of 16 inches diameter decay class 1; increase downed wood by falling trees of sufficient size and numbers towards the stream and leave the logs on the ground; these addition trees would be trees identified for removal from the appropriate upland prescription. towards the stream and left on the ground.
- leave all snags and horizontally-leaning trees except where they need to be felled for safety reasons (per OSHA regulation) these logs would remain on site, not yarded
- leave all hardwoods, especially riparian species
- leave all trees within the active stream channel

In order to leave all trees within the active stream channel, we defined a "no-cut zone" within the Riparian Reserve. This "no-cut zone" is the area from the edge of the water to the slope break or 50', whichever is greater. On "V"-shaped channels without a slope break, the "no-cut" zone within the Riparian Reserve is equal to 100 feet

Do not treat riparian reserves which:

- have more than 20 pieces of large downed wood /mile, larger than 15 inches in diameter and 15 feet in length;
- have riparian vegetation and a stream channel in proper functioning condition;
- have known fish presence of any species;
- have a high potential for slumping either adjacent to or inside stream channel;
- are not adjacent to upland areas planned for silvicultural treatments;
- are perennial streams;
- have stream channels with greater than 30% of the substrate in bedrock or sand, indicating scouring or decomposed granitic soil erosion, respectively;
- contain any special Riparian Reserve areas as determined by Riparian, fish habitat, and fish population surveys in the field since 1995.

Protect all private water source and pipelines. Known sites include Section 19, T. 38S., R.3W., Section 11, T.38S., R.4W., WILL. MER.

5. Threatened/Endangered Wildlife and Critical Habitat

Reserve from harvest the designated 100-acre core areas for 14 northern spotted owl sites which were designated as known sites on 1/1/94. Place a seasonal restriction on harvest activities within 0.25 miles of the center of activity

for the owl sites. This restriction would be in effect from March 1 through June 15 for disturbance activities, such as hauling, and from March 1 through September 30 for removal of habitat within the restricted area. This restriction could be lifted on an annual basis if protocol surveys by the BLM indicate that the site is not reproductive in a given year.

Any new pairs of spotted owls found before or during the sale contract period adopt the same seasonal restriction as outlined above.

6. Special Status Species, Species to be Protected Through Survey and Manage Guidelines, and Protection Buffer Species

Special Status Plant and Animal Species are species that consist of officially listed, proposed for listing, or are candidates for listing by the U.S. Fish and Wildlife Service. This list also includes species that the BLM considers sensitive and manages to prevent them from becoming federal candidates. These are managed by Bureau policy.

Species to be Protected Through Survey and Manage Guidelines are species that are identified in Appendix B of the Medford RMP. The standards and guidelines contain four components, and priorities differ among them. They are to,

1) manage known sites, 2) survey prior to ground-disturbing activities, 3) conduct extensive surveys, or 4) conduct general regional surveys. This list is all inclusive for the range of the SEIS.

Species to be protected through Protection Buffers have additional standards and guidelines from the Scientific Analysis Team Report for specific rare and locally endemic species, and other specific species in the upland forest Matrix (ROD). When located, the occupied sites need to be protected with buffers as identified in the ROD.

Some of the known populations of Special Status Vascular and Nonvascular Plants in the Appleseed area would require some level of protection or disturbance mitigation. The level of protection or mitigation depends upon several factors, such as, the plant's rarity status, proposed action, prescription, species habitat requirement, edge effect, microhabitat changes and microclimate changes.

Fritillaria gentneri, a Federal Proposed Endangered species, would be protected from direct damage and population habitat disturbance by reserve areas. Critical habitat is not being designated for this species, therefore, only habitat associated with known sites would be protected. Conferencing with the US Fish & Wildlife Service for actions likely to jeopardize the continued existence of this proposed species is required. However, it is BLM policy to conference if the action may adversely affect the continued existence of the proposed species.

Cypripedium fasciculatum and *Cypripedium montanum* (Survey & Manage, Component 1 and 2) populations would be managed as outlined in the Management Recommendations for Vascular Plants, Instruction Memorandum No. OR-99-27.

Bureau Sensitive species and their habitats would be managed such that the proposed action would not contribute to the need to list these species.

Bureau Assessment species would be protected or impacts mitigated from disturbance by any proposed actions.

Bureau Tracking and Watch species are species where more information is needed to determine rarity and therefore do not require protection. In some cases, these species may have impacts of disturbance mitigated. Likewise,

Survey & Manage, Component 3 and 4 species require more information to determine rarity. Some extraordinary sites of these species would be managed and data collected to determine necessary protection levels for the species.

Any great gray owl nests located would receive ¼ mile protection zones (125 acres), which would be managed as Late-Successional Reserves. Designate a ¼ mile "protection zone" around any great gray owl nest sites found before or during the contract period. Management of this zone would be in accordance with the standards and guidelines established in the Survey and Manage protocol for the great gray owl. Seasonal restrictions to disturbance activities would apply as above for spotted owls. Provide no-harvest buffers of 300 feet around meadows and natural openings associated with nests.

Northern goshawk nests, or activity centers, if any are located, would receive buffers of approximately 30 acres.

Mine adits and shafts that serve as roosts, maternity colonies or hibernacula for any of the four species of bats listed as FSEIS ROD, Survey and Manage/Buffer Protection Species, would be protected with 250 foot no treatment buffers and 1,000 foot no-treatment buffers for Thompson's big-eared bat maternity colonies.

Riparian reserves would help provide refugia and travel corridors for special status and other wildlife species. Where possible, protect snags in riparian reserves by buffering so they can be retained rather than felled as OSHA hazard trees.

When operationally possible, saw work will not be done in non-commercial hardwood and brush stands during the period of April - July to mitigate disturbance of nesting birds.

Seven areas outside of riparian reserves identified as important wildlife connectivity corridors would have prescriptions designed to retain important habitat characteristics for this function. Treatment would include minimum canopy closure of 60 percent; retention of a minimum of four, 17"DBH or larger snags, if available; existing understory brush would not be cut; and retention of all hardwoods larger than 10"DBH.

7. Harvest and Logging Systems

All units would be yarded and site prepped in such a way that duff, litter, and coarse woody debris remaining after logging will be maintained at or greater than current levels as is operationally possible to protect the surface soil and maintain productivity.

Wherever trees are cut to be removed, directional felling away from draw bottoms would be practiced. Maximum operational suspension should be practiced to alleviate gouging and other disturbance on steep draw side slopes and headwalls. Trees should be felled to the lead in relation to the skid roads. The intent is to minimize the yarding damage to leave trees and regeneration under a conventional groundbased system.

For all cable yarding, maximum operational suspension would be maintained on slopes greater than 50 percent. Minimum corridor widths would be utilized when visuals impacts to neighbors and major travelways are a consideration.

Skyline and tractor yarding would be avoided up and down bottoms of draws. The intent is to minimize occurrence of erosion in existing areas of concentrated surface flow.

All skid roads would be designated and approved by BLM (maximum area in skid trails would be less than 12%). The

intent is to minimize areas affected by tractors and other mechanical equipment (disturbance, particle displacement, deflection, and compaction) and thus minimize productivity loss.

Existing skid roads would be favored for placement of new skid roads. The intent is to minimize affects over existing conditions.

All skid roads would be water barred according to BLM standards. The intent is to minimize erosion and routing of concentrated rain and snow melt to streams.

Tractor yarding would take place when soil moisture is less than 20 percent at a depth of four inches, usually June 15 to October 1, except for snow logging. The intent is to minimize compaction by operating when soil moisture is less than optimum needed for maximum density.

Wherever existing roads occur adjacent to project units, yarding to the existing road should be practiced by bull-lining. The intent is to minimize impact levels (compaction, displacement, deflection).

Every effort should be made to maintain canopy cover over skid roads. The intent is to minimize snow-melt on disturbed earth.

Short temporary roads (referred to as operator spurs) could be needed in a few instances to facilitate yarding. An average length of road would be 100 to 500'. Temporary roads would be water barred and blocked at a minimum and other treatments, such as road de-building (re-contour the site), seeding, and/or ripping, would be completed where appropriate.

Noise from any helicopter operations may be partially mitigated by regulating operating hours, days, and seasons throughout portions of the project area.

All helicopter landings (on private or BLM lands) would be approved or disapproved by BLM through a logging plan. No helicopter landing would be approved on private lands in the Humbug drainage. The only exception is when all impacted neighbors were in complete agreement.

8. Seasonal Hauling Constraints

Seasonal log hauling restriction on natural surfaced (dirt) roads during the wet season (October 15 - May 15). This would decrease the amount of sedimentation that would occur in the watershed. Some variations in these dates would be permitted dependent upon weather and soil moisture conditions of the roads.

9. Fuels Treatment

Fuels reduction work would occur in the majority of stands which are proposed for thinning. This type of work is proposed in order to reduce the current fuel hazard which exist in some stands and to mitigate the increased fuel loadings created by thinning operations. Fuels reduction work also is proposed in Oak woodlands and brush lands in order to reduce fuel loadings as well as maintain species such as native grasses, Oaks and Pines.

An array of treatments to reduce fuels are proposed for the project area. The type of treatment utilized is dependent on existing and projected fuel loadings, existing vegetative conditions, slope, and access. Treatments include mechanical treatment, manual treatment, prescribed burning or a combination of these treatments. Mechanical

treatment would be done with a machine known as the slashbuster. This type of treatment is limited to areas with slopes less than 45% and permanent access is available.

Manual treatment includes hand cutting existing ladder fuels or brush and then handpiling this material so it can be burned. This type of treatment would be done in both thinned stands as well as brush fields and Oak woodlands.

Prescribed burning includes, underburning, broadcast and handpile burning. Handpile burning would be used in the majority of areas which have been manually treated. High fuel loadings in these areas make underburning or broadcast burning not possible due to the high probability of mortality to the residual stand. This type of burning takes place in the late fall and winter.

Underburning is the preferred method of fuels reduction work in thinned stands and Oak woodlands. Under burning is highly effective because it reduces a large amount surface and ladder fuels. This type of burning would occur in late summer, fall and spring.

Broadcast burning would be used in the treatment of grasslands and some brush lands. This type of burning would occur in the late summer, fall or early winter. Broadcast burning can be accomplished with the use of a helicopter which greatly increases safety to personnel conducting these operations because they are not exposed to the interior portions of the unit.

Future maintenance of all areas in which fuels reduction work occurs in on this project area would be needed in order to maintain low fuel loadings and species dependent on fire. Underburning is the preferred method for maintaining these areas. Limited to no access to these areas will determine if underburning can be used. The risk of escape is a major factor when conducting this type of burning operation. Without access there is an increase risk of escape due to the lack of availability and mobility of people, equipment and water. If access is determined to be a problem, future treatments would have to be done manually or not at all.

