REVISED CAN-CAN REGENERATION HARVEST PROJECT PLAN

ENVIRONMENTAL ASSESSMENT
OR 105-05-06

South River Field Office
Roseburg District BLM

U.S. Department of the Interior, Bureau of Land Management
Roseburg District Office
777 NW Garden Valley Blvd.
Roseburg, Oregon 97470

This environmental assessment (EA) replaces and supersedes the original Can-Can Regeneration Harvest Project Plan EA (OR-105-99-05) previously released on July 20, 2004. This revision was undertaken to address new information, including findings from the spotted owl demographic study. Any comments submitted for consideration must be directed to the analysis contained in the Revised Can-Can Regeneration Harvest Project Plan EA (OR-105-05-06) in order to be considered.

Comments, including names and street addresses of respondents, will be available for public review at the above address during regular business hours, 8:00 A.M. to 4:30 P.M., Monday through Friday, except holidays. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by the law. Submissions from organizations, businesses, and individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

In keeping with Bureau of Land Management policy, the Roseburg District posts Environmental Assessments, Environmental Impact Statements, Findings of No Significant Impact, and Decision Records/Documentations on the district web page under **Planning & Environmental Analysis**, at www.or.blm.gov/roseburg, on the same day in which legal notices of availability for public review and notices of decision are published in *The News-Review*, Roseburg, Oregon. Individuals desiring a paper copy of such documents will be provided one upon request. Individuals with the ability to access these documents on-line are encouraged to do so. Internet use reduces paper consumption and administrative costs associated with copying and mailing.

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Chapter One
PURPOSE AND NEED FOR ACTION

This chapter provides a brief description of the purpose and need for the proposed action being analyzed in this environmental assessment (EA).

I. Purpose

The purpose of the proposed action is regeneration timber harvest of forest stands allocated to Matrix lands managed by the South River Field Office of the Roseburg District, Bureau of Land Management (BLM), in support of the sustained yield assumptions of the Roseburg District *Record of Decision and Resource Management Plan* (ROD/RMP USDI, BLM 1995a). Opportunities for road renovation, improvement and/or decommissioning would be implemented where appropriate and feasible.

Timber management on the Revested Oregon and California Railroad Lands (O&C Lands) managed by the South River Field Office is principally authorized and guided by:

> **The Oregon and California Act of 1937:** Section 1 of the O&C Act stipulates that suitable commercial forest lands revested by the government from the Oregon and California Railroad are to be managed for the sustained production of timber.
>
> **The Federal Land Policy and Management Act (FLPMA):** Section 302, 43 U.S.C. 1732(a), directs that "The Secretary shall manage the public lands . . .in accordance with the land use plans developed by him under section 202 of this Act when they are available . . ."
>
> **Roseburg District Record of Decision/Resource Management Plan:** The ROD/RMP was approved in June of 1995, in accordance with the requirements of FLPMA, and provides specific direction for timber management.

The Roseburg District timber management program consists of regeneration harvest of mature and old-growth timber in the Matrix, in conjunction with commercial thinning and density management in younger stands. Based on analysis in the Roseburg District *Proposed Resource Management Plan/Environmental Impact Statement* (USDI, BLM 1994 (PRMP/EIS)), the ROD/RMP (p. 8) anticipated 1,190 acres of regeneration harvest and 150 acres of commercial thinning and density management annually in the first decade of the plan in order to support the sustained yield assumptions underlying an annual allowable sale quantity (ASQ) of 45 million board feet (MMBF) of timber.

Information from the South Umpqua Watershed Analysis (SUWA) and Water Quality Restoration Plan (USDI, BLM 2001a pp. 90 and 92) was considered and management direction from the ROD/RMP used as guidance in developing this harvest proposal.

Stands selected for possible harvest are located primarily in the O'Shea Creek and Canyon Creek subwatersheds of the South Umpqua River fifth-field watershed. Approximately eight acres of one proposed unit extend into the Judd Creek subwatershed of the Middle South Umpqua fifth-field watershed.

The EA will consider the environmental consequences of the proposed action and no action alternatives, and provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

II. Need

There is a need for the proposed action in order to meet the following management direction from the ROD/RMP, pertaining to timber management on the Matrix land use allocations:

- "Produce a sustainable supply of timber and other forest commodities." (p. 33)
- "Conduct timber harvest and other silvicultural activities in that portion of the Matrix with suitable forest lands according to management actions/direction . . ." (p. 33)
- "Schedule regeneration harvests to assure that, over time, harvest will occur in stands at or above the age of volume growth culmination[1] (i.e., culmination of mean annual increment)." (p. 61) On the Roseburg District the culmination of mean annual increment (CMAI) typically occurs between 80 and 110 years of age. In the General Forest Management Area (GFMA), regeneration harvest is scheduled in stands 80 years or older, whereas in Connectivity/Diversity Blocks regeneration harvest will be scheduled on an area control rotation of 150 years (p. 153).

The proposed action is also needed to: meet the objective of an ASQ for the Roseburg District of 45 MMBF, as declared in the ROD/RMP (pp. 8 and 60); achieve the socioeconomic objectives of the Roseburg District PRMP/EIS (p. xii), estimated to support 544 jobs and provide $9.333 million in personal income annually over the plan's tenure; and meet the requirement of Section 1 of the O&C Act which stipulates that suitable commercial forest lands revested by the government from the Oregon and California Railroad be managed for the sustained production of timber.

III. Implementation

Analysis in the PRMP/EIS is tiered to the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl* (USDA, USDI 1994a (FSEIS)), representing the cumulative effects analysis of BLM management programs in western Oregon that include timber management.

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[1] Culmination of mean annual increment, or CMAI, is defined as the age in the growth cycle of a tree or stand at which the mean annual increment for height, diameter, basal area, or volume is at a maximum. (The Dictionary of Forestry The Society of American Foresters 1998)

The ROD/RMP is tiered to both the PRMP/EIS and FSEIS, and adopts as management direction the standards and guidelines contained in the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (UDSA, USDI 1994b (ROD)).

Any implementation of the actions described in this EA would conform to management direction provided in the ROD/RMP, as further amended by the *Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 2004a), the *Record of Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy* (USDA, USDI 2004b), and the *Record of Decision and Resource Management Plan Amendment for Management of Port-Orford-Cedar in Southwest Oregon, Coos Bay, Medford, and Roseburg Districts* (USDI, BLM 2004).

Chapter Two
DISCUSSION OF THE ALTERNATIVES

This chapter describes the basic features of the alternatives being analyzed.

I. Alternative One - No Action

The stands proposed for regeneration harvest are allocated to the Matrix where the majority of timber harvest and silvicultural activities are scheduled to occur. Under this alternative, regeneration harvest of these stands would not occur at this time. This would not constitute a decision to reallocate the lands to non-commodity uses. Future harvest would not be precluded and could be analyzed under a subsequent EA.

Other suitable forest stands in the Matrix would be identified and scheduled for regeneration harvest in order to: meet ROD/RMP management direction; meet the ASQ projected by the ROD/RMP; contribute to the socioeconomic objectives identified in the PRMP/EIS; and comply with the requirements of the O&C Act.

There would be no road construction. Road maintenance would be conducted as needed for the purpose of keeping roads open to traffic. Road renovation and improvements to correct drainage problems and reduce sediment, and decommissioning of roads to reduce road density would not be undertaken. These actions would require implementation under separate authorizations.

II. Alternative Two - Proposed Action

Under this alternative, regeneration harvest would be implemented on an estimated 520 acres of forest lands allocated as GFMA and Connectivity/Diversity Blocks. The acreage would be divided among fourteen units comprising three timber sales, to be authorized individually, and designated as Myrtle Morgan, Hi-Yo Silver and Screen Pass, as indicated in Appendix D.

A. Timber Harvest

Potential harvest units were identified through a detailed review of available lands within the watershed, in consideration of the following:

- Maintenance of physical connectivity and dispersal pathways between the South Umpqua River/Galesville and South Coast-Northern Klamath Late-Successional Reserves (LSRs), until younger forest stands mature and develop into dispersal habitat for northern spotted owls

- Proximity to northern spotted owl activity centers and level of available suitable habitat on Federal lands within a 1.3-mile provincial radius of owl activity centers

- Existing access for timber harvest and post-harvest management

Riparian Reserves would be established on all intermittent and perennial streams based on a site-potential tree height, calculated on the basis of the average site index computed from inventory plots located throughout the respective watersheds which are located on forest lands capable of supporting commercial timber stands. For the South Umpqua River watershed (SUWA, p. 67) and the Middle South Umpqua watershed (USDI, BLM 1999 p. 31), the site-potential tree height is calculated as 160 feet.

Riparian Reserve widths on intermittent and perennial streams that are not fish-bearing would be 160 feet, slope distance, measured from the top of the stream bank, and 320 feet on fish-bearing streams. Timber would be felled away from Riparian Reserves and yarding would be prohibited within or through them to protect and maintain their integrity.

Retention trees would be selected to proportionately reflect conifer species composition and the full range of diameter classes greater than 20 inches in diameter at breast height (DBH). Six to eight green conifers per acre, on average, would be retained in General Forest Management Area stands (ROD/RMP, p. 150). In Connectivity/Diversity Blocks, 12 to 18 green conifers per acre would be retained, and up to two large hardwoods per acre where present (ROD/RMP, p. 152).

Snags would be reserved where practical to meet the objective of providing an average of 1.2 snags per acre (PRMP/EIS, p. 4-43) to support cavity nesting birds at 40 percent of potential population levels (ROD/RMP, p. 34). Green retention trees with characteristics suitable for cavity nesters would be selected, where practicable, to supplement snag numbers. Worker safety and operational feasibility would be considered in the selection and location of retention trees, and reservation of snags.

Decay Class 3, 4 and 5 down wood would be reserved by contract stipulations in addition to retention of 120 lineal feet of large down wood, per acre in Decay Classes 1 and 2.

B. Yarding Operations

Ground-based harvest would be restricted to the dry season when soil moisture is low and soil structure is most resistant to compaction (ROD/RMP, p. 131). This is generally from mid-May until the onset of regular autumn rains in mid-to-late October.

Cable harvest would be accomplished with skyline systems capable of maintaining one-end log suspension. Cable yarding would not be subject to seasonal restriction unless access is provided by temporary, natural surface roads; the primary haul routes would not support wet weather trucking; or wildlife concerns require seasonal restrictions.

The proposed Myrtle Morgan timber sale is located in Section 5, T. 30 S., R. 4 W. and Sections 9, 10, 11 and 15, T. 30 S., R. 5 W. Table 2-1 illustrates acres, land use allocation, harvest method, and seasons of operation.

TABLE 2-1 Myrtle Morgan Timber Sale

Unit	Acres	Land Use Allocation	Yarding Method		Season of Operations	
			Ground-Based	Skyline	Dry Season Only	Any Season
A	6	GFMA		X	X	
B	9	GFMA	~½	~½	X	
C						
D	36	GFMA		X		X
E	30	GFMA		X		X
F	84	GFMA		X		X
G	25	C/D Block		X		X
H	47	C/D Block		X		X

The proposed Hi-Yo Silver timber sale is located in Sections 13 and 25, T. 31 S., R. 6 W. Table 2-2 illustrates acres, land use allocation, harvest method, and seasons of operation.

TABLE 2-2 Hi-Yo Silver Timber Sale

Unit	Acres	Land Use Allocation	Yarding Method		Season of Operations	
			Ground-Based	Skyline	Dry Season Only	Any Season
I	95	C/D Block		X		X
J						
K	35	GFMA		X	X	
L	32	GFMA		X		X

The proposed Screen Pass timber sale is located in Sections 23 and 26, T. 31 S., R. 5 W. Table 2-3 illustrates acres, land use allocation, harvest method, and seasons of operation.