All prescribed burning would be managed in a manner consistent with the requirements of the Oregon Smoke Management Plan and the Department of Environmental Quality's Air Quality and Visibility Protection Program. Measures to reduce the potential level of smoke emissions from the proposed burn sites would include mop-up to be completed as soon as practical after the fire, burning with lower fuel moisture in the smaller fuels to facilitate their quick and complete combustion, burning with higher fuel moisture in the larger fuels to minimize consumption, and burnout time of those fuels.

All units scheduled for fuels treatment would be re-examined by resource specialists following logging to re-evaluate the recommended treatment for each unit. If needed, alternatives which would better accomplish the objectives of why these areas were proposed for fuels treatment would be recommended. These recommendations would be consistent with the overall objective of treating high hazard, high risk areas as well as in conformance with all regulations regarding air quality.

Because this proposed sale area lies within 30 miles of the Medford-Ashland Air Quality Maintenance Area, to mitigate the potential impact of smoke on the nonattainment area during times of poor air quality and stagnation, burning would be curtailed when the area has a "red" woodstove advisory in effect.

To minimize loss in soil productivity and surface erosion, underburning would be planned and scheduled to result in low intensity burns, whenever possible, to reduce the loss of duff and soil.

10. Roads, Helicopter landings, & Dust Abatement

Helicopter landings on BLM land will be treated to reduce soil erosion. Treatment of the top running surface will be dependent on site conditions and would include one of the following:

1. Subsoil/till or rip, then mulch and seed or,
2. Subsoil/till or rip, then plant or,
3. Surface with durable rock material or,
4. Where natural rock occurs no treatment may be necessary

Fill slopes of helicopter landings, would be seeded and mulched, or have clearing slash placed on them when necessary except where natural rock occurs. Under rocky conditions, no treatment would be necessary.

All new road construction would be gated or blocked to passenger vehicle use by the public during all seasons.

Road construction normally occurs during the dry season (May-Oct.) in order to reduce the potential for soil erosion and degradation of water quality. However, where soils have low waterholding capacity, it is sometimes necessary to construct roads during the fall or spring when soil moisture is optimum for compaction. This also helps to prevent fill settlement and cracking. All construction activities will be stopped during a rain event of 0.2 inches or more within a 24 hour period. If on-site information is inadequate, measurements by the Medford Weather Station will be used. Restart normally will not occur for at least 48 hours after rainfall has stopped or by approval of the Contract Administrator.

Excavated material would normally be end-hauled when side slopes exceed 50% on granitic soils and 60% on other soils.

Decommissioning of existing roads should occur as located on project map. This would reduce hydrological impacts of existing roads and therefore road density. Normally, decommissioned roads would have the following: drainage structures removed, removal of fill at draw crossings, outslope grading, heavy water barring (spacing), removal of culverts, subsoiling or ripping, seeding with native seed mix or other approved seed mix if necessary, and blocking. Also, where available, pull slash onto surface to catch sediment and discourage use by ATV's.

"Temporary roads", see alternative project map, are roads designed only for use in this project. They would be natural surfaced roads that would be constructed, used, decommissioned during the dry season of the year, usually May 1 to October 15. Decommissioning of temporary roads will require the similar treatments as decommissioning of existing roads.

New permanent roads that would be natural surface would be blocked and subject to seasonal use during the dry season, usually May 15 to October 15. Slash would be windrowed at the base of the fillslope to catch sediment. Normally, the running surface will be outslopped with rolling waterdips. Fill slopes and fill shoulders will be seeded with native mix or other approved seed mix.

Rock surfacing and Quarries:

Crushed rock would be obtained from existing quarries and proposed quarries as shown on the detailed map in the EA file. Crushed rock would be used for surfacing exposed soil on selected roads and landings to minimize erosion.

surface. Water, lignin, magnesium chloride, road oil, or Bituminous Surface Treatment (BST) would be used. Oil or BST may appear to be a permanent surface improvement; however after log and rock haul it would be allowed to decline to the surface condition found prior to application. A road summary table is located in the EA file.

Road use agreements:

Existing road agreement areas owned by private timber companies would be crossed to access BLM lands. Road use agreements M1006, M660, M250, and M800 would be used for access to BLM timberland.

11. Wildlife Trees and Dead and Down Material

Reserve from harvest a minimum of 2 snags greater than 17" DBH per acre (where possible). Retention of all snags greater than 17 inches DBH within the interior of the stands will mitigate impacts to pileated woodpeckers, saw-whet owls, and several of the bat species that use large snags as roosts.

Do not target for removal large, broken-top trees and large snags with loose bark on ridgetops. Retain and protect these structures where possible.

12. Cultural Resources

A field survey was conducted and sites of cultural value such as historical or prehistorical ruins, graves or grave markers, fossils, or artifacts. The survey was reviewed by the District Archeologist and the State Historic Preservation Officer was notified of the result. Sites would be protected to retain their cultural value. If additional sites are located, these to would be protected.

13. Noxious Weeds

To minimize the spread of noxious weeds, limit vehicle movement to the dry season. Seeding of native grasses and/or sterile wheatgrass on disturbed soil (e.g., new road construction, road ripping, log landings, etc.).

Where populations of yellow starthistle already exist, several control treatments are being tested within the Appleseed project. These include: insect release as bio-control, weeding by hand, and using fire to burn plants before seed release. Treatment action would be dependent on the size and location of weed populations. In fire-safe areas, large infestations would be treated using prescribed fire. Where adjacent privately-owned land also incorporates an abundance of this weed, insect release is a priority. Hand-weeding is only effective for controlling smaller yellow starthistle populations. All weed treatment areas would be sown with native grass seed to ensure replacement by a desired plant species. Locations adjacent to treatment areas (where soils surface disturbance is likely) would be prioritized.

14. Range

The Billy Mountain Allotment #20203 is located within the project area. Livestock preference is for 129 cattle from 4/16 to 6/30. Proposed new roads and increased access would aid grazing management and maintenance of rangeland improvements.

Cattleguards, gates and fencing may be needed to prevent cattle from accessing County roads. Existing fences will need to be protected from logging activity by felling away from fences. Care is needed to protect rangeland improvements in the fire hazard reduction units. Temporary electric fencing may be needed to protect grass and seedlings during

Cattleguards, gates and fencing may be needed to prevent cattle from accessing County roads. Existing fences will need to be protected from logging activity by felling away from fences. Care is needed to protect rangeland improvements in the fire hazard reduction units. Temporary electric fencing may be needed to protect grass and seedlings during establishment.

15. Public

Prior to any major implementation of the Appleseed Project, send notification to the Humbug, Slagle Creek, and Lomas residents.

A sensitive area for noise (helicopter operation) and smoke includes 290 West Fk. Humbug Ck. Road.

16. Effectiveness Monitoring - Formal Research

Formal research would be conducted through the Cooperative Forest Ecosystem Research (CFER) Program. Density management sites would involve three different studies: 1) effects of woody debris treatments on forest floor animals especially small mammals, 2) effects of thinning on hardwood trees, 3) effects of thinning and litter layers on *Cyripedium fasciculatum* populations or other special status species.

For all units involved in the CFER research to be logged in the same season. Harvest time to be restrict to late summer, fall, and winter to protect *Cyripedium fasciculatum*. Directional fall all timber away from *Cyripedium fasciculatum* populations or other special status species. No harvest until fall 2001 to allow for pre-harvest inventories.

Chapter III Environmental Consequences

A. INTRODUCTION

This chapter describes and analyzes the environmental impacts of each alternative considered. It also identifies and analyzes mitigation measures which may be taken to avoid or reduce projected impacts.

The analysis of impacts address direct, indirect, and cumulative impacts on all affected resources of the human environment, including critical elements.

B. MITIGATION MEASURES

1. Reduce the length of the proposed new ridge road in south Slagle Creek. This would end the proposed road in the saddle just east of the section line between sections 4 and 5. This measure is considered part of the No Action Alternative but was requested by concerned publics.

Wildlife: Based on past experience, it is not safe to assume that the new road will remain inaccessible to on-road vehicles. Some elements of the 4X4 public are very inventive, persistent, and successful in their efforts to circumvent BLM's efforts to keep roads closed with gates and other barriers. This assessment assumes that the road (however long) will not remain blocked and will be open to public use most if not all of the time. Even if the blocks/gates keep full sized vehicles out, OHV and motorcycles would use it to access the ridge top and develop a link to existing trails in the Old Blue mountain area.

Based on an estimated 6 acres of permanent clearcut per mile of new road construction, this mitigation measure would reduce the amount of suitable spotted owl habitat permanently lost to road construction by approximately 6 acres.

Impacts to deer winter range on the south and west slopes of the ridge would not be mitigated as the road would still be built there. Building the road to the saddle in question and stopping there could facilitate Boise Cascade Corporation (BCC) to extend the road in the future to their 160 acre piece.

Wildlife in general are sensitive to vehicular disturbance and harassment. If the road is built and blocked there will still be harassment due to OHV use of the road.

Fuels: Impacts to Commercial Timber Stands: Without access the type of burning that could be used to treat commercial timber land would be limited. Handpile burning could be used to mitigate any fuel hazard created by timber harvest operations. With limited access the cost of handpile burning increases by an average of 33% (from \$301/acre to \$450/acre). If mop-up is needed the cost could double because of limitations of water and crew access. Also, based on the above, the burning window (number of days per year which are available for burning) is decreased.

Future maintenance (underburning) of these stands could not be accomplished. The risk of escape is a major factor when conducting prescribed fire operations. Limited to no access increases the risk of escape due to the lack of availability and mobility of people, equipment, and water. These factors plus the proximity of private land makes the risk too high to underburn these areas.

Impacts to Non Commercial Base Land: Manual treatment (cutting of brush) and handpile burning could be accomplished to reduce the present fuel hazard. Limited access would increase the cost of operation by approximately 25% (\$1,350/acre to \$1,800). In order to maintain these areas in a low fuel hazard, underburning needs to occur on a routine basis. It is estimated that low intensity burns would be needed on a 5-10 year interval. This type of maintenance burning is also beneficial to species which dependent on fire such as the Oaks, Pines and native grasses. Limited to no access would preclude this type of treatment for the same reasons mentioned above.

Short term impact would be approximately 300 acres of commercial forest lands and approximately 40 acres of pine/oak woodlands would be access limited.