TABLE 2-3 Screen Pass Timber Sale

Unit	Acres	Land Use Allocation	Yarding Method		Season of Operations	
			Ground-Based	Skyline	Dry Season Only	Any Season
M	71	GFMA		X	X	
N	10	GFMA		X	X	
O	28	GFMA		X	X	
P	12	GFMA		X	X	

C. Site Preparation and Reforestation

Site preparation for reforestation would be accomplished by broadcast burning (BCB) or hand piling and burning (HPB) slash concentrations.

Broadcast burning would be conducted in the spring when moderate temperatures and high moisture content in soils, duff and large woody debris would minimize fire intensity and duration, thereby limiting loss of or damage to snags and retention trees, as well as limiting consumption of duff, surface litter and large woody debris (ROD/RMP, p. 77).

For units designated for hand piling and burning, slash would be piled and covered immediately following harvest. Piles would be burned during fall or winter months during periods of rain, and when soil and duff moisture content is high to minimize consumption of duff and litter, and prevent broadcast burning of the units(s). Table 2-4 summarizes proposed site preparation by acres and type of treatment.

TABLE 2-4 Summary of Proposed Site Preparation

Timber Sale	Units	Acres	Site Treatment
Myrtle Morgan	A, B, E, (East ½) F, G & H	186	HPB
	D & E (West ½)	51	BCB
Hi-Yo Silver	I & L	127	BCB
	K	35	HPB
Screen Pass	M, N, O & P	121	HPB

All units would be planted within a year of completion of site preparation. If available, genetically improved Douglas-fir would be planted on units within the GFMA, in conjunction with a component of approximately 10 percent minor conifer species. Replanting of units in Connectivity/Diversity Blocks would include 15 percent minor conifer species.

Competition from grass and forbs would be expected on southerly aspects of units A, B, D, F, G, H and the east half of M. To reduce competition and increase the odds of survival, seedlings would be mulched.

No animal damage is anticipated that would be severe enough to warrant tubing or the application of big game repellant. Within five years of planting, manual brushing would be necessary in portions of units F, G, H and M to control shrubs and hardwood sprouts.

D. Access

Access would be provided by existing roads, construction of 2.35 miles of road to be retained as part of the permanent transportation system, 0.5 miles of semi-permanent road, and 1.09 miles of temporary road. All construction would be located on stable ridge-top or side slope locations outside of Riparian Reserves. Best Management Practices for road construction (ROD/RMP, pp. 134-136) would be employed.

The intent would be to construct, use and decommission temporary roads within the same operating season. Decommissioning of temporary roads could include: removal of drainage structures (i.e. culverts); removal of fill material; sub-soiling the road bed; seeding and mulching; and closing to any future vehicular traffic. If utilization and decommissioning could not be accomplished in a timely manner because of events such as extended fire closure, they would be winterized and held over for use the following year. Winterizing would involve erosion control in conjunction with blocking the road(s) to vehicular use during the wet season. In either event, the roads would be decommissioned after use.

Semi-permanent roads would be surfaced for winter operations. If not in use, they would be blocked to vehicle traffic during the wet season. Decommissioning would be done in the first dry season following the completion of site preparation and reforestation.

Approximately 12 miles of existing roads would be renovated and/or upgraded to standards consistent with those applied to new construction. Renovation could include realignment, initial or supplemental surfacing, reshaping of road crowns and ditches, culvert replacements, and installation of additional drainage. Renovation could involve removal of individual trees alongside existing roads for widening, construction of vehicle turnouts, and improvement of driver line-of-sight. The primary objectives for renovation would be reduction or elimination of road-derived sediment, and restoration to a condition providing for safe use by contractors and the general public.

Appendix A summarizes proposed road construction, renovation and decommissioning.

III. Considered But Eliminated From Detailed Analysis

A. Units Dropped from Consideration

Unit C of the Myrtle Morgan timber sale was eliminated from consideration because the size and number of merchantable conifers would not warrant regeneration harvest.

Unit J of the Hi-Yo Silver timber sale was deferred because northern spotted owls are nesting on the east side of the stand. The nest site was established after January 1, 1994, and does not receive a 100-acre core area designation (ROD, p. C-10).

B. Road Renovation and Split Haul on the Hi-Yo Silver Timber Sale

A system of private roads is a primary source of sediment problems in the West Fork Canyon Creek. These roads lack aggregate surfacing and sufficient drainage. There are also three washed out stream crossings. It was proposed that volume from Units J and K, of the Hi-Yo Silver timber sale, be hauled over Road Nos. 31-5-30.0 and 31-5-2.0 so that repairs to the roads could be affected under the timber sale. This proposal was eliminated from consideration for the following reasons:

- Renovation would require the expenditure of a large sum of public monies to upgrade private roads for a one-time use. No other federal timber would be hauled over the route during the expected lifetime of the road improvements, so there would be no opportunity to recoup a major portion of the road investment.

- Since Unit J of the proposed Hi-Yo Silver timber sale was deferred from harvest, the volume from Unit K would not be sufficient to bear renovation the costs.

C. Commercial Thinning or Density Management of the Stands Proposed for Regeneration Harvest

An intermediate harvest entry in the stands selected in this analysis, in the form of commercial thinning or density management was not considered a viable alternative. It would not meet the purpose of the proposed action which is regeneration harvest, nor would it meet management direction and silvicultural prescriptions for stands in the Matrix allocations, for the following reasons:

- ROD/RMP management direction for the GFMA prescribes commercial thinning for stands less than 80 years of age, and regeneration harvest for stands that are older than 80 years of age (ROD/RMP, p. 151). As described in Chapter Three (p. 12-13), the stands proposed for harvest in the GFMA are older than 110 years of age and commercial thinning would not meet management direction.

- ROD/RMP (pp. 152-153) management direction for the Connectivity/Diversity Block allocation prescribes density management in stands less than 120 years of age. As described in Chapter Three (pp. 12-13), the Connectivity/Diversity Block stands proposed for harvest in this analysis are in excess of 200 years old and density management in these stands would not meet ROD/RMP management direction. Regeneration harvest is also necessary to meet ROD/RMP management direction for a 150-year area control rotation and creation of an age class distribution for the land use allocation that represents 15-16 ten-year age classes (ROD/RMP. p. 153).

D. Commercial Thinning or Density Management of Young Stands in Place of Regeneration Harvest of Stands Selected for this Analysis

Commercial thinning and/or density management of young stands in lieu of regeneration harvest of the stands proposed in the action being analyzed was not considered because it would be inconsistent with the sustained yield assumptions of the ROD/RMP which declared an annual ASQ of 45 MMBF.

The assumption of sustainability is predicated on the anticipated accomplishment of certain silvicultural practices at various levels on the Matrix lands (ROD/RMP, p. 60). These include an average accomplishment annually of 1,190 acres of regeneration harvest in conjunction with 150 acres of commercial thinning and density management (ROD/RMP, p. 8).

If these practices were not implemented at the approximate level anticipated in the ROD/RMP, the declared ASQ would not be sustainable. Restricting timber management solely to the practice of thinning while abandoning the practice of regeneration harvest in older stands would be inconsistent with management direction from the ROD/RMP and would also violate FLPMA which requires implementation of an approved land use plan.

IV. Additions and/or Modifications to the Proposal as Initiated

The northern third of proposed Unit N, classified as VRM II (ROD/RMP, p. 53), was dropped because of its visibility from Interstate Highway 5. Unit P was added to replace acres removed from Unit N and to avoid isolating a small parcel of timber that would not be economically feasible to return for at a later time.

V. Resources That Would Remain Unaffected By Either Alternative

The following resources would not be affected by either of the alternatives, because they are absent from the area: Areas of Critical Environmental Concern (ACEC); prime or unique farmlands; floodplains; wilderness; waste, solid or hazardous; and Wild and Scenic Rivers.

The proposed action is consistent with Executive Order 12898 which addresses Environmental Justice in minority and low-income populations. The BLM has not identified any potential impacts to low-income or minority populations, either internally or through the public involvement process. No Native American religious concerns were identified by the team or through correspondence with local tribal governments.

As discussed in the Chapter 3 (pp. 23-24), cultural resources would not be affected and no measurable increase or decrease on the introduction or rate of spread of noxious weeds is anticipated.

There are no energy transmission or transport facilities and/or rights-of-way in the immediate project areas. No commercially usable energy sources are known to exist. As a consequence, no adverse effect on energy resources would be anticipated.

Chapter Three
THE AFFECTED ENVIRONMENT

This chapter summarizes the specific resources that are present or potentially present, and which could be affected by the proposed action.

I. Timber

At the Watershed Scale

Approximately 512 acres or roughly 99 percent of the area proposed for harvest is located in the South Umpqua River 5th-field watershed. The remaining one percent (eight acres) is located in the Middle South Umpqua 5th-field watershed and constitutes such a negligible percentage of the 59,397 acres in the watershed as to be discountable. Consequently, the description of general vegetative conditions provided by the SUWA is considered sufficient to this analysis.

The South Umpqua River 5th-field watershed covers an area of 141,455 acres (SUWA, p. xi), or roughly 220 square miles. Approximately 18,820 acres (13 percent) of the watershed is not forested, with 15,459 acres dedicated to agricultural use. Another 3,945 acres (three percent) is deciduous woodland. Approximately 118,450 acres (84 percent) of the watershed is coniferous forest land managed by private individuals and corporations, the U.S. Forest Service, South River and Glendale Field Offices of the BLM. These lands have been subject to insect damage, wildfire, wind throw events, salvage and regeneration harvest which has shaped the age class distribution of the forest stands.

Five vegetation zones are present in the watershed, as characterized in a Natural Resources Conservation Service soil survey (Hickman 1994). Each of the five zones exhibits a single characteristic set of dominant plant communities that are related to local landscape features such as aspect, soil types and landform (SUWA, pp. 52-56).

- The Interior Valleys and Foothills Zone occupies the lower valleys and elevations, comprising about 20 percent of the watershed, including most of the agricultural lands noted above. Douglas-fir is the dominant conifer species on the most favorable sites with lesser numbers of ponderosa pine and incense-cedar. Hardwood associates include Pacific madrone, bigleaf maple, California black oak and occasionally Oregon white oak.

- The Grand Fir Zone transitions from the drier valleys to the moist hemlock forests at the upper elevations, comprising 37 percent of the watershed. Douglas-fir is dominant in older stands, with grand fir common on northern aspects but scarce or absent on southern aspects. Incense-cedar is common and western redcedar may be found in moister areas. Golden chinkapin is common on northern aspects and may be found in association with Pacific madrone and occasionally California black oak on drier southern aspects. Bigleaf maple and red alder are typically limited to moister sites.

- The Douglas-fir/Chinkapin Zone represents approximately 15 percent of the watershed. Except on shallow, rocky and droughty soils where Oregon white oak, canyon live oak and other shrubs are the primary occupants, Douglas-fir is the dominant species. Other conifer associates may include sugar pine, ponderosa pine and incense-cedar. Pacific madrone and California black oak are the notable hardwood associates.

- The Western Hemlock Zone occupies approximately 23 percent of the watershed at the higher elevations in the eastern and southeastern portions of the watershed. Western hemlock is the dominant understory and overstory species on northern aspects but is scarce on southern aspects. Primary associates are grand fir, western redcedar and golden chinkapin. On moister sites, bigleaf maple and red alder may be found.

- The Cool Douglas-fir/Western Hemlock Zone comprises about five percent of the watershed, above 3,000 feet, in the northeast corner and southernmost edges of the watershed. Douglas-fir is the dominant species with western hemlock found in areas that remain moist throughout most of the year. White fir, sugar pine, incense-cedar, and western redcedar occur sporadically. Precipitation is the highest with the major portion coming in the form of snow.

An assessment of age class distribution in 2000 (SUWA, pp. 71-73) estimated that 13 percent of the private forest land was less than 30 years of age, 57 percent between 30 and 80 years old, and three percent greater than 80 years of age. The remaining 27 percent of the lands in private ownership were judged to be non-forest or woodland.

The BLM manages 57,979 acres within the watershed, with forest lands accounting for 57,186 acres. Forested areas withdrawn or reserved from intensive management constitute 39,685 acres, or 69.3 percent of BLM-managed forest land (SUWA, p. 81). The age class distribution for the reserved lands is 25 percent less than 30 years of age, 17 percent were between ages 30 and 80 years, and 56 percent were greater than 80 years of age (SUWA, p. 81). Age class distribution in the 17,500 acres allocated to the Matrix is roughly equivalent to that in the reserved lands.

Within the Proposed Harvest Units

The Myrtle Morgan units (A, B, D, E, F, G and H) are located in the Interior Valleys and Foothill Zone. All of the stands are older than 110 years of age. The oldest are in Units G and H. These are allocated to a Connectivity/Diversity Block and 240 years of age. The stands are primarily single-story in nature with little understory growth and development, except for Unit A which has a scattered to closed overstory above advanced conifer regeneration,. Units F, G and H have scattered canopy openings occupied by small Pacific madrone and advanced conifer regeneration.

The Hi-Yo Silver units (I, K and L) are located in the Cool Douglas-fir/Western Hemlock Zone. These are predominantly single-story stands. Units K and L are between 110 and 120 years of age. Unit I, located in a Connectivity/Diversity Block, the dominant overstory is 220 years old. A dense undergrowth of salal is present in Units I and L.

The Screen Pass units (M, N, O, and P) are in the Douglas-fir/Chinquapin Zone, and are primarily single-storied stands 80-140 years old, with little hardwood and shrub understory. Unit M has remnant overstory trees greater than 200 years of age. Stand structure in the west half of Unit M is more like that in Units N, O and P, but the east half has been subject to partial harvest and underburning in 1987, which has resulted in a more open canopy with greater growth of hardwoods, shrubs and conifer regeneration.

None of the proposed timber sale units are within the range of Port-Orford-cedar. The haul route for the proposed Hi-Yo Silver timber sale passes through the Lower Cow Creek watershed, which is within the natural range of Port-Orford-cedar but none are documented along the route.

II. Wildlife

Over 335 vertebrate species and hundreds of invertebrate species are known or suspected on the Roseburg District. There are 33 special status species suspected or documented in the South River Resource Area. As indicated in Appendix B, 29 species are eliminated from further discussion because the project area is outside of the species' range, suitable habitat is absent, or the species is associated with riparian/stream habitat protected by Riparian Reserves. The four species that could be affected are discussed below.

A. Threatened or Endangered Species

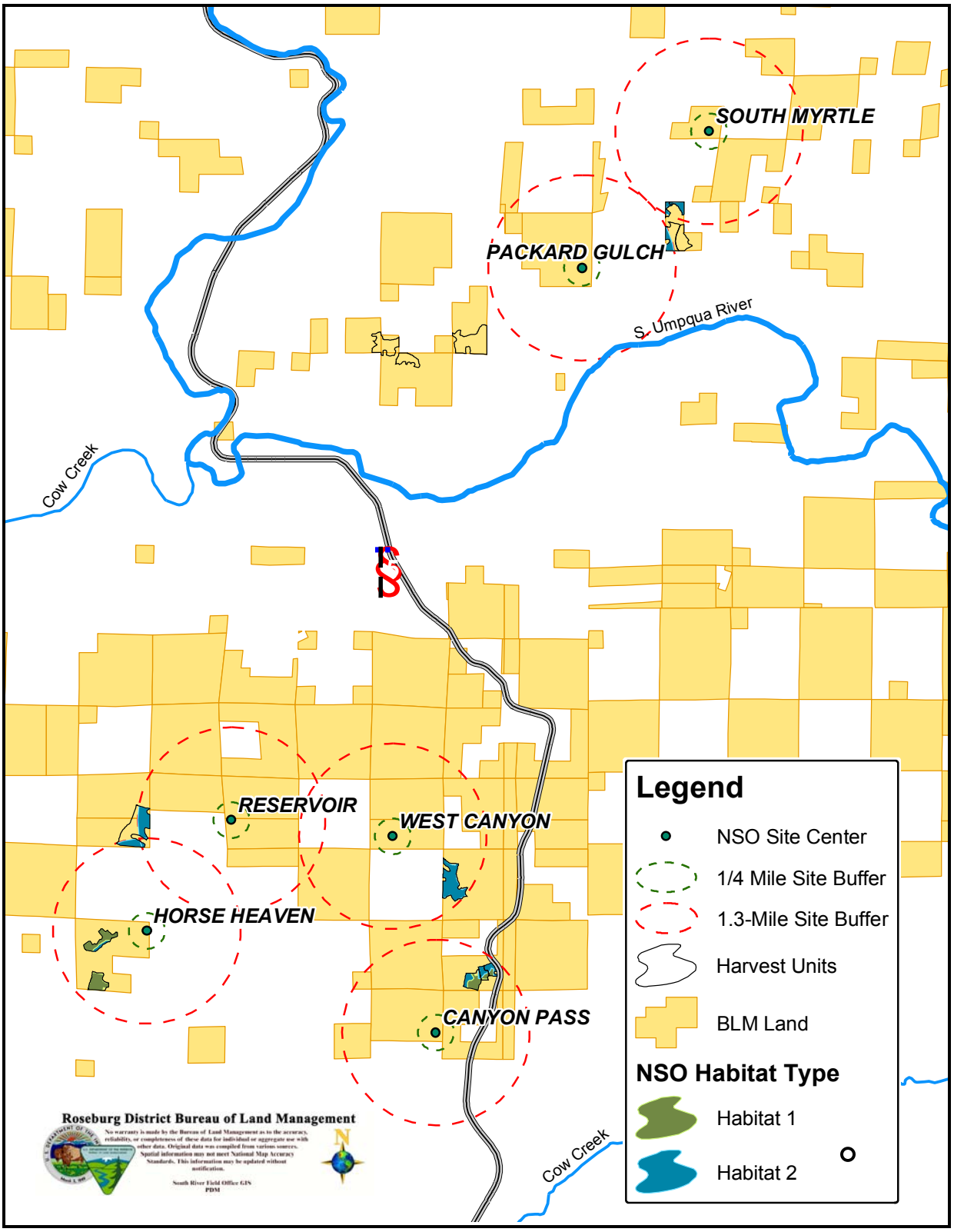
Northern Spotted Owl (*Strix occidentalis caurina*)

In the Klamath Province, a home range is typically represented as a 1.3-mile radius circle centered on an owl activity center (USDI, BLM 1991). Portions of the proposed timber sales are overlapped by six provincial home ranges, not including the owl pair in Unit J, for reasons described in Chapter Two (p. 8). Stands used for nesting (Habitat 1) are typically late-successional forest with large conifers having large diameter limbs, crown deformities, broken tops, or cavities that provide nest sites (Forsman et al. 1984). Forest with roosting and foraging habitat but no nesting opportunities, is referred to as Habitat 2. Table 3-1 summarizes Habitat 1 and 2 available on BLM lands within each home range.

Table 3-1 Available Suitable Owl Habitat on BLM Lands

Owl Pair Site	Acres Habitat 1	Acres Habitat 2	Total Suitable Habitat Acres
Canyon Pass	544	722	1,276
Horse Heaven	171	101	272
Packard Gulch	29	324	353
Reservoir	418	767	1,185
South Myrtle	241	206	447
West Canyon	0	542	542

Figure 3-1 Owl Ranges Overlapping the Project Areas



Designated Critical Habitat for the Northern Spotted Owl

Unit I of the proposed Hi-Yo Silver timber sale is located in Critical Habitat Unit (CHU) OR-63. This CHU was established to support nesting spotted owl pairs, and to provide linkage between the Klamath Mountains, Western Cascades, and Coast Range physiographic provinces (USDI, FWS 1991). There are 8,523 acres of BLM-managed land in CHU OR-63. Approximately 48 percent (4,062 acres) are allocated to Riparian Reserves and Known Owl Activity Centers (KOACs) and are withdrawn from scheduled timber harvest.

All of the units of the proposed Screen Pass timber sale are located in CHU OR-32. This CHU was established to support nesting spotted owl pairs and to provide linkage among the Western Cascades and Klamath Mountains physiographic provinces (USDI, FWS 1991). Approximately 94 percent (24,235 of 25,800 acres) of BLM-managed lands in the CHU are LSR or District-Designated Reserve.

B. Bureau Sensitive Species

Bureau Sensitive

Bureau Sensitive species are designated under national BLM 6840 policy and are considered eligible for federal or state listing or candidate status under the ESA.

Oregon shoulderband and Chace sideband snails

The Oregon Shoulderband snail (*Helminthoglypta hertleini*) has been found throughout the Roseburg District. It is not considered to be a late-successional and old-growth forest obligate, as over 50 percent of known sites are documented in forest stands less than 80 years of age (USDA, USDI 2003). Surveys did not identify any Shoulderband sites.

The Chace sideband snail (*Monadenia chaceana)* utilizes rocky talus and cobble habitat in association with late-successional forest. It is known from a limited number of sites (Interagency Species Management System April, 2004) in northern California and southern Oregon but its full range is unknown (Weasma 1999 N. Duncan pers. comm.).

Surveys conducted in the Screen Pass project area utilizing an opportunistic search of habitat features along a defined transect in conjunction with a complete search of large patches of habitat found four dead Chace Sideband snails at two sites in Unit M. In each case the specimens were located in hollows at the base of bigleaf maples, on northwest aspects with a dominant conifer overstory. One acre of suitable habitat was identified in the Myrtle Morgan project area, but survey results were negative. One site was also identified in Unit L in the Hi-Yo Silver project area in April of 2005.

Northern goshawk

Northern goshawks (*Accipiter gentilis*) are large forest-dwelling hawks present in the Klamath and Cascade mountains. They generally nest in large, mature stands with large trees, a high degree of canopy closure and a relatively open understory (Reynolds et al. 1982, Daw et al. 1998, Daw and DeStefano 2001), and forage below the forest canopy and prey on a variety of birds and small mammals.

Units A, B, D, and E of the Myrtle Morgan project area, and Units K and L of the Hi-Yo Silver project area do not constitute suitable goshawk habitat because they are less than 60 acres in size and do not provide enough mature, closed-canopy forest to support nesting (Reynolds et al. 1982, Daw and DeStefano 2001). Units F, G in the Myrtle Morgan project area, Unit I in the Hi-Yo Silver project area, and the aggregation of Units M, N, O and P in the Screen Pass project area contain sufficient suitable habitat to make goshawk presence a reasonable possibility.

C. Other Raptors

Red-tailed hawks (*Buteo jamaicensis*) nest in mature timber adjacent to early seral forest where they forage. During reconnaissance of the Myrtle Morgan project area in the summer of 2004, adult red-tailed hawks, and a recently fledged juvenile were observed on a nest tree in the southeastern corner of proposed Unit F.

III. Fisheries and Aquatic Resources

A. Aquatic Habitat Conditions

The description of aquatic habitat conditions is based on aquatic habitat surveys conducted by the Oregon Department of Fish and Wildlife (ODFW) in conjunction with field evaluation and the professional judgment of the project biologist. Baseline conditions are described for West Fork Canyon Creek and Canyon Creek (ODFW 1995) downstream of the Hi-Yo Silver and Screen Pass project areas, and Packard Gulch (ODFW 2001) which drains a portion of the Myrtle Morgan project area.