Long term impact would include approximately 380 acres of commercial forest lands and approximately 240 acres of pine/oak woodlands would be access limited.

Aquatic: Risk of ATV use would not be reduced by a shorter road. Whether ATV's "discover" the road depends on access from both Hwy. 238 and adjacent ridges. Currently ATV's do not traverse this ridge. ATV use would increase erosion and water routing down trails which could increase sediment input into headwater streams.

The part of the road beyond the saddle is almost entirely on the very top of the ridge. If constructed, this last portion would contribute very little sediment to headwater streams. However, the remaining part of the road crosses several first and second order streams and traverses upper, mid-slope areas to get around two steep knobs. Sediment risk to headwater streams is greater through these crossings and upper mid-slope areas than it is on the ridge. Therefore, the overall sediment risk to Applegate River and Slagle Creek headwater streams would be almost the same as if the road was constructed to its full length.

If BLM does not construct the road across Boise Cascade Corporation (BCC) land, BCC *may* decide to exercise their Right-of-Way through private land along Slagle Creek's riparian area. This would be detrimental to the BLM's objectives of watershed restoration in the Slagle Creek drainage and could impact riparian-dependant wildlife species.

Boise Cascade Corporation may decide to extend BLM's road and continue building it across their land to facilitate cable yarding. The BCC road would not be constructed to more stringent BLM specifications and could cause more sediment and erosion problems in Section 4.

Road construction through the first mile will include decommissioning an old mining road that runs up the gut of a small tributary to the Applegate River. This road will be rerouted to a more stable and less erosive grade and location. This would be a benefit for aquatic species.

Range: Decreases access, increases administration and monitoring cost.

Logging Systems: Approximately 600 acres of matrix commercial forest land is affected by this proposal. If accepted, approximately 200 acres of timber available for cable yarding would have to be helicopter yarded, if harvested. In addition, the average yarding distance would double from approximately ½ mile to slightly over a mile. Under Alternative 2, there would be an estimated increase in yarding cost ranging from a low of \$155/MBF to a high of \$260/MBF. The increased yarding cost, especially at the high end would probably make this an uneconomical project. Under Alternative 3, the estimated increase in yarding cost would range from \$135/MBF to \$185/MBF. Due to the increased yarding distance and the additional timber to be yarded by helicopter, the aerial

operations would take at least twice as long, therefore impacting any neighbors for a longer period of time.

Soils: The proposal to end the road just east of the section line between sections 3 and 4 would eliminate approximately 0.8 miles of road. Most of this road is proposed to be on 9 percent grade as it runs along a ridge line. Eliminating this portion of the road would decrease the amount of disturbance from the total proposed road construction by about 20 percent. This portion of new road is proposed along the ridge line erosion and subsequent sediment yields are not predicted to be substantial. Therefore, eliminating this portion of the proposed road would keep approximately 5 acres of land in productivity and slightly reduce anticipated sedimentation yields to local waterways.

Vegetation: This would reduce the potential of noxious weed invasion in proportion to the reduced length of road construction.

2. Eliminate the proposed new road construction along the southern ridge of Slagle Creek. This measure is considered part of the No Action Alternative but was requested by concerned publics.

Wildlife: Based on past experience, it is not safe to assume that the new road will remain inaccessible to on-road vehicles. Some elements of the 4X4 public are very inventive, persistent, and successful in their efforts to circumvent BLM's efforts to keep roads closed with gates and other barriers. This assessment assumes that the road (however long) will not remain blocked and will be open to public use most if not all of the time. Even if the blocks/gates keep full sized vehicles out, OHV and motorcycles would use it to access the ridge top and develop a link to existing trails in the "old blue" mountain area.

Based on an estimated 6 acres of permanent clearcut per mile of new road construction, this mitigation measure would reduce the amount of suitable spotted owl habitat permanently lost to road construction by approximately 16 acres.

Impacts to deer winter range on the south and west slopes of the ridge would not be mitigated as the road would still be built. Wildlife in general are sensitive to vehicular disturbance and harassment. If the road is built and blocked there will still be harassment due to OHV use of the road.

At some point Boise Cascade Corporation (BCC) is going to want to access their piece for timber harvest. Currently, it appears that their only legal access is from the bottom where they own an easement on an abandoned road that runs next to a perennial creek. Crossing this creek and down hill yarding to it with ground based skidding equipment would probably have negative impacts on the well established, mature riparian habitat. This would have negative impacts to wildlife species associated with riparian habitat. Even if BLM does not build the road to the top of the ridge, BCC may want to do so under a reciprocal right of way agreement. BLM Building the road may or may not effect what BCC does. BLM not building the road may force or encourage BCC to come in from the bottom and have negative effects on riparian wildlife habitat. Given the BCC access issue and it's potential relationship to the BLM road building issue it is very difficult to predict what the impacts of BLM building /not building the road would be.

Aquatic/Riparian

Aquatic: Potential for sediment movement from OHV use. Portions of the existing mining road (towards the start of the existing rd.), would not be relocated and decommissioned. Approximately 1.3 miles of an old mining road going up to Billy Mountain would not be decommissioned. This would continue an existing erosion/sediment

problem. Also, there would be an increase risk of Boise to execute their existing easement from the bottom of Slagle Creek instead of executing the M-660 Rights-of-Way Agreement. Execution of their easement would have additional impacts to Slagle Creek from downhill tractor logging as compared to uphill cable logging and an access crossing of Slagle Creek.

If BLM does not construct the road across BCC's land, BCC may decide to exercise their Right-of-Way through private land along Slagle Creek's riparian area. This would be detrimental to the BLM's objectives of watershed restoration in the Slagle Creek drainage, and could impact riparian-dependant wildlife species.

Logging Systems: Approximately 700 acres of commercial forest land is affected by this proposal. If accepted, approximately 320 acres of timber available for cable yarding would have to be helicopter yarded, if harvested. In addition, the average yarding distance would increase from approximately ½ mile to approximately 1.4 miles. Under Alternative 2, there would be an estimated increase in yarding cost ranging from a low of \$250/MBF to a high of \$400/MBF. The increased yarding cost would probably make this an uneconomical project. Under Alternative 3, the estimated increase in yarding cost would be approximately \$200/MBF. Due to the increased yarding distance and the additional timber to be yarded by helicopter, the aerial operations would take at least twice as long, therefore impacting any neighbors for a longer period of time. Helicopter noise impact to local residents would increase. Some of the noise and short term economic problems could be mitigated by landing on private land. Landing on private land would change the haul route and put log truck traffic on Slagle Creek Road. Management deferral of this area would mitigate the economic problem.

Soils: Eliminating the proposed road construction up to and along the ridge of Slagle Creek decreases the disturbance of approximately 28 acres of land. The first part of this road (approx. 1.5 mile) would be built on soils formed from granitic parent material which is highly erodible. The remainder of the road is on more competent soils and on (or near) the top of the ridge so soil erosion and sedimentation to local waterways would be minimal especially after settling occurs the first few years after construction. As far as the soil resource is concerned only the first 1.5 miles of the road would result in higher than normal erosion rates as a result of the proposed road. The first 0.5 mile of road is on relatively gentle slope (8-40%) so preventative measures in designing the road and project design features (i.e. surfacing, close culvert spacing, road closure, etc.) would mitigate most erosion and drainage problems in this section. The remaining portion of the road up to the saddle is granitic soils on steep hill slopes ranging from 45 to 65 percent with the average being 55 percent. Granitic soils on steep slopes are highly erosive. This portion of the proposed road would take special measures to maintain and stabilize to ensure excessive erosion doesn't continue after the first few years of construction. The remainder of the road would be constructed on the moderately deep (bedrock within 40 inches), well drained soils. The road would be located on or near the ridge with most of the excess earthen material end-hauled to a designated disposal site. The road would affect one headwall in the upper Slagle Creek drainage in the S.E. corner of section 4. Design and slope stability measures would have to be taken to guard against road (and slope) failure.

Fuels: Impacts to Commercial Timber Stands: Without access the type of burning that could be used to treat commercial timber land would be limited. Handpile burning could be used to mitigate any fuel hazard created by timber harvest operations. With limited access the cost of handpile burning increases by an average of 33% (from \$301/acre to \$450/acre). If mop-up is needed the cost could double because of limitations of water and crew access. Also, based on the above, the burning window (number of days per year which are available for burning) is decreased.

Future maintenance (underburning) of these stands could not be accomplished. The risk of escape is a major factor when conducting prescribed fire operations. Limited to no access increases the risk of escape due to the lack of

availability and mobility of people, equipment, and water. These factors plus the proximity of private land makes the risk too high to underburn these areas.

Impacts to Non Commercial Base Land: Manual treatment (cutting of brush) and handpile burning could be accomplished to reduce the present fuel hazard. Limited access would increase the cost of operation by approximately 25% (\$1,350/acre to \$1,800). In order to maintain these areas in a low fuel hazard underburning needs to occur on a routine basis. It is estimated that low intensity burns would be needed on a 5-10 year interval. This type of maintenance burning is also beneficial to species which dependent on fire such as the Oaks, Pines and native grasses. Limited to no access would preclude this type of treatment for the same reasons mentioned above.

Short term impact would be approximately 700 acres of commercial forest lands and approximately 480 acres of pine/oak woodlands would be access limited.

Long term impact would include approximately 283 acres of commercial forest lands and approximately 900 acres of pine/oak woodlands would be access limited.

Vegetation: This would reduce the potential of noxious weed invasion into grass, shrub, and woodland plant communities located on southerly-facing slopes below the proposed road construction. At the same time, the lack of road would hamper or increase the cost of reintroducing fire and other maintenance treatments to the same fire-dependent plant communities.

3. Eliminate the proposed new road construction along the northern portion of Slagle Creek, which begins in the Foothills Creek drainage. This measure is considered part of the No Action Alternative but was requested by concerned publics.

Wildlife: The new road construction would be an extension of the Foothills Creek road system which is behind a locked gate. This gate is one of the most effective in the resource area. The Private landowner in the area makes sure the gate is locked and not tampered with. It is probably safe to assume that the new road construction would remain inaccessible to on-road vehicles. The ridge line where the new construction would start is used extensively by OHV and the additional road construction could encourage additional OHV activity farther south and closer to the "enchanted forest" and it's resident spotted owls. The enchanted forest trail is currently closed to OHV use and the new road construction could encourage the development of a link trail between the new road and the existing closed trail. Not building the road would reduce the potential for vehicular (ORV/ATV disturbance of wildlife in the area, and reduce the potential for abuse of the existing enchanted forest trail and near by owl site.