Substrate

Substrate quality in streams reflects the natural range for a managed watershed, with an average of 42 percent gravel and 3 percent fines in riffle units, considered *desirable* levels by ODFW habitat benchmarks (Foster et al. 2001). The lowest value for gravel was 35 percent in Canyon Creek, where it has been channelized alongside Interstate Highway 5. The highest value for fines was in Packard Gulch, at 12 percent.

Substrate in West Fork Canyon Creek is predominately cobble. Moderate to high stream gradient allow little deposition of gravel and fine sediment. Spawning habitat below the Screen Pass project area is considered *poor* because of conditions in Canyon Creek.

Most streams draining the Myrtle Morgan project area lack habitat for anadromous fish. Packard Gulch, below Units F and G, is a low gradient stream with mostly fines and gravel. The quality of spawning and rearing habitat conditions are considered *moderate*.

Large woody debris

Large woody debris provides complex habitat structure that retains and stores substrate and sediment, and helps create deep pool and off-channel rearing habitat. Most streams in the South Umpqua watershed are deficient in large woody debris (SUWA, p. 170). Streams in close proximity to the project areas had 1 to 23 pieces of large woody debris per 100 meters (m). The ODFW aquatic habitat benchmark is 20 pieces per 100 m. large woody debris volume ranges from 0.4 to 42.47 m^3 per 100 m with a minimum of 30 considered *desirable*.

Pools

Pool frequency and quality is *fair*, largely due to insufficient large woody debris. The ODFW benchmark for pool habitat is 35 percent. Streams with greater than 35 percent pool habitat provide adequate deep pool habitat for salmonid rearing and holding water for migrating adults. Streams in proximity to units average 26 percent pool habitat, with 38 percent pool habitat in Canyon Creek. West Fork Canyon Creek, below Unit K exceeds a gradient of 5 percent in some places with mostly of step pools and little off-channel habitat. Quality and abundance of rearing habitat is considered *moderate*.

Habitat access

In the South Umpqua watershed, approximately 93 miles of stream are identified as anadromous fish habitat, but not all barriers to other potential habitat have been identified or mapped (SUWA, p. 167). No barriers are identified downstream of the Screen Pass and Myrtle Morgan project areas. Access below the Hi-Yo Silver project area is restricted by the Win Walker dam and reservoir. Steelhead trout are present in West Fork Canyon Creek immediately below the dam and the limits of coho salmon distribution are found about 3.5 miles below the dam. Access to tributaries of Canyon Creek upstream of its confluence with the West Fork Canyon creek is blocked by Interstate Highway 5.

B. Special Status Species

Salmonid species found in the South Umpqua River watershed include winter-run Oregon Coast steelhead trout and resident rainbow trout (*Oncorynchus mykiss*), resident and sea-run Coastal cutthroat trout (*O. clarki clarki*), fall and spring Oregon Coast Chinook salmon (*O. tshawytscha*), and the Oregon Coast coho salmon (*O. kisutch*).

Threatened species

No fish species in the South River Resource Area are designated as threatened. The National Marine Fisheries Service listed the Oregon Coast coho salmon Evolutionary Significant Unit (ESU) as threatened, in 1998 (Federal Register 1998b Vol. 63/No. 153). In February, 2004, the 9th Circuit Court of Appeals upheld a ruling by District Judge Michael Hogan that set aside the listing. The Oregon Coast coho ESU has since been proposed for re-listing as a threatened species.

Candidate-threatened Species

The OC steelhead trout ESU was proposed as a candidate for designation as a threatened species (Federal Register 1998a Vol. 63/No. 53). There has been no change in status.

Bureau Sensitive and Bureau Assessment Species

The Umpqua chub (*Oregonichthys kalawatseti)* is a Bureau Sensitive Species that is restricted to the mainstem of the Umpqua River and is not present in the project areas.

The Pacific lamprey (*Lampetra tridentate)* is a Bureau Assessment Species that can be found in small 3rd order or larger tributaries of the South Umpqua River. Although its distribution is largely unknown, it is suspected in streams inhabited by coho salmon.

C. Fish Distribution

The distribution limits for steelhead trout and coho salmon displayed in Table 3-2 are based on Geographic Information System (GIS) coverage, ODFW survey information, and available site-specific information.

Table 3-2 Limits of Fish Distribution

Timber Sale	Unit	Distance to limits for steelhead trout (miles)	Distance to limits for coho salmon (miles)
Myrtle Morgan	A	1.2	2.3
	B	1.0	1.0
	D	0.9	2.0
	E	0.5	0.5
	F	0.6	0.6
	G	1.8	1.8
	H	2.0	2.0
Hi-Yo Silver	I	2.1*	5.6
	K	2.6*	6.1
	L	3.0*	6.5
Screen Pass	M	0.4	1.2
	N	Adjacent	2.5
	O	Adjacent	3.0
	P	0.2	2.5

* distances measured from Win Walker dam, a permanent fish barrier

D. Essential Fish Habitat

Streams and other aquatic habitat currently or historically accessible to Chinook and coho salmon are considered Essential Fish Habitat, which is designated for fish species of commercial importance by the Magnuson-Stevens Fishery Conservation and Management Act of 1996 (Federal Register 2002 Vol. 67/No. 12). The limits of Essential Fish Habitat are the same as the distribution limits for coho salmon indicated above.

IV. Water Resources

A. Stream Flow

The climate is characterized by cool, wet winters and warm, dry summers. Precipitation is primarily rain, though snow is likely at higher elevations in normal years. Stream flows closely parallel the pattern of precipitation with peak flows from November to March, and low flows from July to October.

Most project area streams are small and intermittent 1st and 2nd order streams that have no summer surface flow. Unit K of Hi-Yo Silver fronts approximately 400 feet of the upper reaches of West Fork Canyon Creek, a 4th order perennial stream. Unit O of Screen Pass is adjacent to approximately 1,000 feet of an unnamed perennial stream, tributary to Canyon Creek. Unit N of Screen Pass is adjacent to 1,000 feet of Canyon Creek, which is a small 3rd order stream where it runs beside or beneath Interstate Highway 5.

Peak Flows and the Transient Snow Zone (TSZ)

The SUWA (p. 142), based on anecdotal evidence, defines the TSZ at elevations of 2,000 to 5,000 feet above sea level (ASL). A study by Greenberg and Welch (1998) of stream flow, climate, snow pack, and SNOWTEL stations has identified the TSZ, however, as occurring at 3,000 to 5,000 feet ASL in Southwestern Oregon. This study, referenced in the Oregon Watershed Assessment Manual (Watershed Professionals Network (WPN) 1999), is recommended for identification of peak-flow-generating processes in Western Oregon. As a conservative value 2,500 to 5,000 feet ASL is used for this analysis, which encompasses approximately 25 percent of the Canyon Creek subwatershed where the Screen Pass and Hi-Yo Silver project areas are located. The Myrtle Morgan project area is in the Shively O'Shea subwatershed, situated entirely below the TSZ.

Research by Harr and Coffin (1992) indicates that timber harvest in the TSZ can increase peak flows when large canopy openings are created, allowing a greater accumulation of snow pack, which if subjected to warm rain-on-snow events can melt rapidly and create higher than normal flows. These changes are most evident in the initial ten years after harvest (Hicks et al. 1991, Jones 2000), and persist until stands reach approximately 30 years of age and canopy closure exceeds 70 percent.

The largest effect is on smaller peak flows at recurrence intervals of less than one year (i.e. less than bankfull event), whereas larger flows are dominated by the rainfall component of a storm rather than the snowmelt (Harr 1976, Harr 1986, Zeimer 1998). There is no clear threshold at which the percentage of an area harvested results in significant peak flow increases although research by Stednick (1996) suggests that flow changes become detectable where more than 25 percent of a basin is harvested.

Based on the 2000 age class distribution, approximately 21 percent of the forested lands in the watershed, in all ownerships, were less than 30 years of age. When factoring in the Bland Mountain #2 Fire in the summer of 2004, which killed approximately 200 acres of BLM-managed timber and 146 acres of privately managed timber greater than 30 years of age, the distribution of forest stands less than 30 years old increased by about one-quarter of one percent, but all of these lands are below the TSZ.

In the Canyon Creek subwatershed, approximately 48 percent of the total acreage of both private and Federally-managed lands is in the TSZ. Forest stands on 93 percent of these lands are greater than 30 years of age and are considered hydrologically recovered with a low risk of effects on peak flows (SUWA, p. 143).

Peak Flows and Roads

Roads may be a contributor to peak flows because of their capacity to intercept surface and subsurface water and divert it rapidly into streams via the road drainage network (Beschta 1978, Wemple et al. 1996), having the effect of extending the channel network, reducing storage time in the watershed, and increasing peak flows. The proposed haul routes are predominantly located at or near ridge lines where little or no interception of subsurface water would occur. There are some segments, however, where ditch line and surface runoff presently drain directly into stream crossings, and may contribute minor and unquantifiable increases to peak flows that are localized and not detectable at the watershed scale.

B. Water Quality

Water quality parameters considered most likely to be affected by activities associated with timber harvest are sedimentation and stream temperature.

There is no sediment data for streams in the project areas, but there are no streams listed by the Oregon Department of Environmental Quality for impairment by excess fine sediment (ODEQ 2002). According to MacDonald (1991, p. 98), however, increased sediment load is often the most important adverse effect from past forest management activities because it can reduce water quality for domestic use and can cause detrimental changes to streams and stream inhabitants (Castro and Reckendorf 1995).

Forest roads can be a major contributor of fine sediment to streams (Reid 1981, Reid and Dunne 1984). Sediment delivery to streams may result from down cutting of ditch lines and erosion of unsurfaced road. Landslides may also result if drainage is concentrated onto unstable or erosive slopes. Road segments need to be connected directly to stream channels in order to deliver sediment-laden water. Forest roads with adequate drainage that diverts sediment-laden water to the forest floor where it can re-infiltrate would have a negligible risk for delivery of fine sediment to stream channels.

Timber harvest directly adjacent to streams removes canopy and reduces shade, resulting in increased solar heating and increased stream temperatures. The Forest Ecosystem Management Assessment Team (FEMAT 1993 p. V-28) found that, ". . . riparian buffers of 100 feet or more have been reported to provide as much shade as undisturbed late successional/old-growth forests...".

C. Water Rights

Domestic surface water rights are recorded within a mile downstream of proposed Unit D of the proposed Myrtle Morgan timber sale. With establishment of Riparian Reserves, sediment would be precipitated and would settle out before it could enter any streams in the vicinity and be transported downstream. No effect to downstream water users, other than potential short-term increases in water yield, would be expected and water rights will not be discussed further in this analysis.

V. Botany

Vascular Plants

There are presently 34 vascular plant species designated as special status species that are suspected or documented in the South River Resource Area. As indicated in Appendix C, 33 of these species are eliminated from further discussion because suitable habitat is absent, the species is associated with riparian/stream habitat that would be adequately protected by Riparian Reserves, or the species have not been identified in site surveys.

The single species documented in the project areas is wayside aster (*Eucephalus vialis*), a Bureau Sensitive species, occurring in Lane, Douglas and Linn Counties in the State of Oregon. It is considered a Willamette Valley endemic (Gamon 1986), primarily found in the Willamette Valley Physiographic Province in conjunction with a few known sites along valley margins of the eastern Coast Range Physiographic Province (Franklin and Dyrness 1973).

Wayside aster typically inhabits coniferous forest at elevations between approximately 500 and 3200 feet in elevation, on dry upland sites dominated by Douglas-fir and hardwood species adapted to drier sites. It appears to favor more open forest conditions such as were historically sustained by frequent fire return intervals and may also occupy forest fringes and meadows.

Within the South River Resource Area, wayside aster has been found on sites representative of all stages of forest succession, ranging from areas recently harvested to those occupied by mature forest. In surveys conducted for this analysis, it was located beside BLM Road No. 30-5-15.0 in the SE¼SE¼, Section 10, T. 30 S., R. 5 W.

Fungi

Most fungi species listed under the BLM Special Status Species Program are highly isolated in their occurrence. Habitat components important to fungi include dead, down wood; standing dead trees; and live, old-growth trees; as well as a diversity of hosts that including many species of trees and underbrush, and a broad range of microhabitats. Important to many species is a well-distributed network of late-successional forest (USDA, USDI 2004c p. 148).

Most macrofungi produce short-lived and ephemeral fruiting structures or sporocarps that are seasonal in occurrence, and annually variable (USDA, USDI 2004c p. 148). Richardson (1970) estimated that sampling every two weeks would fail to detect about 50 percent of macrofungal species fruiting in a season. In another study (O'Dell et. al. 1999) less than ten percent of species were detected in each of two consecutive years at any one of eight sites.

Four Bureau Sensitive species (*Dermocybe humboldtensis*, *Phaeocollybia californica*, *P. olivacea*, and *Ramaria spinulasa* var. *diminutiva*) have been documented on the South River Resource Area. Four others (*Arcangeliella camphorata*, *P. gregaria*, *P. oregonensis*, and *Rhizopogon chamaleontinus*) are undocumented but suspected based on habitat and host species present. All eight species are primarily associated with trees of the *Pinaceae* family, particularly Douglas-fir and western hemlock, although one species is also associated with species of the *Fagaceae* family which includes oaks and chinkapin.

With the exception of one *Dermocybe humboldtensis* site which is in the vicinity of Irwin Rocks in Section 19, T. 28 S., R. 7 W., all documented occurrences of the four known species are located in the Myrtle Creek 5th-field watershed, north of the project watershed.

VI. Soils

Soils in the area of the Myrtle Morgan project area are moderately deep to deep over soft granitic bedrock, except for those in Unit H. Soils in Unit H are shallow to moderately deep over hard sedimentary and metamorphic bedrock. Slopes range from nearly flat to as steep as 65 percent. With the exception of Unit D and the west half of Unit E, soils in this project area are considered Category 1 soils because of low levels of organic litter and material, and a high sensitivity to the effects of broadcast burning associated with the exposure of bare, mineral soil resulting in a high risk for surface erosion.

Soils in the Hi-Yo Silver project area are shallow to deep over hard metamorphic bedrock, with slopes ranging from 30 to 75 percent. These are Category 2 soils which would be moderately sensitive to the effects of broadcast burning based on slope steepness.

Soils on Units M, N and O of the Screen Pass project area are shallow to deep over soft sedimentary bedrock with slopes up to 90 percent. Soils in Unit P are shallow to deep over soft sedimentary and hard metamorphic bedrock with slopes up to 85 percent, making them Category 1 soils that are highly sensitive to the effects of broadcast burning.

VII. Air Quality/Rural Interface

The Oregon Smoke Management Plan identified areas of air quality concern and established Designated Areas (DAs) where smoke intrusion should be avoided. DAs in proximity to the proposed sales include the cities of Roseburg, Grants Pass and Medford. The approximate distance and direction from proposed sale units to each DA are summarized below.

From Roseburg

Myrtle Morgan	Units A, B, D and E: approximately 14 miles at S 26º E
Myrtle Morgan	Units F, G and H: approximately 14 miles at S 12º E
Hi-Yo Silver	Unit I, K and L: approximately 22 miles at S 1° W
Screen Pass	Units M, N, O and P: approximately 22 miles at S 10º E

From Grants Pass

Myrtle Morgan	Units A, B, D and E: approximately 36 miles at N 10º E
Myrtle Morgan	Units F, G and H: approximately 35 miles at N 25º W
Hi-Yo Silver	Unit I, K and L: approximately 26 miles at N 7º E
Screen Pass	Units M, N, O and P: approximately 27 miles at N 7º E

From Medford

Myrtle Morgan	Units A, B, D and E: approximately 46 miles at N 20º W
Myrtle Morgan	Units F, G and H: approximately 44 miles at N 40º W
Hi-Yo Silver	Unit I, K and L: approximately 42 miles at N 32 W
Screen Pass	Units M, N, O and P: approximately 39 miles at N 27º W

No units are within ¼-mile of lands zoned R-5 by Douglas County, for 1-5 acre residential lots, so there would be no management restrictions on timber harvest and site preparation activities in these areas. As a consequence, the Rural Interface will not be discussed further in this analysis.

VIII. Cultural/Historical Resources

No cultural or historical sites of value are documented, and pedestrian surveys conducted on the proposed timber sale units were negative. The Oregon State Historical Preservation Office has concurred with the BLM findings. In the absence of any such resources, there would be no effect from the proposed action and no further discussion is necessary in this analysis.

IX. Recreation/Visual Resources

The proposed action would not affect current or future recreational opportunities because no developed facilities or unique opportunities exist in the project areas, and because much of the area is inaccessible due to gated roads and lack of legal public access. Recreation is of a dispersed nature that includes hunting, wildlife viewing, horseback riding and hiking.

No units in the Myrtle Morgan and Hi-Yo Silver project areas are a visual resource management (VRM) concern because they classified VRM IV without management constraints on regeneration harvest. A portion of Unit N in the Screen Pass project area, as originally proposed, was designated as VRM Class II because of location directly above the southbound lanes of Interstate Highway 5. The ROD/RMP (p. 52) stipulates that VRM Class II lands are to be managed for very low levels of change to the characteristic landscape that would not attract the attention of the casual observer. As noted in Chapter 2 (p. 8), in **Additions and Modifications to the Proposal as Initiated**, the unit was modified to exclude the northern half, and Unit P was substituted to avoid VRM Class II lands. With this modification, visual resource objectives would be met and no further discussion is necessary in this analysis.

X. Noxious Weeds

Implementation of the *Roseburg District Integrated Weed Control Plan and Environmental Assessment* (USDI, BLM 1995b) is an ongoing effort to prevent or reduce the spread of weeds, and control or contain existing infestations. This includes inventorying, assessing risk for spread, and controlling target species where management activities are planned.

Twenty-two species have been positively identified on BLM-managed lands in the South River Resource Area, with approximately forty other species suspected based on their presence on adjacent lands. A comprehensive roadside weed inventory has been completed in 7 of the 9 sections where the proposed timber sale units are located. Himalayan blackberry and Scotch broom and rush skeletonweed are most common. Active treatment of Scotch broom is ongoing.

Actions to reduce potential spread or prevent creation of conditions favorable for weed germination would be implemented. Surveys and risk assessments would be conducted to determine the need for weed control treatments in the project areas. Control measures would require steam cleaning or pressure washing of heavy equipment used in logging and road construction, in order to remove materials that could transport weed seed or root fragments. Work would be scheduled in uninfested areas first to avoid the risk of transferring contaminated materials from infested areas into uninfested areas.

Other control measures could include seeding and mulching with native seed or revegetating with indigenous plant species in areas where natural regeneration of native plants is unlikely to prevent weed establishment. As a consequence, negligible changes in the levels of noxious weed populations or the potential for spread are anticipated regardless of the alternative selected, and no further discussion of noxious weeds is necessary in this analysis.

Chapter Four
ENVIRONMENTAL CONSEQUENCES

This chapter discusses specific resource values that may be affected, the nature of the short-term and long-term effects, including those that are direct, indirect and cumulative, that may result from implementation of the proposed action. An alternative of "no action" is analyzed in comparison to determine if there would be any effects of the proposed action that would exceed the scope of those considered and addressed by the Roseburg District PRMP/EIS.

The cumulative effects of the BLM timber management program in western Oregon have been described and analyzed in the PRMP/EIS and FSEIS, which are incorporated herein by reference

Effects of the proposed action on some resources would not extend beyond the immediate project areas, or would be so minute that they could not be practically or reasonably measured outside of the project areas and subsequently would have no cumulative impacts. This discussion does not address minor effects, focusing instead on those that could actually result in cumulative effects.

The analysis addresses the interaction between the effects of the regeneration harvest proposed in this analysis with other past, present, and reasonably foreseeable/currently proposed projects which have or are likely to result in impacts of a similar nature. It describes the effects, how they occurred or might occur, and the incremental cumulative effects that could result. Those interactions would be most significant within the South Umpqua River fifth-field watershed, and accordingly, the analysis gives emphasis to effects occurring within this area. The discussion is organized by individual resources, and addresses the effects of Alternative One, Alternative Two and the cumulative effects.

Incremental impacts would most likely be associated with the removal of timber, affecting age-class distribution of forest stands in the watershed, and potentially contributing to: soil erosion; modification of wildlife habitat; degradation of water quality; and effects to aquatic habitat and fisheries. The two forest management practices most likely to contribute cumulative effects are: clear cut harvest on private land; and to a somewhat lesser degree, regeneration harvest on Federal lands. Density management, commercial thinning and aquatic restoration projects are addressed because they could, although not considered likely, have a cumulative effect.

I. Timber

Alternative One - No Action

Under this alternative, regeneration harvest of the proposed sales would not occur at this time. Harvest would simply be deferred to a future date and other stands allocated to the Matrix in the South River Resource Area would be analyzed for regeneration harvest, instead.

This would not meet the purpose and need for the proposed regeneration harvest of the project stands as described in Chapter 1 (pp.1-2) because it would not meet the ROD/RMP objective of producing a sustained supply of timber and other forest commodities from the Matrix lands, and implementing silvicultural practices designed to provide a sustainable annual ASQ of 45 MMBF.

The GFMA stands selected for harvest are older than 80 years of age and beyond CMAI at which point regeneration harvest should be practiced (ROD/RMP, p. 151). Deferral of harvest would not support sustained yield assumptions predicated on accomplishment of certain silvicultural practices on the Matrix lands (ROD/RMP, p. 60), that include an average annual regeneration harvest of 1,190 acres.

Stands in Connectivity/Diversity Blocks are over 150 years old. Deferring harvest would be inconsistent with the sustained yield assumptions of the ROD/RMP and would fail to meet management direction for a 150-year area control rotation in concert with development and maintenance of 15-16 ten-year age classes (ROD/RMP. p. 153) which can only be achieved through periodic regeneration harvest within this land use allocation.

Height growth and crown expansion of individual trees has nearly ceased even though photosynthesis and diameter growth are continuing. Individual trees will continue to decline in vigor and become more susceptible to attack from insects and disease, and more prone to wind throw or damage.

Small canopy gaps and openings would periodically occur as the result of mortality of individual or small groups of trees. Overstory and understory trees would reoccupy the gaps and openings (Oliver and Larson 1996). Over time some understory trees would become suppressed and die as a direct result. Forest fuels comprised of branches, needles, and dead and suppressed trees would accumulate and pose an increased risk of fire. If a fire were to occur in conjunction with drought and extreme fire weather conditions, a catastrophic stand replacement event could result.

Alternative Two - Proposed Action

This alternative would meet the purpose and need for action described in Chapter One (p. 1), which assumed the application of silvicultural treatments and practices to achieve a sustainable annual ASQ of 45 MMBF of timber and other forest commodities in contribution to the local economy, consistent with the requirements of the O&C Act and the socio-economic objectives of the PRMP/EIS.