Aquatic: There is an existing jeep road currently on this ridge. It has some steep grades. Steep grades create erosion and sediment problems to the watershed. The existing erosion and sediment problems would continue.

The road follows the top of a ridge. Traditionally, ridgetop roads are the most stable and make the least contribution to instream sediment. In addition, standards to reduce water routing and sediment input into draws or other water routes have toughened. The National Marine Fisheries Service strongly recommends ridgetop roads over midslope or riparian area roads.

Logging Systems: Approximately 230 acres of commercial forest land is affected by this proposal. If accepted, approximately 70 acres of timber available for cable yarding would have to be helicopter yarded, if harvested. In addition, the average yarding distance would double from approximately 1800 feet to approximately 3900 feet.

Under Alternative 2, there would be an estimated increase in yarding cost ranging from a low of \$125/MBF to a high of \$200/MBF. Under Alternative 3, the estimated increase in yarding cost would be approximately \$125/MBF.

Soils: Eliminating the proposed road along the northern portion of the ridge along north fork Slagle Creek decreases new construction by approximately 1 mile of road. This road is proposed to be built along the ridge line so minimal sedimentation would occur in local waterways although approximately 8 acres of land would be disturbed. The road is proposed to be completely surfaced and seasonally closed so erosion would be near background levels after the first few years that it is built. Not building the road would leave the area in near natural condition with erosion rates at minimal levels.

Vegetation: This measure would reduce the potential for noxious weed introduction to open plant communities in close proximity to the proposed road.

4. Eliminate harvesting overstory trees with a diameter class of over 20 inches DBH. This measure was requested by concerned publics.

Wildlife: All of the ecological health assessments and watershed analyses performed in the Applegate have indicated that there is a shortage of large trees. Large trees are important components of late successional wildlife habitat. Large trees turn into large snags, tend to have large horizontal limbs, and are more resistant to wildfire than smaller trees. Some species of wildlife need large trees for specific functions such as denning sites and nest trees. This measure would benefit these species for as long as these trees and snags persist and provide habitat. If the 20" diameter limit precludes the economic viability of the project as a whole, the longterm impacts would be negative to species which need large trees and snags because the increased tree growth resulting from thinning would not occur. Large trees for the future would not be produced in as great a number or as rapidly as if the thinning were to occur.

Silviculture:

This would only work when large diameter trees are naturally spaced far apart from each other. Most of the time, this does not happen in the project area. This may be appropriate for the planned wildlife connectivity corridors. It may also be appropriate where only second growth Douglas-fir are to be commercially thinned. This certainly does maintain large diameter trees but it will not always reduce stand density levels enough or account for the desired species composition of the forest to meet current objectives.

Silviculturally there is no reason to protect trees 20 inches DBH and larger unless there is a specific project objective to do such. If we were to adopt such a policy, we would not be able to perform a regeneration harvest as discussed in the Medford District RMP. This would eliminate the 13 regeneration harvest areas planned for the Applesed project.

Although we are treating landscapes and looking at projects from a broader perspective, we shouldn't lose sight that when applying a marking prescription we are looking at each individual tree and deciding its fate based on its surrounding environment. Southern Oregon stands are not uniform in nature. A 28" tree could very well be next to a 36" tree and the decision could be, based on good science, to thin out the 28" tree in order to release the larger one.

It is vitally important that we use the best knowledge available to keep large trees in the ecosystem, and begin to promote more large trees and other species. Being forced to use a general prescription with an imposed diameter limit of 20" would greatly hamper our ability to meet these objectives, and also the purpose and need statement in this EA.

Abiding by such a rule would also put old-growth trees and our shade intolerant species such as pines and incense cedar in jeopardy. We must release true old-growth trees, pines and cedars to enhance their vigor by harvesting some 20 inch DBH and larger second growth Douglas-fir trees if we truly want to create diverse stand diameter structure. We have already experienced the mortality of a large percentage of our true old-growth trees (both pines and Douglas-fir) because of high vegetation densities. If we do not harvest some large second growth trees we will continue to lose trees over 200 years of age and our shade intolerant species. This contradicts the objectives of our silvicultural prescriptions.

In uneven-aged management, trees are usually harvested in all diameter classes.

Most all the marking prescriptions have the objective of growing big trees or maintaining the large trees we currently have. Trees with old growth characteristics usually have large crowns with large limbs, indicating the tree once grew in an open condition. In order to develop our dominant trees into large (over 40") diameter trees that contain old growth characteristics we need to thin around them. This includes creating open space around the live crown. This allows sun to fully penetrate the crown allowing it to photosynthesize, grow and put on diameter growth.

Some stands contain only a few remnants of these large old growth trees. In many stands where ponderosa pine, black oak and madrone were once important components, it has now been reduced to only a few of these trees because of the encroaching more shade tolerant Douglas-fir. It is important that we begin to promote more shade intolerant species if we feel that species diversity is the right goal.

In moist Douglas-fir zones in the Appleseed project it is possible to have stands that average over 20" diameter but are in need of thinning in order to increase the vigor, overall health, and grow larger diameter trees. It is possible to have a stand that averages 36" DBH on northerly slopes, but tree densities need to be low; in the 20 to 30 tree per acre range. A 20" limit would limit our ability to manage for stands with large stand diameters (over 36").

Logging Systems: Utilizing data from the last landscape project which is located in the same general area with similar vegetation types and proposed actions, the following information was compiled. There were approximately 72,750 stems slated for removal. 94% were 20 inches or less, however, these stems accounted for only 70% of the volume sold. Therefore, the 6% of the stems over 20 inches sold accounted for 30% of the volume. If these stems had not been included in the sale, the appraised stumpage value would have been reduced below \$0/MBF. This reduction does not even take into account the increase in logging cost brought about by the reduced harvest volume per acre. Safety and operational trees greater than 20 inches would still have to be severed.

5. Reserve all large trees in the two conifer stands located in the upper southeast reaches of Slagle Creek (north aspects in the NE¼/NE¼ Section 9 and the SW¼/SW¼ of Section 3, T.38S., R.4W., W.M.). This measure was requested by concerned publics.

Wildlife: All of the ecological health assessments and watershed analyses performed in the Applegate have indicated that there is a shortage of large trees. Large trees are important components of late successional wildlife habitat. Large trees turn into large snags, tend to have large horizontal limbs, and are more resistant to wildfire than smaller trees. Some species of wildlife need large trees for specific functions such as denning sites and nest trees. This measure would benefit these species for as long as these trees and snags persist and provide habitat. If the 20" diameter limit precludes the economic viability of the project as a whole, the long term impacts would be negative to species which need large trees and snags because the increased tree growth resulting from thinning would not occur.

Large trees for the future would not be produced in as great a number or as rapidly as if the thinning were to occur.

6. Eliminate the proposed new road construction along the eastern ridge of the Long Gulch drainage. This measure is considered part of the No Action Alternative but was requested by concerned publics.

Aquatic: With the exception of the first 1/4 mile, the road follows the top of a ridge. Traditionally, ridge top roads are the most stable and make the least contribution to instream sediment. In addition, standards to reduce water routing and sediment input into draws or other water routes have toughened. The National Marine Fisheries Service strongly recommends ridge top roads over midslope or riparian area roads.

Long Gulch is one of the 5 medium-sized watershed in the Ashland RA that does not have any roads *within* the watershed! There is an existing road on the western boundary of the watershed. The proposed road is on the eastern boundary. By eliminating this road the would continue to have a road on the western, but not the eastern boundary. The other medium-sized watersheds in the Ashland RA without mid-slope or riparian roads are Star Gulch (an RMP-removed watershed), Right Fork Camp Creek, Balls Branch (just over the ridge from Long Gulch), and Muddy Gulch (a tributary to the Little Applegate River). *Although the proposed road would be on the ridge*, reducing ridge roads reduces the chance of creating a more roaded network in the future, and reduces the chance of any unforeseen road impacts (like OHV's or road failure).

Long Gulch is especially important because out of these 4 watersheds, it is the only one that has a "trellised" stream pattern. A trellis pattern describes a long, straight stream with many short tributaries that are spaced down the length of the stream. This is opposed to a "dendritic" pattern, where the stream and its tributaries make a more fan-shaped pattern. Dendritic and trellised streams move water and sediment very differently; therefore, it is important to compare similar kinds of streams when designing monitoring projects. If impacts to the drainage remain minimal (the elimination of the proposed road), and legal access was acquired towards the lower portions, then Long Gulch would make a good control area to form the basis of any future research to compare "managed and roaded" trellised streams in the Applegate.

Fuels: Without access the type of burning that could be used to treat commercial timber land would be limited. Handpile burning could be used to mitigate any fuel hazard created by timber harvest operations. With limited access the cost of handpile burning increases by an average of 33% (from \$301/acre to \$450/acre). If mop-up is needed the cost could double because of limitations of water and crew access. Also, based on the above, the burning window (number of days per year which are available for burning) is decreased.

Future maintenance (underburning) of these stands could not be accomplished. The risk of escape is a major factor when conducting prescribed fire operations. Limited to no access increases the risk of escape due to the lack of availability and mobility of people, equipment, and water. These factors plus the proximity of private land makes the risk too high to underburn these areas.

Manual treatment (cutting of brush) and handpile burning could be accomplished to reduce the present fuel hazard. Limited access would increase the cost of operation by approximately 25% (\$1,350/acre to \$1,800). In order to maintain these areas in a low fuel hazard underburning needs to occur on a routine basis. It is estimated that low intensity burns would be needed on a 5-10 year interval. This type of maintenance burning is also beneficial to species which dependent on fire such as the Oaks, Pines and native grasses. Limited to no access would preclude this type of treatment for the same reasons mentioned above.

Short term impact would be approximately 400 acres of commercial forest lands and approximately 200 acres of pine/oak woodlands would be access limited.

Long term impact would include approximately 400 acres of commercial forest lands and approximately 400 acres of pine/oak woodlands would be access limited.

Logging Systems: Approximately 170 acres of matrix commercial forest land is affected by this proposal. If accepted, approximately 140 acres of timber available for cable yarding would have to be helicopter yarded with an average yarding distance of approximately 2500 feet. In addition, the average yarding distance for would increase from approximately 1000 feet to 3000 feet for approximately 30 acres of timber scheduled for aerial yarding if the road was constructed. There would be an estimated increase in yarding cost ranging from a low of \$160/MBF to a high of \$310/MBF.

Vegetation: Would maintain a large unroaded area. Could serve as a control against which landscape-level weed invasion (and other ecological processes) for future research. Would hamper the reintroduction of fire and other maintenance treatments to our grass, shrub, and woodland plant communities.