In the GFMA, regeneration harvest of stands that are beyond the age of CMAI would be followed by reforestation and intensive management. This would provide a sustainable supply of timber consistent with the silvicultural assumptions that form the basis of the Roseburg District timber management program and in keeping with management direction from the ROD/RMP (p. 61).

Units G and H are located in Connectivity/Diversity Block # 8. Out of approximately 718 acres in the Block, 560 acres or 78 percent of the Block is late-successional forest. Post-harvest, 488 acres or 68 percent of the Block would remain in late-successional forest condition.

Regeneration harvest in the Connectivity/Diversity Blocks would meet the management objectives of providing ecotypic richness and diversity; habitat connectivity for old-growth dependent and associated species within the General Forest Management Area; and a moderately high level of sustained timber production (ROD/RMP, p. 151).

Unit I is located in Connectivity/Diversity Block # 52. This Block is 656 acres in size. Approximately 346 acres or 53 percent of the Block is late-successional forest. Proposed harvest of 95 acres would leave 251 acres or 38 percent of the Block in late-successional forest condition.

In each case, harvest would meet management direction for:

- Maintenance of 25 to 30 percent of individual Blocks in late-successional forest at any point in time. Inclusions of Riparian Reserves and other allocations with late-successional forest within the gross mapped Connectivity/Diversity Blocks count toward this percentage. Blocks may be comprised of contiguous or noncontiguous BLM-administered land. The size and arrangement of habitat within a block will provide effective habitat to the extent possible. (ROD/RMP, p. 34)

Stands in Units G and H are 240 years old and 220 years old in Unit I. Harvest of these units would be consistent with the requirement to schedule regeneration harvest in late-successional stands, and to manage available forest land within each block on a 150 year control rotation (ROD/RMP, p. 34).

The risk of spreading Port-Orford-cedar root disease was evaluated using the risk key contained in the *Record of Decision and Resource Management Plan Amendment for Management of Port-Orford-Cedar in Southwest Oregon, Coos Bay, Medford, and Roseburg Districts* (p. 33). There is no Port-Orford-cedar within any of the proposed project areas, or along haul routes. None of the 7th field watersheds (drainages) in which the timber sales are located are within the range of Port-Orford-cedar. As a consequence, no Port-Orford-cedar management practices are required.

Cumulative Effects

<u>BLM-Managed Lands on the Roseburg District</u>

Since implementation of the ROD/RMP in 1995, regeneration harvest in the Matrix allocations has been substantially less than anticipated in the ROD/RMP (p. 8) which projected 1,190 acres annually in the first decade of the plan. Accomplishments are reported in the *Roseburg District Annual Program Summary* (APS) *and Monitoring Report* (USDI, BLM 2004a) including those related to the timber sale program.

As illustrated in the 2004 APS (Table 17, p. 33), for the period of Fiscal Year (FY) 1995 through FY 2004, only 3,130 acres of regeneration harvest have been authorized. This represents approximately 29 percent of the 11,991 acres that were projected to be harvested in the first decade in which the plan was in effect. Of the 3,130 acres authorized, fewer than 1,200 acres have been harvested.

The ROD/RMP (p. 8) allocated 26,900 acres to Connectivity/Diversity Blocks on the Roseburg District. The ROD/RMP (p. 153) specifies that regeneration harvest in this land use allocation will be at the rate of 1/15 of the available acres in the entire land use allocation per decade, an amount equal to approximately 1,790 acres per decade. The ROD/RMP was approved and implemented in 1995, establishing the baseline against which all activities and accomplishments are measured. For this reason, 1995 is considered the beginning of the "decade", for the purpose of measuring compliance with decadal harvest limitations.

As illustrated in the 2004 APS (Table 17, p. 33), and summarized in Table 4-1, from Fiscal Year (FY) 1995 through FY 2004, 490 acres of regeneration harvest have been authorized in the entire Connectivity/Diversity Block land use allocation.

Table 4-1 Regeneration Harvest Authorized in Connectivity/Diversity Block by Fiscal Year

	FY 95	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04
Acres	32	40	123	151	63[1]	0	0	0	81	0
∑	32	72	195	346	409	409	409	409	490[2]	490

[1] Incorrectly reported in the 2004 APS as 36 acres.
[2] Incorrectly reported in the 2004 APS as 463 acres because of error noted above.

Of the 490 acres sold, only 222 acres have been harvested, while 214 acres are unawarded pending the resolution of administrative appeals or other legal challenges, and 54 acres are presently enjoined from harvest (See Appendix E). In 2005, the Roseburg District collectively proposes regeneration harvest of an estimated 421 acres in the Connectivity/Diversity Block land use allocation, including 167 acres analyzed in this EA.

When added to the acreage that has already been authorized, planned regeneration harvest for the entire Connectivity/Diversity Block land use allocation totals 911 acres or 50.8 percent of the decadal allowance projected by the ROD/RMP. In this respect, the proposed regeneration harvest of Units G, H and I would be consistent with management direction from the ROD/RMP. Overall, the effects of harvest on the available timber base are far less than anticipated because the amount harvested is only one-eight of the level envisioned in the PRMP/EIS and ROD/RMP.

For the entire Roseburg District, the proposed 520 acres of regeneration harvest combined with the 3,130 acres previously authorized add up to 3,650 acres, representing approximately 30.6 percent of the amount anticipated in the first decade following implementation of the ROD/RMP. This has resulted in a trend toward an overall age-class distribution older than was envisioned in the PRMP/EIS (pp. 4-27&28) and which is expected to continue for the foreseeable future as the BLM does not anticipate preparation and offering of additional acres to offset the present deficit.

Effects of road construction, particularly removal of forest habitat, have been substantially less than envisioned. Only 39.1 miles of permanent road has been constructed, compared to 65 miles anticipated by the PRMP/EIS (p. 4-78). This has been more than offset by 44 miles of road decommissioning during the same period, although no notable decrease in road density is considered achievable because the Roseburg District manages in excess of 3,000 miles of roads.

Forested Lands in the South Umpqua River Watershed

Regeneration Harvest (BLM Lands) and Clear Cutting (Private Lands)

Since 1900, the percentage of forested land in the South Umpqua River watershed has undergone substantial change. In 1900, approximately 50 percent of the watershed was comprised of mid to late-seral forest considered to be of merchantable value. The high percentage of non-forest land was likely attributable to the effects of both wildfires and clearing of land for agricultural uses. By 1936, it is estimated that 87 percent of the watershed was commercial forest (SUWA, p. 29), a percentage equal to what presently exists. The remaining lands in the South Umpqua River watershed that are not forested are dedicated to communities, residential properties and small farms, and roads and other infrastructure. It is not anticipated that these uses will change in the foreseeable future.

Acres of regeneration harvest conducted on BLM-managed lands and estimated acres of private timber lands clear cut in the period of 1993 through 2003 are summarized Table 4-2. The levels of harvest through 2003 were calculated using a geographic information system (GIS) analysis of 2003 orthophotos to map recent harvests. This approach was adopted because it represents the most accurate methodology that is reasonably available for characterizing and describing these past actions and their effect on the environment.

Based on this analysis, it was calculated that from 1993 to 2003, approximately 1,392 acres of forest stands age 31-80 years were harvested on private lands, representing slightly less than 1.2 percent of the total forested acres within the watershed. In stands greater than 81 years old, 632 acres were harvested on BLM administered lands, and 839 acres were harvested on private lands, representing an additional one and one-quarter percent of the total forested acres within the watershed.

Table 4-2
Age Class Distribution and Harvest in the South Umpqua Watershed 1993-2003

South Umpqua Watershed	Age 0 to 30 (early seral) acres	Percent of total forested acres	Age 31 to 80 (mid seral) acres	Percent of total forested acres	Age 81+ (late seral) acres	Percent of total forested acres	Total forested acres
Acres in 1993	**43,398**	**35 %**	**31,350**	**25 %**	**50,370**	**40 %**	**125118**
Acres Harvested 1993 - 2003							
BLM			0		632		
Private			1,392		839		
Acres in 2003	**46,261**	**37 %**	**29,958**	**24 %**	**48,899**	**39 %**	**125118**

In the next five years in the South Umpqua Watershed, 753 acres of regeneration harvest, which includes the acreage proposed in this analysis, are planned on BLM administered lands. Assuming past trends for harvest on private lands in the South Umpqua continue, approximately 140 acres a year would be harvested in privately owned forests.

The Bland Mountain #2 Fire in August of 2004 burned approximately 4,500 acres. One-third of the acres burned are managed by the BLM, with an age class distribution predominantly less than 30 years of age. About 20 acres 50-80 years old and 106 acres over 80 years old suffered extensive fire mortality. Of the approximate 3,000 acres burned on private lands, about 146 acres were over 30 years of age and the balance less than 30 years of age. The effect on reducing acreage in the 30-80 and 80+ age classes was a fraction of one percent in either case.

Analysis indicates 2,863 acres of mid to late-seral forests were harvested in the South Umpqua Watershed between 1993 and 2003. Harvest of an additional 1,453 acres is anticipated over the ensuing five years. The effect of past, present and proposed clear cutting and regeneration harvest would be conversion of 4,316 acres of mid and late-seral to early seral stands under 30 years of age. The proposed regeneration harvest of 520 acres represents 12 percent of this total, but only 0.41 percent of all forested stands within the watershed. Accordingly, incremental and cumulative effect on the age class distribution of forested lands would be minimal.

By 2024, watershed analysis (SUWA, p. 85) projects a 2,000 acre decline in the amount of late-successional forest in the watershed, as a result of assumed regeneration harvest. At the same time, 30-80 year old stands would increase approximately 16,000 acres. This projection assumes regeneration harvest consistent with the ROD/RMP, and would not be affected by past, present or proposed harvest, either considered separately or together with the proposed action.

Commercial Thinning and Density Management Projects (BLM Lands)

From FY 2002 to present, five BLM commercial thinning and density management projects have been authorized in the South Umpqua River watershed. They represent 422 acres out of about 9,150 acres, or 4.6 percent of BLM stands in the South Umpqua River watershed age 30-80 years. Table 4-3 summarizes these projects.

Table 4-3
BLM Commercial Thinning (CT) and Density Management (DM) Projects

Project	Description
Hurricane Ruby CT	Thirty-four acres of GFMA in the Coffee Creek subwatershed, completed in 2002. No entry into Riparian Reserves, and no permanent road construction. Approximately 0.2 miles of permanent road renovated.
Bigfoot DM	In the Saint John Creek 6th-field subwatershed, to be implemented in 2005, treats 68 acres in Connectivity/Diversity Block and 13 acres in Riparian Reserves. Constructs no permanent roads, improves 0.66 miles of existing roads, and decommissions 0.75 miles of natural surface roads upon project completion.
Bland Days and Wasted Days CT	In the Days Creek 6th-field subwatershed, treat 166 acres in General Forest Management Area and Connectivity/Diversity Block, and 23 acres in Riparian Reserves. No permanent road construction associated with either project. Renovation and improvements to 6.3 miles of permanent roads.
Slimewater Creek DM	In the Shively Creek 6th-field subwatershed and completed in 2003, treated 118 acres in LSR. No permanent road construction, approximately two miles of roads were decommissioned.
Shively Creek LSR DM	Located in the Shively Creek 6th-field subwatershed and planned for 2005, approximately 187 acres are planned for various commercial and non-commercial treatments. No permanent road construction associated with the project.

Commercial thinning and density management harvests are not considered to affect age class distribution, because treatment generally removes suppressed and intermediate trees while favoring retention dominant and co-dominant trees. As a result, no discernible cumulative impacts would arise from the interaction of these projects with the proposed action.

II. Wildlife

Alternative One – No Action

There would be no direct effects to wildlife species that inhabit the proposed project areas, as regeneration harvest of lands described in this assessment would be deferred to a future point in time. Wildlife and habitat would be affected by the management of private timber lands, consistent with the PRMP/EIS assumption (Vol. I, p. 4-4) that ". . . most private forest lands would be intensively managed with final harvest on commercially economic rotations averaging 50 years."

Alternative Two – Proposed Action

For all wildlife species and associated habitat, the effects of the proposed regeneration harvest would be consistent with those described and analyzed in the FSEIS and Roseburg District PRMP/EIS (pp. 4-36 to 4-67, and 4-52 to 4-66), because the proposed regeneration harvest would is consistent with the assumptions of the PRMP/EIS and management direction from the ROD/RMP.

A. Threatened or Endangered Species

Northern Spotted Owl

As illustrated by Figure 3-1 on page 14, proposed harvest units are most often located on the outer periphery of the owl territories overlapping the project areas, and in all cases are more than one-quarter mile from any owl activity center. As a consequence, assuming that nesting pairs of owls do not relocate to areas near or within the proposed units, there would be no risk for disturbance because none of the proposed units are within 65 yards of owl nest sites. No harvest would occur within one-quarter mile of any owl activity center, so there would be no direct effect from habitat modification, again, assuming that nesting pairs of owls do not relocate to areas near or within the proposed units.

Impacts would be associated with removal of 520 acres of suitable habitat, not all within home ranges of any owl pairs, though. Table 4-4 depicts the change in the amount of suitable nesting, roosting and foraging habitat that would occur with implementation of the three proposed timber sales, specific to the individual home ranges.

Table 4-4 Reduction in Available Suitable Owl Habitat

Owl Pair Site	Pre-Harvest Acres of Suitable Habitat	Acres of Suitable Habitat Removed	Post-Harvest Acres of Suitable Habitat	Reduction in Suitable Habitat
Canyon Pass	1,276	53	1223	4%
Horse Heaven	272	82	190	30%
Packard Gulch	353	13	340	4%
Reservoir	1185	38	1147	3%
South Myrtle	447	14	433	3%
West Canyon	542	65	477	12%

Designated Critical Habitat for the Northern Spotted Owl

Harvest of Unit I in the proposed Hi-Yo Silver timber sale would remove 95 acres of nesting, roosting and foraging habitat in CHU OR-63. This would represent a reduction from 4,062 acres to 3,967 acres, or roughly 2.3 percent of the nesting, roosting and foraging habitat provided by BLM-managed land in the CHU.

Harvest of the proposed Screen Pass timber sale would remove 121 acres of nesting, roosting and foraging habitat. This represents modification of approximately 0,35 percent of the available nesting, roosting, foraging and dispersal habitat provided by Federally-managed lands within CHU.

B. Bureau Sensitive Species

Chace sideband and Oregon shoulderband snails

Direct consequences that regeneration timber harvest could have on the Chace sideband snail are associated with removal of forest canopy which would modify temperature and humidity resulting in loss of cover and forage. It would also expose soils to heat, cold and drying, impairing the function of substrates as refugia. Compaction or disturbance of substrates would impair function as areas for foraging, egg-laying, and hibernation. Although the Oregon shoulderband is not a late-successional and old-growth obligate, it occupies habitat similar to that used by the sideband, and effects to either of the species would be comparable.

Mitigation includes providing conditions that maintain cool, moist temperatures in spring and fall, provide refugia in summer and winter months, and supply forage that includes leaf litter and fungi (Weasma 1999). Specific measures would include establishment of retention patches designed to:

- Retain overstory conifers and hardwoods to provide shade to sites, thereby maintaining cooler temperatures and higher soil moisture

- Avoid ground disturbance in occupied sites thereby maintaining substrate interstices for foraging and hibernation

- Maintain present levels of solar radiation to preserve plant and fungal communities that provide food

Size and shape of retention patches is primarily based on site aspect and prevailing wind direction. The retention patches would be configured to maintain specific vegetative characteristics, provide shading and minimize wind infiltration (Chen et al. 1992 and 1995).

Northern goshawk

Potential effects would arise from: loss of up to 315 acres of suitable nesting and foraging habitat; disturbance that could lead to nest abandonment; and fragmentation of larger tracts of suitable habitat that provide for foraging, fledging of young and dispersal of juvenile birds.

Surveys would be conducted, according to accepted protocol (Woodbridge et al.). If surveys establish site occupancy, seasonal restrictions would be applied to prevent disturbance within one-quarter mile of nest sites between March 1st and July 30th, or until it is determined that the young have dispersed. A 30-acre core area would be established around active and alternate nest sites to preserve their integrity (ROD/RMP, p. 49).

C. Other Raptors

To protect the red-tailed hawk nest site in Unit F of the proposed Myrtle Morgan timber sale, a buffer would be established around the nest tree. The buffer would be up to five acres in size and configured in a manner that would protect the integrity of the nest tree. If birds are nesting, a seasonal operating restriction would be applied (ROD/RMP, p. 39). This seasonal restriction would prohibit contract operations within one-quarter mile of the nest between the dates of March 1 and July 15, both dates inclusive, and minimize potential disturbance and risk of nest abandonment during nesting and fledging season.

Cumulative Effects

Common to both alternatives, the long-term cumulative effects to wildlife and wildlife habitat arising from the management of private timber lands in the watershed would be identical.

Species dependent on late-successional forest for habitat would be locally affected by the harvest of late-seral forest situated on private lands, consistent with the long-term assumption of the PRMP/EIS (p. 4-4) that ". . . most private forest lands would be intensively managed with final harvest on commercially economic rotations averaging 50 years." This would provide habitat sufficient to support those species that utilize early and mid-seral habitat.

The following discussion is specific to the anticipated cumulative effects of the proposed action.

A. Threatened or Endangered Species

Long-term effects on the **Northern Spotted Owl** would be largely the same under either alternative. A meta-analysis of available demographic data was conducted in 2004 (Anthony et al.), that combined population data from 14 study areas located throughout the range of the spotted owl (Lint et al. 1999) found that owl populations were declining range-wide, particularly in the State of Washington. This information was synthesized with existing literature in *Scientific Evaluation of the Status of the Northern Spotted Owl* (Courtney et al. 2004).

Causes of population decline could not be identified with certainty, but researchers feel that a combination of previous habitat loss, recent loss of habitat to wildfire, predation on spotted owls, weather, prey abundance, and competition from barred owls is responsible. Researchers also noted that the importance of each of these agents likely varies by region.

Spotted owl populations in the Klamath Mountains physiographic province were shown to be stable or declining very slightly (Courtney et al. 2004). This finding is consistent with the prediction of the Northwest Forest Plan that populations would slowly decline and eventually reach equilibrium with available habitat. Courtney et al. (2004, pg. 9-13) state: "the fact of such a decline is not in and of itself unexpected or reason to doubt the effectiveness of the core NWFP strategy." Consequently, the best available information indicates that the Northwest Forest Plan and associated Roseburg District ROD/RMP will continue to provide for survival and recovery of the spotted owl as originally anticipated.

Specific to **Designated Critical Habitat** for the northern spotted owl, although the proposed action would remove spotted owl nesting, roosting and foraging habitat, it would not preclude the intended future function of either CHU. Withdrawn areas and the Connectivity/Diversity Block land use allocation will provide adequate nesting, roosting and foraging habitat.

Throughout the entire South Umpqua River watershed, 56 percent of all reserved and withdrawn lands (39,685 acres) on BLM-managed lands are late-successional to old-growth forest that will function as nesting roosting and foraging habitat. Approximately 17 percent of the reserved lands (6,443 acres) provide dispersal habitat (SUWA, p. 81) and would become nesting, roosting and foraging habitat within the next 70 years.

The Roseburg District timber management program is predicated on the development of an older age-class distribution for all forest lands managed on the District (PRMP/EIS, p. 4-29). Timber program management direction from the ROD/RMP will steadily increase the amount of late-successional forest on Matrix lands that is available as nesting, roosting and foraging and dispersal habitat in the CHUs. In particular, regeneration harvest in Connectivity/Diversity Blocks would be conducted on a 150-year area control rotation and maintain at least 25 percent of the acreage in individual Blocks as late-successional forest at any given time, providing habitat connectivity for old-growth dependent and associated species.

In **CHU OR-63**, there are approximately 4,062 acres of reserved lands. Sixty-four percent (2,607 acres) of these lands presently function as nesting, roosting and foraging habitat. The remaining 1,455 acres are expected to develop into nesting, roosting and foraging habitat within 70 years.

Spotted owl dispersal on lands not reserved from scheduled timber harvest was assessed by projecting the current stand ages of all Matrix lands in CHU OR-63 out 100 years in conjunction with simulated levels of timber harvest that would be anticipated under the ROD/RMP. The results indicate a long-term increase in dispersal habitat provided by BLM-managed lands. Beyond 2074, the projected acreage for each habitat type stabilizes at about 27 percent (2,300 acres) of dispersal habitat and 13 percent (1,100 acres) of unsuitable habitat; which represents an approximate increase of 250 percent (~1,700 acres) in dispersal habitat from 1994 levels (USDI, BLM 2003). This indicates that in the long-term, current management direction will provide for the spotted owl dispersal function of CHU OR-63 as planned timber harvest, including the proposed action, occurs.

Approximately 94 percent (24,235 of 25,800 acres) of BLM lands in **CHU OR-32** are allocated as LSR or District-Designated Reserve which are managed to preserve or accelerate the development of late-successional forest habitat characteristics utilized by spotted owls. A comprehensive habitat analysis, comparable to the one for CHU OR-63, has not been done for CHU OR-32. If one considers the overall percentage of late-successional and old-growth habitat available in reserved and withdrawn land use allocations in the watershed, however, it could be reasonably concluded that abundant nesting, roosting and foraging habitat is presently available. This is further supplemented by 1,333 acres allocated to Connectivity/Diversity Blocks, to be managed as described above. It could also be expected that remaining reserved and withdrawn lands that are not suitable habitat, excluding non-forest lands, would develop into late-successional forest within 70 years and provide further nesting, roosting and foraging habitat.

B. Bureau Sensitive Species

Private timber lands are not anticipated to provide habitat for the **Chace sideband snail** and other species dependent on late-successional forest habitat, because of the shorter harvest rotations. As noted on page 33, this would occur regardless of past, current and proposed timber harvest on Federal lands in the South Umpqua River watershed.

Based on the standards and provisions of the Northwest Forest Plan and associated BLM and Forest Service management plans, the 2004 *Final Supplemental Environmental Impact statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (USDA, USDI 2004c p. 190) found that although some known sites could be lost as site management requirements and management strategies are evaluated at a local scale, Federal timber lands will provide sufficient habitat, including known sites, to support stable populations range-wide in the Northwest Forest Plan area.

With the application of the measures described on page 32, suitable microclimate and substrate conditions deemed necessary for snail survival would be maintained. This would reasonably ensure that suitable habitat would be provided, that the snails would not be extirpated from the sites, and that the proposed action would not contribute to a future need for listing of the species.

Under either alternative, suitable habitat for **northern goshawks** would be largely limited to that provided by Federal lands in the watershed (PRMP/EIS, p. 4-54). Under the proposed action, individual birds could be affected at the project level by the loss of up to 315 acres of suitable habitat and potential fragmentation of larger blocks of mature forest. At the watershed level goshawks would be largely unaffected as lands managed by the Federal would continue to provide in excess of 31,000 acres of late-successional forest over the next 20 years (SUWA, p. 85). In the long term, current amounts of mature forest on BLM-managed lands would be supplemented by the maturation of stands in reserved land use allocations that will provide larger blocks of suitable habitat.