Wildlife: Adopting this mitigation measure would be good for wildlife in that it would maintain the security of the area in question by keeping it roadless. This new road is proposed adjacent to a connectivity block at the head of Long Gulch that is intended to provide relatively closed canopy habitat across the saddle between Long Gulch and the Oregon Belle Creek drainage. This road would encroach into one of the largest roadless areas in the Middle Applegate watershed. Road construction invariably results in increased levels of human disturbance and harassment of wildlife.

Gating the road would mitigate these effects depending on the degree that the gate remained closed, is not driven around, and is not destroyed. The gate would be 100% ineffective at keeping motorcycles and ATV's out of the area.

Building the road would facilitate some land treatments that would be beneficial to some early successional species such as deer, quail, and some species of songbirds. These benefits would not occur if lack of access precludes these treatments.

C. WILDLIFE

1. Alternative I - No Action

Direct, Indirect, and Cumulative Effects

Since no projects are planned under this alternative, disturbances and vegetative succession would occur naturally (except for fire suppression), and wildlife populations and distributions would change in response to these processes. Exclusion of natural fire regimes across the landscape would continue the trend toward loss of some plant communities within open pine, oak woodlands, and grasslands. This alternative would continue to facilitate a high fire-hazard.

2. Action Alternative II - Variable Prescriptions

Reduce the conifer density by thinning the vegetative profile (specified prescriptions) in management units across the landscape.

Direct Effects

General

The general effects of timber harvest and fire management activities on wildlife/wildlife habitat are discussed in Chapter 4, pages 51-65, and other portions of the BLM Medford District Resource Management Plan, October 1994. The effects that are more site/drainage area specific are addressed further in the following discussion.

In order to accomplish the objectives that have been established for Alternatives II and III, existing habitat conditions would be modified on approximately 7,980 acres of commercial forest land, 5,850 acres of thinning in non-commercial size forest, and 2,805 acres of non-commercial shrubland and oak-woodland would be treated (approximately 25 percent of that present in the project area).

Due to the variety of conifer stand conditions in the project area, there are numerous prescriptions/marketing guidelines, most with a primary goal of improving tree/stand vigor and growth. The treatments and the logging operations, however, would reduce canopy closure, which is an important stand feature for a number of the wildlife species (e.g., northern spotted owl) associated with mid and late-successional conifer stands. This would adversely affect these species. Conversely, species preferring or adaptable to open canopies and/or early seral conditions, e.g., great horned owl and mountain quail, respectively, would benefit from the harvest since a reduction in canopy closure should stimulate growth of herbaceous and other early seral vegetation.

The goals of the treatments for the non-commercial lands (shrubland/oak-woodland) are to reduce fire hazard, facilitate establishment of early seral vegetation, and curtail conifer encroachment. The prescribed treatments would provide a better distribution of the shrubland/oak-woodland series within the project area. As with all habitat change, some species would benefit from these treatments, e.g., black-tailed deer (due to improved forage conditions) and others would be adversely affected, e.g., wrenit (due to the reduction in dense shrubs).

The road construction that would occur under Alternatives II and III would eliminate approximately 70 acres of the various habitat types present in the project area. Given the scale of the project, however, the quantity of habitat loss would be negligible. The greater impact of the road construction on wildlife would be associated with the long-term vehicular disturbance that could occur if the roads remain open to use after harvest or if the proposed barricades/gates are breached on a regular basis.

Threatened/Endangered Species

Northern Spotted Owl

The northern spotted owl is listed as a threatened species under the auspices of the Endangered Species Act of 1973, as amended. Due to habitat modification that would occur under Alternatives II and III, BLM is required to formally consult with the U.S. Fish and Wildlife Service (Service) because the proposed actions would adversely affect northern spotted owls.

Alternative II would modify approximately 5,730 acres of suitable northern spotted owl habitat (i.e., nesting/roosting/foraging habitat) and 2,970 acres of dispersal habitat. Approximately 5,250 acres of the suitable habitat would be rendered unsuitable. Of this total, approximately 3,520 acres would be commercially thinned and is expected to again provide suitable habitat in 10-30 years if it remains unharvested for this period of time. In the interim, these acres would provide dispersal habitat. The remaining acres would be regeneration cut. Approximately 1,730 acres of suitable habitat to be regeneration cut would provide neither suitable nor dispersal habitat in the long-

term.

Approximately 2,100 acres of dispersal habitat to be harvested by the thinning prescriptions would retain dispersal habitat function after the harvest. Approximately 870 acres of dispersal habitat to be regeneration cut would be lost as dispersal habitat in the long-term.

The habitat loss described above is expected to adversely affect the ability of spotted owls within and adjacent (within 1.3 miles) to the project area to successfully reproduce. Formal consultation with the U.S. Fish and Wildlife Service (Service) has been completed for timber sales in the project area that will be sold in fiscal years 1999 and 2000 [Biological Opinion 1-7-98-F-321 (BO)]. The mandatory terms and conditions of the BO require the implementation of project design criteria proposed in the Biological Assessment for Rogue River/South Coast FY 99/00 Timber Sale Projects (BA). These criteria will be incorporated in the design of the timber sales. The BA and BO are available for review at the Medford BLM Office.

A concern about deteriorating spotted owl dispersal conditions in portions of the Applegate watershed was addressed in both the BA and the ensuing BO. The Service determined that the projects addressed in the BA would not likely curtail dispersal, but advised that an in-depth evaluation of dispersal conditions should be conducted before submission of the next BA in 2000.

Northern Spotted Owl Critical Habitat

Approximately 5,910 acres of the project area are in Critical Habitat Unit (CHU) OR-74 which lies almost entirely outside of the Late Successional Reserve (LSR) system. Of this, approximately 2,782 acres provide suitable habitat (nesting/roosting/foraging) for northern spotted owls, and 1,259 acres provide dispersal-only habitat. Under this alternative, approximately 1,970 acres of suitable habitat will be harvested; 1,050 acres using density management prescriptions, and 580 acres using regeneration harvest prescriptions. It is expected that the suitable habitat harvested by density management prescriptions will retain dispersal function, and those acres harvested by regeneration methods will be lost as habitat for the long-term. Also, approximately 800 acres of the dispersal-only habitat will be harvested; 590 acres using density management prescriptions, and 210 acres using regeneration harvest prescriptions. As with the suitable habitat, the dispersal habitat harvested using density management prescriptions is expected to retain dispersal function, and that harvested under regeneration prescriptions is expected to be lost for the long-term.

When designated as critical habitat in 1992, the proposed function of CHU OR-74 was to maintain adequate nesting, roosting, and foraging habitat to improve connectivity between other CHUs. Alternative II would have a detrimental effect on this proposed function of the CHU due to the removal of suitable habitat. However, in the Biological Opinion for the NFP, the U.S. Fish and Wildlife Service (Service) concluded that the combination of land allocations and prescriptions in the plan should enable the critical habitat network to perform the biological function for which it was designated even though the LSR network did not completely overlay the CHU network. Given this, the apparent primary function of critical habitat outside of LSRs, such as CHU OR-74, is to help provide the necessary dispersal/connectivity between LSRs. The regeneration harvest of approximately 787 acres of suitable and dispersal habitat in the CHU will adversely affect the dispersal function of the CHU.

Special Status Species

Special Status Species (SSS) are those species that are federally listed as endangered (FE), threatened (FT), proposed (FP), or candidate (FC), or that the Oregon State Office of BLM (OSO) lists as sensitive (BS) or assessment species

(BA). The OSO also maintains a list of "tracking" species as part of the SSS program, but for management purposes these species are not considered to be SSS (Special Status Species Policy for Oregon and Washington, 1991).

The following are SSS known to be present in the project area and would be adversely affected by the proposed projects: northern spotted owl (FT), long-legged myotis (BS), fringed myotis (BS), Yuma myotis (BS), western bluebird (BA), pileated woodpecker (BA), and great gray owl (BA). Also, under the auspices of the NFP, the great gray owl is a Protection Buffer species.

All species would be adversely affected due to the overall change in stand structure, specifically the reduction in canopy closure and/or snag density in the mixed conifer plant community. All of the species would be affected in their ability to feed, breed and shelter. The NFP, however, provides some degree of site specific mitigation for these species through the implementation of appropriate Standards and Guidelines. Impacts to the bat species would be mitigated somewhat by the retention of modest numbers of snags. Impacts to northern spotted owls and great gray owls would be mitigated by the retention of core areas around nest sites/activity centers. Retention of modest numbers of snags would also mitigate impacts to western bluebirds.

Indirect Effects

Proposed road construction under Alternative II would eliminate approximately 70 acres of the various habitat types present in the project area. The roads, however, would be routed to avoid sensitive wildlife areas. In relation to the size of the project, the loss of this amount of habitat would be a minor impact to wildlife. A greater impact would be the long-term disturbance that could occur if the barricades/gates proposed for the roads are breached on a regular basis.

Other indirect effects associated with the proposed project, such as site preparation or planting, would have only minor impacts on wildlife because these actions would occur in areas already disturbed by the major actions, i.e., timber harvest or brushland/oak-woodland treatment.

Cumulative Effects

Cumulative effects are defined as the collective environmental impacts of all past, present, and reasonably foreseeable future actions taking place in the affected area. For this analysis the affected area is defined as the Applegate watershed. Past actions that have had the greatest influence on existing wildlife/wildlife habitat conditions in the area are timber harvest (and related operations), fire suppression, and residential development (Middle Applegate Watershed Analysis, 1995).

3. Alternative III - Reduce vegetative density to minimum SGFMA ROD Guidelines (16 to 25 trees/acre).

Direct Effects

Alternative III would have more detrimental effects on wildlife habitat than Alternative II.

Alternative III would harvest all commercial timber stands within the project area to the minimum FSEIS ROD guideline for regeneration harvest, FSEIS ROD, 4-13-94, Standards and Guidelines, pg. C-42. The exception would be areas designated as reserves, which would not receive treatments. A large amount of habitat would be lost long-term to those species needing closed canopy, late successional forest conditions. This alternative would result in the loss of 100% of the total of 5,728 acres of late successional forest stands outside of designated reserves in the

project area. The logging treatment would greatly reduce tree density, canopy closure, and stand diversity. Those species preferring early seral conditions would benefit from an increased amount of this habitat.

Threatened/Endangered Species

Northern Spotted Owl

Alternative III would result in the long-term loss of approximately 5,730 acres of suitable northern spotted owl habitat (i.e., nesting/roosting/foraging habitat) and 2,970 acres of dispersal habitat.

Habitat loss would result in the “incidental take” of northern spotted owls in and adjacent to the project area due to the loss of suitable habitat.

Northern Spotted Owl Critical Habitat

Approximately 5,910 acres of the area proposed for timber harvest are in Critical Habitat Unit (CHU) OR-74. Within the CHU, there are 2,782 acres of suitable habitat and 1,259 acres of dispersal habitat. Alternative III would result in the long-term loss of approximately 2,765 acres of the suitable and dispersal habitat within the CHU, or all of this habitat not in reserve. Alternative III would have a detrimental effect on the function of the CHU due to the impacts of regeneration-level cutting across a large landscape area.

Since constituent elements of critical habitat (nesting, roosting, foraging and dispersal habitat) would be adversely affected, formal consultation is required with the Service.

Special Status Species

Alternative III would adversely affect special status species in both the short and the long term, due to the overall change in stand structure, specifically the reduction in canopy closure and snags. Those species which are likely to be most affected by the reduction in canopy closure are northern spotted owl, northern goshawk, and great gray owl. Species that would be the most affected by the reduction in snags within the forested matrix are the pileated woodpecker and northern saw-whet owl.

Survey and Manage Species

The mitigating measures, project design features, and surveys for FSEIS ROD Survey and Manage species referred to in Alternative II, would also apply to Alternative III.

Indirect Effects

Any indirect effects associated with the proposed project, such as site preparation or planting, would have negligible impacts on wildlife, and the project design features would further minimize any of these impacts.

Cumulative Effects

The cumulative effects of Alternative III, in addition to adjacent private timber cutting and road building, would have detrimental effects, such as habitat reduction and fragmentation, adversely affecting wildlife species dependent on late successional forest habitat.

D. DENSE STANDS/FOREST HEALTH

1. Alternative I - No Action

Direct and Indirect Effects

No action would allow forest stands to remain overstocked and individual tree vigor and growth would remain poor. Average dominant tree 10-year radial growth is .45 inches or .90 inches diameter growth per decade. When diameter growth is less than 1.0 inch per decade, pine trees cannot pitch-out bark beetles and tree mortality results (Dolph, 1985). Tree mortality represents a reduction in stand volume production, a loss of revenue, and an indicator of poor forest health.

The average tree vigor rating within the project area as measured by leaf area index is 47. Trees with vigor ratings below 30 will succumb to bark beetle attacks of relatively low intensity. Trees with vigor ratings between 30-70 can withstand progressively higher attacks but are still in danger of mortality. Trees with vigor ratings of between 70-100 can generally survive one or more years of relatively heavy attacks and trees with ratings above 100 cannot be killed by bark beetles (Waring, 1980).

Without action, forest structure and species composition could not be controlled. Douglas-fir would remain the most prevalent species and stands would remain in the stem exclusion stage of development. Most likely our largest and oldest trees would die. We may continue to lose ponderosa pine across the landscape.

No action contradicts the Medford District Resource Management Plan forest condition objectives in regard to forest health. The plan states that management emphasis be placed on treatments and harvests that restore stand conditions and ecosystem productivity.

Cumulative Effects

With no forest stand density reduction, slow tree growth and vigor will result in individual tree and perhaps stand mortality. If severe stand mortality results, silvicultural options in the future will be reduced. It is possible that after bark beetle attack, there may be less than 16 trees per acre remaining. If this happens we would not be able to harvest timber for approximately 30 to 50 years.

Fire hazard would increase with the abundance of dead vegetation and ladder fuels.

2. Alternative II - Variable Prescriptions

Direct and Indirect Effects

The proposed prescriptions to be applied across the forest landscape are based upon the present vegetation structure, species composition, and vegetation condition class, allow for the creation of desired old-growth forest structure and the desired tree species over time. Throughout forest stand treatments tree densities are reduced thus allowing for improved individual tree vigor and growth. Table 2 of the silvicultural prescription shows projected 20-year diameter growth for treated and untreated stands (projections from the southwest Oregon Organon growth analysis model). Table 4 shows the growth of one mid seral and one mature stand with and without management. In both

stands hundreds of trees per acre are lost through natural mortality versus being utilized through timber harvesting at a specified rate (See Table 3).

Table 2 also shows that 10-year diameter growth will exceed 2.5 inches if the stands are treated accordingly so trees will be vigorous enough to withstand bark beetle attacks.

The various prescriptions meet the specifications of restoration thinning and density management as outlined in the Medford District Resource Management Plan.

Cumulative Effects

By utilizing various landscape prescriptions, future silvicultural options will be greater. In the majority of forest stands that will be commercially thinned, these stands can be commercially thinned once again, or regeneration harvested in 10 to 40 years. Pole sized stands could be entered again in 30 to 60 years. The prescriptions will also assume that drought resistant conifer species such as ponderosa pine and incense cedar will be present in future stands where appropriate in regard to site conditions.

There is a wide variety of silvicultural prescriptions because of the wide variety of present day forest stand structure. A variety of prescriptions are needed to create future old-growth forest stand structure.

3. Alternative III - 16 to 25 trees/acre.

Direct and Indirect Effects

Harvesting all of the merchantable trees, except for 16 to 25 trees per acre, would be best for leave tree vigor and growth. However, this would remove some vigorous growing trees so there would be a volume reduction during future treatments.

Stand structure across the landscape would be more uniform and tree clumps would be less frequent. When tree regeneration becomes established a severe fire hazard would result because there would be ladder fuels across the entire landscape.

Cumulative Effects

Harvesting the entire landscape at the present time to 16 to 25 trees per acre would decrease future silvicultural options. There would be no future commercial harvesting from these areas for approximately 30 to 50 years until 8 inch DBH trees are grown.

E. RIPARIAN AND FISHERIES

1. Alternative I - No Action

Direct Effects

No direct effects on riparian areas and aquatic wildlife.

Indirect Effects

Plant communities would continue their current trends of change, given the current policy of fire suppression. Douglas-fir would continue to invade oak woodlands and grasslands, brushlands would continue to be at high risk for a severe, widespread fire, and conifer stands would continue to be "overstocked," and at high risk for severe, widespread fire. Trees in overstocked riparian areas (especially those with many small diameter Douglas-fir) would continue to grow very slowly in Riparian Reserves. All of these factors would continue to limit water yield in small streams throughout the project area and put streams at risk for sudden changes in peak flow, sediment input, and downcutting due to concentrated runoff from wildfire areas. Channel condition and fish habitat should slowly improve, as both small and large snags naturally fall into stream channels over time. Roads would continue to channel water, increasing peak flows and fine sediments until repaired under the normal (but slow) maintenance schedule. The risk of crossing failures would remain until culverts were replaced to handle 100-year flood events.

Cumulative Effects

Stream condition and fish habitat over the entire project area would remain essentially the same. Improvements with time may be offset by disturbance from increasing rural residential construction and road building. The risk of severe fires would continue to put instream and riparian habitat at risk for sudden and severe changes in peak flow, sediment, and channel change.

2. Alternative II - Variable Prescriptions

Direct Effects

Road improvements and decommissioning would benefit streams and aquatic habitat in the project area in several ways. Although the overall road miles remain high, roads in riparian areas are being decommissioned while new road construction is located primarily on ridgetops. Roads in riparian areas impact streams far more than roads on ridgetops. Road decommissioning and culvert replacement projects would restore flood plain and riparian reserve connectivity in some locations. Road improvements and decommissioning may create short-term increases in fine sediment production, but should ultimately reduce the road-related sediment load in project area streams. Finally, road decommissioning and improvements should reduce the amount of road surface area and reduce concentrated flow off of roads, which would improve winter peak flow levels and associated stream bank erosion.

Riparian Reserve treatments would benefit streams and aquatic/riparian habitat in several ways. Improvements would be almost immediate in some treated Riparian Reserves because increased sunlight (esp. in thick pole or brush stands with suppressed riparian vegetation) would cause riparian shrubs and understory to grow, increasing vegetation diversity and structural elements. Conifers should attain late-successional characteristics sooner because more nutrients and water would be available for them after thinning. In some Riparian Reserves, silviculturally - thinned trees would be dropped towards the channel which would increase coarse woody debris, stream channel structure, sediment, and water-holding capacity and both aquatic and terrestrial habitat. (In untreated Riparian Reserves, coarse woody debris levels would remain the same.)

Indirect Effects

At the project level, the primary treatment objective is to restore landscape-level processes (like fire) and vegetation community condition. Although the vegetative would not be immediate, silvicultural thinning may increase summer low flows within the range of normal variability. (Note: Summer low flows are probably influenced more by deeper

groundwater. Increases in available surface water will probably be taken up by surrounding vegetation.) Fire hazard reduction would reduce the risk of a severe, stand replacement fire, which could cause sharply increased peak flows, sediment levels, and corresponding erosive downcutting in streams throughout a large area. Over the long term, channel condition should improve as peak flows and sediment levels return to levels and timing more appropriate to the stream channels in the project area. Long term increases in large woody material would help to re-establish channel structure in historically gold-mined systems.

Reintroduction of prescribed fire (to mimic natural processes) and corresponding shifts in plant communities may alter upland and riparian nutrient cycling processes, or the amounts of different nutrients moving into groundwater, which may affect streams. Water temperature would probably not be affected.

Cumulative Effects

Habitat for both aquatic and terrestrial species should improve, with returning channel complexity, increased course woody debris on the ground, improved riparian vegetation, improved connectivity within riparian areas. Reducing fire hazard while simultaneously reintroducing fire into the landscape should help keep aquatic ecosystems intact until better connections between refugia areas can be re-established.

3. Alternative III - 16 to 25 trees/acre.

Direct Effects

Road impacts would remain the same as for Alternative II.

If Riparian Reserves were thinned to 16-25 trees/acre, impacts would include increased sunlight for increased shrub development and improved structural elements in the Reserve. Trees would attain late-successional characteristics sooner because more nutrients and water will be available for them after thinning. Silviculturally-thinned trees would be dropped for either in-channel or terrestrial riparian course wood would immediately increase stream channel structure, sediment and water-holding capacity and both aquatic and terrestrial habitat. (In untreated Riparian Reserves, course wood levels would remain the same.)

Improvements would mimic natural conditions best on south-facing pine sites, sites that historically were more open due to aspect and soil conditions. On north-facing Douglas fir sites, sites that should be more forested and moist, a SGFMA prescription might not retain enough canopy closure to maintain important Riparian Reserve characteristics. Humidity would be reduced, changing microsite conditions for moisture loving plants and animals. Decomposition rates of CWD would also change with increased drying of logs. Shrubs and understory plants might shift to favor upslope plants more suited to drier environments than riparian plants. Most importantly, future long-term input of course woody debris would be compromised, because many more trees would be removed from a Riparian Reserve at one time. Those left behind would undoubtedly become larger, but there would be a longer period between trees dropped during the project and when the remaining standing trees might fall. In addition, thinning to 16-25 trees/acre would not meet wildlife habitat needs for canopy closure; thereby not meeting one of the primary components of the Aquatic Conservation Strategy.

Indirect Effects

Vegetative response to the projects would not be immediate, thinning all stands to 16-25 trees/acre might increase summer low flows beyond the range of normal variability. Channel impacts are probably more important during

winter flows, but increased summer low flows could shift sediment movement or increase the size of coarse woody debris pieces that can remain stable in a small stream. Fire hazard reduction would reduce the risk of a severe, stand-replacement fire, which could cause sharply increased peak flows and sediment levels and corresponding erosive downcutting in streams throughout a large area. Long term input of large woody material would be compromised because so many trees would be removed across the landscape at one time.

Some streams may also become more "flashy" (flows rise quickly after rain events) due to the large areas on the landscape that would be thinned to below 40% canopy closure. Fewer trees would be available to take up the moisture and less canopy would attenuate raindrops, which could lead to increased surface sediment movement into streams until the understory responded enough to cover the soil surface. Impacts would be most noticeable in streams with large amounts of their watersheds in Transient Snow Zones. Increased winter flows would cause channel change and shifting and could contribute to further downcutting, or moving woody debris out of already wood-starved systems.

Cumulative Effects

Some factors of aquatic and riparian habitats would improve, but other factors would not improve, and may actually get worse. However, reducing fire hazard while simultaneously reintroducing fire into the landscape would be a benefit, as for Alternative II.

F. HARVESTING & SOIL PRODUCTIVITY

1. Alternative I- No Action

Direct, Indirect, and Cumulative Effects

Since no projects are planned under this alternative, disturbances and vegetative succession would occur naturally. There would be no change in soil productivity and no change in soil compaction.

2. Action Alternative II

Direct, Indirect, and Cumulative Effects

The proposed action would affect less than twenty-five percent of the ground of the lands proposed for commercial treatment. It is estimated that approximately forty-five percent of the commercially treated lands would be helicopter logged, thirty-three percent of the commercially treated lands would be cable yarded, and twenty-two percent of the commercially treated lands would be ground-base yarded. All of the ground-base yarding would occur on designated skid trails and yarding would disturb less than twelve percent of the ground in the unit.

There is approximately nine miles of road proposed for construction under this alternative which would take approximately 72 acres of land out of production. Approximately eleven miles of road would be decommissioned under the proposal which could put over 85 acres of land back into production. Previous restoration efforts has put about ten acres of land back into production in this watershed. In the 5th field Middle Applegate Watershed there would be more roads decommissioned than built with this alternative.

3. Action Alternative III

Direct, Indirect, and Cumulative Effects

The effects of the proposed action would be similar to those of alternative two except that approximately fifty percent of the ground of the lands proposed for commercial harvest would be affected. The same amount of road would be constructed and decommissioned. Soil productivity losses, although more than alternative two, would not be substantial.

G. ACEC (Areas of Critical Environmental Concern)

No ACECs exist in the Applesseed Project Area. However, within the project area there is a nomination for a 967 acre ACEC in the Long Gulch drainage. This nomination was received in April, 1992. In January of 1993 an interdisciplinary team determined that approximately 323 acres of old growth and northern spotted owl habitat in the Long Gulch area met the criteria for an ACEC. This was 166 acres of 200+ year old growth and the remaining was northern spotted owl habitat. Current management in the Long Gulch area has 228 acres in riparian reserve and 112 acres in Northern Spotted Owl core area. These designations provide protection for the area that met the criteria for ACEC. Therefore, implementing Alternative I, II, or III would not impact the proposed ACEC.

H. RECREATION

1. Action Alternative II & III

Direct, Indirect, and Cumulative Effects

New Road Construction: If new roads are constructed and left open, four wheeled vehicles will use them. People access the forest on BLM roads. The access is used to gather firewood, gather mushrooms, to hunt game animals, to shoot signs and other targets of opportunity, for sightseeing, for other forest related projects (planting, thinning, future harvesting, etc.), and most recently, to dump trash. Since driving for pleasure is the number one form of recreation (according to the President's Commission for Americans Outdoors), the long term and short term effect of more roads is more driving opportunities.

The new access roads could also provide access for OHV use. The presence of additional roads could be a benefit to the recreating public by dispersing use or providing access to previously unreachable areas.

Decommissioning Roads: Decommissioning roads is a reduces the amount of miles available for pleasure driving. Decommissioning roads does not stop ATVs or motorcycles, and could actually be beneficial to these activities by reducing conflicts from automobiles and truck traffic.

Thinning: Thinning is adjacent to existing roads with gentle slopes can open the forest to more cross-country travel by OHVs.

I. SPECIAL STATUS PLANTS

1. Alternative I

Direct, Indirect, and Cumulative Effects

The no action alternative would have detrimental effects to the habitats of special status plants normally found in fire maintained communities. No action with continued fire suppression would result in the retardation and probable alteration of expected pre-Euroamerican plant succession. *Cypripedium fasciculatum*, and *Cypripedium montanum* are normally found in diverse, healthy, mature conifer forests. Under this alternative, these forests develop into overstocked, unhealthy stands. *Fritillaria gentneri* is typically found in oak woodland/savannah communities that, with fire suppression, become dense brushfields or become invaded with Douglas-fir and Ponderosa pine. Also, this alternative would increase the possibility of an extensive and intense fire occurring which would return the area to an early seral community.

2. Action Alternative II

Direct, Indirect, and Cumulative Effects

Known sites of *Cypripedium fasciculatum*, *Cypripedium montanum*, *Fritillaria gentneri*, *Lewisia cotyledon* var. *howellii* and *Sedum oblanceolatum* would be protected by reserve areas to avoid direct physical disturbance and microclimate alterations. Known sites of other special status plants would have impacts of proposed treatments mitigated as appropriate. All proposed treatments would initially result in habitat conditions less favorable for special status vascular and nonvascular plants normally found in mature forests. Generally, the thinning treatments

would eventually return the area to a more favorable condition, however, the more heavily thinned treatments would retain site conditions detrimental to mature forest species.

3. Action Alternative III

Direct, Indirect, and Cumulative Effects

This alternative would result in a forest too open to maintain suitable habitat for rare plants dependent on closed-canopy mature forests. Of the Special Status Plants known in the project area, only one could possibly benefit from this alternative. Protected sites would essentially serve as refugia because many of these plants would be unable to survive in the neighboring unsuitable habitat.

J. ALTERNATIVES COMPARISON

Table 1 compares how the alternatives affect the major issues identified in Chapter I. This table is only a summary of expected effects.

Table 1. Alternative Comparison

Issue	Alternative I No Action	Action Alternative II	Action Alternative III
Dense Forest Stands/ Forest Health	Stands would be subject to natural processes (excluding fire suppression).	Vigor of all vegetation condition classes would be improved and a wide variety of vegetative seral stages.	Vigor of forest stands only would be enhanced.
Landscape Fire Hazard	Increase, until next large-scale fire event.	Reduce.	Reduce.
Special Status Plants	No direct disturbance to plants. Habitat degradation continues. Increased chance of destructive fire occurring.	Known sites would be protected and effects mitigated as appropriate. Habitat for mature forest species degraded but improving with time.	Known sites would be protected and effects mitigated as appropriate. Long-term degradation of habitat for species dependent on mature forest conditions. Fragmentation of suitable habitat.
Wildlife	No additional disturbance from management activities.	Northern spotted owl habitat modified; stand structure improved over time; improved non-forest habitat condition. Large woody debris maintained and hazard for severe fires reduced.	Loss of suitable Northern spotted owl habitat and habitat losses for other wildlife species; improved non-forest habitat condition.

Issue	Alternative I No Action	Action Alternative II	Action Alternative III
Fisheries	No additional disturbance from management activities.		
Harvesting/Soil Productivity	No additional disturbance from management activities.	Slight reduction in productivity but within standards.	Same as Alternative II.
Access	Transportation Management Objectives are not being implemented	Transportation Management Objectives are being implemented.	Transportation Management Objectives are being implemented.

K. CRITICAL ELEMENTS

The following “critical elements” of the human environment are subject to requirements specified in statutes, regulations or executive order (for example, the Clean Water Act of 1977).

Table 1: Summary of effects on Critical Elements.

Critical Element	Critical Element
Air Quality	T & E Species
ACECs	Wastes, Hazardous/Solid
Cultural Resources	Water Quality
Farmlands, Prime/Unique	Wetlands/Riparian Zones
Flood plains	Wild & Scenic Rivers
Nat. Amer. Rel. Concerns	Wilderness

Flood plains, Water Quality, Wetlands/Riparian Zones were analyzed in detail because this proposed project would affect these critical elements. These critical elements were not affected beyond the impacts identified in the Environmental Impact Statement and Record of Decision for the Medford District RMP (USDI BLM 1995a) and the Record of Decision for the Northwest Forest Plan (ROD) (USDA FS and USDI BLM 1994a). The remaining critical elements would not be affected by this project.

M. MONITORING

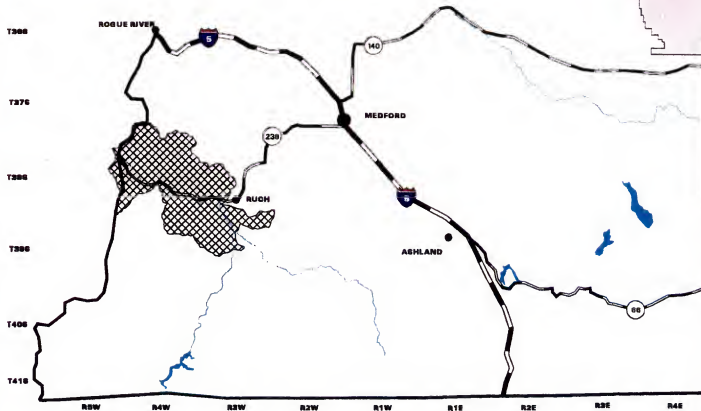
Monitoring is an essential component of natural resource management because it provides information on the relative success of management strategies. The implementation of the Appleseed Project would be monitored to ensure that Project Design Features and accepted mitigation follow prescribed management direction (implementation monitoring) and meet desired objectives (effectiveness monitoring).

The Interdisciplinary Team has the lead for monitoring this project. They would be responsible to provide feedback in order to determine if the objectives outlined in this Environmental Analysis are being met. Currently, the specialist are developing specific monitoring techniques. The techniques would be used to gather site specific data that identifies site characteristic trends that occur after management activities take place. Site characteristics would be described and measured pre and post harvest. These trends would be compared to trends that occur on untreated sites. Effectiveness monitoring would include formal research conducted through the Cooperative Forest Ecosystem Research (CFER) Program dealing with the density management sites. Three different studies: 1) effects of woody debris treatments on forest floor animals especially small mammals, 2) effects of thinning on hardwood trees, 3) effects of thinning and litter layers on *Cypripedium fasciculatum* populations or other special status species, would be conducted in the Appleseed Project.

Ashland Resource Area

APPLESEED PROJECT

OREGON



LEGEND

-  APPLESEED PROJECT AREA
-  LAKE

Chapter IV Persons or Agencies Consulted

A. CONSULTATIONS

The following were consulted:

Oregon State Historic Preservation Officer
Endangered Species Consultation Section, United States Fish and Wildlife Service
National Marine Fisheries Service

B. PUBLIC PARTICIPATION

This section lists actions planned to not only inform the public, the media, and other government agencies, but also to provide an opportunity for comments.

Organizations which were informed of this project include:

Applegate Partnership, Applegate River Watershed Council, Headwaters, ONRC, KSWC, Jackson County Board of Commissioners, Jackson County Resource Advisory Committee, Southern Oregon Timber Industry Association, and Oregon Department of Fish and Wildlife.

1. Publicity

A notice announcing the availability for review of the Appleseed Environmental Assessment of No Significant Impact (FONSI) was placed in the Medford Mail Tribune on June, 1998. A copy of this EA was placed in the Ruch Public Library in June 1999.

2. Comment Procedures

The following are the types of comments invited on the EA. These types will be most helpful in the decision process: (1) specific as possible; (2) merits of alternatives analyzed; (3) identification of new issues not analyzed in the EA, which could be used to modify the alternatives, including the proposed action alternative, or to develop new alternatives; (4) new information; (5) adequacy of predictive methodologies; and (6) factual corrections.

REFERENCES

Dolph, Robert E. 1985. Growth and vigor information in thinned second-growth ponderosa pine stands on the Deschutes and Ochoco National Forests. 10pp.

U.S. Department of Agriculture, Forest Service & U.S. Department of Interior, Bureau of Land Management. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl.-Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. April 1994.

U.S. Department of Agriculture, Forest Service & U.S. Department of Interior, Bureau of Land Management. Ecosystem Health Assessment. September 1994.

U.S. Department of Agriculture, Forest Service & U.S. Department of Interior, Bureau of Land Management. Applegate River Watershed Assessment: Aquatic, Wildlife, and Special Plant Habitat. June 1995.

U.S. Department of Agriculture, Forest Service & U.S. Department of Interior, Bureau of Land Management. Applegate Adaptive Management Area Guide. September 1998.

U.S. Department of Interior, Bureau of Land Management, Medford District. 1995. Middle Applegate Watershed Analysis. Medford, OR.

U.S. Department of Interior, Bureau of Land Management, Medford District. 1995. Record of Decision and Resource Management Plan. Medford, OR.

Waring, R.H., W. G. Thies, and D. Muscato. 1980. Stem Growth per Unit of Leaf Area: A Measure of Tree Vigor. Forest Science, Vol. 26, No. 1, pp 112-117.

Appendix A. Alternatives Considered but Eliminated from Analysis

In addition to the alternatives analyzed in detail in this EA, the ID team considered other alternatives that could move the Applegate ecosystem towards a healthy, sustainable condition. Below is a description of each alternative considered and why it was dismissed from detail.

1. On commercial forest land. Construct enough roads in the project area to conventionally harvest (no helicopters) the entire area.

This alternative was eliminated because of social and biological reasons. Socially, there are local concerns about new roads. Concerns include increase use from off-highway vehicles (wildfire ignition source), and use of firearms behind and adjacent to residents. Visuals impacts (scaring of scenic backdrops from private land) are a major concern to local residents. Biologically, this would increase the road densities. The sub-watershed currently contains road densities that are impacting the soil, wildlife, and water. A major increase in road densities would increase impacts beyond desirable levels.

2. Thin the entire federal portion of the landscape.

This alternative was eliminated because of social, economical, and biological reasons. Socially, the thinning of everything is viewed as too much too fast. Also, this would increase the amount of smoke in the local valleys through increased burning of the thinned material. Economically, the cost would be higher than the value produced by the project. This is because of the amount of total acres treated with limited access. Biologically, this action would decrease the amount of vegetative diversity and increase the amount of disturbance. The vegetative diversity would have wildlife and botanical impacts. Increased disturbance would have soil and aquatic impacts.

3. Construct shaded fuel breaks along the major ridges.

This alternative was eliminated because of social reasons. A strong voice of local residents have displayed their concerns about the visual appearance of shaded fuel breaks.

Appendix B. Special Status Wildlife Species Habitat

Survey and Manage Species

In accordance with the timetables established in the FSEIS ROD, 4-13-94, Standards and Guidelines, Survey and Manage Species, C-4, for Survey and Manage species, surveys would be conducted for great gray owls, red tree voles, Siskiyou Mountains salamanders, and certain mollusk species. Any nest sites of great gray owls that are found would be protected as described in the Special Status Species section above. Habitat found to be occupied by Siskiyou Mountains salamanders would be protected by 150-foot no-treatment buffers. Management guidelines would be developed to protect red tree voles and mollusk species listed in the ROD Survey and Manage list for the project area. To protect bat species, mine adits and shafts will have no-treatment buffers as described above in the Special Status Species section.

Appleseed Completed Wildlife Surveys as of 6/23/99					
Project	Red Tree Vole	Siskiyou mountains salamander	Great Gray Owl	Mollusk	Comments
Lomas-Spencer	Completed Contract	In-house determine no habitat	Completed	Completed Contract Siskiyou Coop No. HA-C99-2F00	
Ferris	Completed Contract 1999 Siskiyou NF interagency cont. no.	Completed in-house 1999	Completed	Completed Contract Siskiyou Coop Grants Pass RA Cont. No. 1422H952-B98-2096	
Slagle	Current contract to be completed by Oct. 99 (Siskiyou NF contract)	Needs to be Done	Completed	Completed Contract Siskiyou Coop No. HA-C99-2F00	
Bugman	Completed Contract - 98 Siskiyou NF contract - Galea WL Consultants	Needs one more survey in-house	Completed In-house 1996	Completed Contract Siskiyou Coop No. HA-C99-2F00	

Keeler Creek	Current Contract Siskiyou NF	Completed in- house	Completed - In- house 97; In- house follow-up visits 98/Enplan Cont. no. 53- 0M00-98-13b (Siskiyou NF interagency contract)	Current Contract Siskiyou Coop No. HA-C99- 2F00 (FY2000 work)	
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Appendix C. 15% Late-Successional Habitat Retention

The Appleseed project area lies within the Middle Applegate "fifth field" watershed. The Northwest Forest Plan provides direction to retain 15% of the federal forest land in each fifth field watershed in late successional forest conditions. In accordance with this direction over 6,300 acres of the late-successional stands on BLM managed lands in the Middle Applegate Watershed were designated for retention.

The interdisciplinary team reached consensus on the process to be used to identify, evaluate, and prioritize 15% late-successional forest stands. The process involved a series of cumulative steps that proceeded until sufficient acres were identified. The stands selected for retention were mapped and withdrawn from near-term treatment consideration.

Reserve Identification Process

Analysis Criteria

- A. The analysis was conducted at the 5th field watershed scale.
- B. The number of acres targeted for retention was calculated based on the total federally managed forest-capable acres in the watershed.
- C. McKelvey habitat types I and II were generally assigned the highest priority for retention. These habitat types were spotted owl nesting quality habitat and spotted owl roosting/foraging quality habitat, respectively. Stands that were partial cut harvested under the Lower Thompson, Middle Thompson, and Hinkle Gulch projects were not considered for inclusion in the 15% retention acres.

Retention Sequence

- 1st Acres assigned a McKelvey habitat rating I or II already reserved for owls (great gray owl and spotted owl 100-acre cores).
- 2nd Acres with a McKelvey habitat rating I or II already reserved for Survey and Manage species, such as salamanders and/or special status plants.
- 3rd Acres reserved to meet Aquatic Conservation Strategy objectives and assigned a McKelvey habitat rating I or II. These are full width Riparian Reserves, which occur in stands meeting habitat quality I or II.

- 4th Stands already reserved for salamanders, owls, and plants that are not McKelvey habitat I or II but are older than 80 years.
- 5th Riparian Reserve stands that are not McKelvey habitat I or II but are older than 80 years.
- 6th Acres assigned McKelvey habitat rating I and II elsewhere in the watershed. These acres were prioritized by the interdisciplinary team giving consideration to such needs as connectivity, fragmentation, location, etc.

This process is not strictly in conformance with the latest guidance on how to identify the 15% retention acres; however, it was in conformance with the current guidance at the time the analysis was performed and as such, it is considered a valid approach "grand fathered in" under the latest guidance.

Employing the latest guidance would not have changed the target acreage figure. However, it is estimated that several hundred acres currently designated for retention would have been left out, and an equal number of acres currently not designated for retention would have been retained.

The target acreage for the BLM portion of the Middle Applegate 5th field watershed was 6,100 acres. The actual designated reserve of late successional habitat is over 6,300 acres.

The USFS ownership in this watershed is relatively minor and their calculated contribution target was 300 acres. They have identified 360 acres of late successional habitat for retention on their ownership. The identification of stands in the upper Thompson Creek area where USFS and BLM lands adjoin was a cooperative effort in order to ensure that the pattern of retained acres in the area made sense ecologically.

Maps of the BLM and USFS acres designated for retention in the Middle Applegate 5th field watershed are available at the Medford District BLM Office. The maps are kept in the Applesced EA file and in the watershed analysis document for the Middle Applegate watershed.

This environmental assessment (EA) for the proposed Appleseed Project was prepared utilizing a systematic interdisciplinary approach integrating the natural and social sciences and the environmental design arts with planning and decision making.



for
Richard J. Dreihobl
Ashland Area Manager

6/22/99
Date

Public notice of the availability of this EA was provided through the BLM Medford District's central register and advertisement in the Medford Mail Tribune. The Finding of No Significant Impact (FONSI) availability is provided through the BLM Medford District's central register.

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT OFFICE
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