C. Other Raptors

Under either alternative, the cumulative effects on **red-tailed hawks** would be substantively the same under the proposed action or any other reasonably foreseeable action. The viability of the existing red-tailed hawk nest tree adjacent to Unit F in the proposed Myrtle Morgan timber sale would be unaffected for the foreseeable future. Elsewhere in the watershed, mature forest stands on BLM-managed lands would provide relatively stable levels of nesting habitat which would be expected to gradually increase over time, for reasons previously described. Early seral forest on both private and BLM-managed lands, and agricultural lands would continue to provide prey habitat and foraging opportunities for the species.

III. Fisheries and Aquatic Resources

Alternative One – No Action

A. Aquatic Habitat Conditions

Absent timber harvest and associated road activities, there would be no direct effects on aquatic habitat in the project areas.

Natural erosional processes, erosion and runoff from unsurfaced roads and agricultural lands in the watersheds would continue to generate sediments that could affect stream turbidity, and which could become embedded in stream substrates with the potential of degrading spawning habitat used by both resident and anadromous fish species.

Timber harvest in riparian areas on private lands could diminish or preclude the future availability of large woody debris for recruitment into streams. This could further reduce the quantity and quality of pool habitat, particularly in lower gradient stream reaches in the valley bottoms. It would also lead to reductions in stream shade and an increased susceptibility to solar heating and elevated stream temperatures.

B. Special Status Species

Within the watershed, fish could be affected by the existing sources of sediment resulting in potential impairment of respiration and feeding, reduction in spawning success, and reduction in embryo emergence and survival.

The general lack of large woody debris in many stream reaches in the watershed and potential reductions in future recruitment on private lands could lead to long-term reductions in the quantity and quality of pools and off-channel habitat. Long-term, this would reduce habitat availability provided in the lower gradient stream reaches used by fish for spawning, rearing and sheltering, as large wood presently in the streams deteriorates. Elevated stream temperatures resulting from a lack of stream shading could lead to less available prey, impaired feeding, reduced embryo emergence, and reduced survival of fry.

C. Essential Fish Habitat

The factor with the greatest potential to affect Essential Fish Habitat would be use of unsurfaced roads during periods of wet weather, resulting in surface erosion and mobilization of sediments. Where these sediments are concentrated by improperly designed and/or improperly functioning road drainage systems and delivered directly into streams there would be degradation of water quality, and potential embeddedness of spawning substrates in the immediate proximity to the sediment sources.

Alternative Two – Proposed Action

Affects to aquatic habitat conditions, fish species and Essential Fish Habitat could arise from timber yarding, road related activities (i.e. construction, renovation, decommissioning), and timber hauling over forest roads. These effects would be largely mitigated or entirely eliminated by the implementation of the following management practices:

- All timber harvest would occur outside of Riparian Reserves which would be established on all intermittent and perennial streams within or adjacent to proposed timber sale units, as described on page 5 of this document. No yarding activities would be authorized through or within the Riparian Reserves, and timber would be felled away from the Riparian Reserves in order maintain their integrity.

- All proposed road construction would be located outside of Riparian Reserves, on stable side slopes or ridge tops to minimize the risk of any slope failures or landslides.

- Hauling would be restricted to the dry season where the condition of road systems would pose more than a negligible risk of moving sediment into live streams.

A. Aquatic Habitat Conditions

Substrate

Affects to stream substrates from timber harvest would be considered improbable. Any run-off bearing sediment derived from soil disturbance in harvested upland areas would pass through intact Riparian Reserves where the sediment would be precipitated out before reaching live streams (FEMAT, p. V-28). Riparian Reserves would also preserve the integrity and stability of stream banks and channels, precluding them from becoming abnormal sources of sediment.

Potential effects on substrate would primarily arise from sediment generated by activities associated with road construction, renovation, decommissioning and timber hauling. As noted above, all road construction would be located on ridge-top or stable sideslope locations outside of Riparian Reserves. In consideration of the following measures, the risk for any increase sediment would be considered negligible.

- All road construction, renovation and decommissioning activities would be restricted to the dry season between mid-May and mid-October.

- None of the new roads would cross perennial or intermittent streams, so road drainage would remain disconnected from any stream channels.

- Permanent roads would be surfaced to prevent erosion. Semi-permanent roads would be surfaced for winter use, closed to traffic when not in use, and decommissioned after site preparation and reforestation.

- Temporary roads would be built, used and decommissioned in the same operating season.

- Roads that are subsoiled in association with decommissioning would be mulched and seeded to prevent surface erosion.

Dependent on the particular sale and haul routes, timber hauling could occur at any time of the year or be specifically restricted to the dry season.

The haul route parallels Fortune Branch (Medford District, BLM) and crosses a single perennial stream at two locations. Harvest and hauling for the Screen Pass timber sale would be restricted to the dry season when little potential exists for mobilizing or moving fine sediment from road surfaces into drainage systems and thence into streams.

Hauling during the wet season, between October and May, would have the potential to contribute fine sediment to streams, especially at stream crossings. Measures, described below, to divert ditch flow above any stream-crossings would largely eliminate this risk.

Units D, E, F, G and H of the proposed Myrtle Morgan timber sale would be available for harvest in any season. There are no stream crossings on BLM roads accessing the units. There are two crossings on Douglas County Highway 42, an aggregate-surfaced road that would be used to haul timber from Units D and E, but these are on headwater streams in excess of ½-mile above anadromous streams, and it would be unlikely that there would be sufficient sediment mobilized to have any effect on substrate conditions downstream.

Units I and L of the proposed Hi-Yo Silver timber sale would also be available for winter operations. The only stream crossings on the haul route drain into West Fork Canyon Creek three miles above the Win Walker dam and reservoir. This dam is a permanent barrier to steelhead trout, with the distribution limits for coho salmon and the limits of Essential Fish Habitat another 3.5 miles downstream from there. Any sediment would be negligible and would not pass the reservoir and dam to anadromous fish-bearing reaches.

Application of the following project design criteria for road renovation would further reduce sediment potential:

- Installation of splash pads at cross drain culvert outlets to prevent soil erosion at the outlets by dissipating energy generated by ditch drainage.

- Maintenance of ditch lines would to prevent erosion and mobilization of sediment. Ditch lines, when possible, would be left well-vegetated so that sediment would be intercepted and captured prior to discharge at cross drains and stream crossings. Well contoured ditch lines would prevent runoff from overflowing and eroding road surfacing.

- Installing water bars or drain dips on sections of roads where surface runoff is possible in order to intercept and direct water off of the roads and onto vegetated slopes where it would infiltrate into the ground.

Large woody debris

There would be no timber harvest or road construction within Riparian Reserves. All existing large woody debris would remain intact and on site, and timber in the Riparian Reserves would provide future large woody debris for recruitment into stream channels where it would help to store and retain gravel substrate and create pool and off-channel rearing habitat.

Pools

The availability of pool habitat would remain unchanged in the near term. There would be no timber harvest or road construction within Riparian Reserves which would remove any pool-forming debris jams and log concentrations from streams. Future recruitment of large woody debris from Riparian Reserves would provide a continuum of additional material for the maintenance of pools and off-channel rearing habitat and potential creation of additional habitat.

Habitat access

Current access to spawning and rearing habitat would be unaffected because there would be no installation or replacement of any stream crossings on fish-bearing streams which could become a barrier to upstream and downstream migration.

B. Special Status Species

No direct effects would be expected to fish in streams below the project areas. As described above, Riparian Reserves would maintain the integrity of streams and pool habitat, and prevent any sediment that may be generated by upslope harvest activities from reaching streams. All proposed road construction would be implemented outside of Riparian Reserves and would have no effects to fish.

Potential effects from road renovation and timber hauling would be associated with sediment which could reduce spawning success and egg and alevin survival in gravels that are embedded with accumulated fine sediment, but for reasons previously described, it is expected that the potential would be negligible.

C. Essential Fish Habitat

Effects to aquatic habitat would be unlikely. Riparian Reserves on all streams would retain streamside shading, filter out any sediment transported overland, protect existing large woody debris and pool habitat, and provide for the future recruitment of large woody debris into stream reaches in the project areas. With the application of project design features previously described, potential for sediment in association with road construction, renovation and decommissioning, as well as timber hauling would be negligible. In consideration of these factors, and that Essential Fish Habitat is a minimum of ½-mile and generally more than one mile from any proposed timber sale units, there would be have a negligible effect on Essential Fish Habitat.

Cumulative Effects

The effects of management of private lands on aquatic habitat and fish, described on page 36, would be substantially identical under either alternative.

The following discussion is specific to the anticipated cumulative effects of the proposed action.

The effects of the proposed timber harvest would be consistent with those addressed in the PRMP/EIS (pp. 4-34 to 4-36, and 4-47 to 4-49). Any effects of a potentially adverse nature would be of short duration, limited to the period during which harvest operations are ongoing, and localized in nature

Potential beneficial effects, such as the maintenance of stream bank and channel integrity, maintenance of current and future sources of large woody debris for in-stream habitat and function, and reductions in road-derived sediment from improvements to roads would also be localized and probably undetectable against current conditions.

Subsequently, the scale of the cumulative impacts of all past, present and future projects on the aquatic resources in the South Umpqua River watershed would be unchanged by any effects from the proposed action.

Restoration Efforts in the South Umpqua River Watershed

In the past two years, projects implemented on public and private lands in the watershed to improve aquatic habitat and water quality, and to restore access to aquatic habitat have included:

- Renovation, surfacing and upgrading drainage systems of approximately 9.5 miles of the Days Creek Road (BLM Road No. 29-3-33.0).

- Stabilization of an undercut and eroding bank on Days Creek.

- Participation in the modification of an irrigation dam and replacement of a large stream-crossing culvert on Fate Creek.

- Placement of in-stream wood along approximately three miles of Days Creek.

- Road renovation and decommissioning in association with commercial thinning and density management projects in the watershed. (see Table 4-3, p. 30)

- Replacement of stream-crossing culverts on, St. John Creek (2), Days Creek (2), and East Fork Stouts Creek.

The removal or modification of irrigation dams, in conjunction with replacement of these culverts has restored access to approximately six miles of habitat historically accessible to anadromous fish. Replacement of culverts East Fork Shively Creek and Beals Creek planned in 2005 and 2006 will restore access to another 4-5 miles of stream habitat. Future replacement of a culvert on Lavadoure Creek would restore access to approximately two miles of stream habitat.

Additional aquatic restoration projects proposed in the next five to ten years include: placement of large in-stream wood on a combined 2.25 miles of Lower Shively Creek, Woods Creek and Lower Stouts Creek; placement of spawning gravel in Woods Creek; approximately 18 miles of road renovation and improvement; and approximately 19 miles of road decommissioning (USDI, BLM 2004b).

Although these projects may result in minor short-term effects of a localized nature, the long-term effects are highly beneficial to aquatic habitat and fish. Because no direct adverse effects on aquatic habitat would be created by the proposed action which would interact with the past, present and proposed restoration projects, there would be no long-term cumulative impacts.

IV. Water Resources

Alternative One – No Action

A. Stream Flow

Absent the proposed regeneration harvest, there would be no effect on annual water yield or stream flows in the project areas. Existing canopy closure on BLM-managed lands in the subject areas would be maintained. There would be no effect on the interception of precipitation by the forest canopy, no reduction in evapotranspiration rates, and no change in the level of potential risk for peak flows generated by rain-on-snow events in the TSZ.

Where segments of midslope roads are connected to stream crossings, marginal increases to the magnitude of peak flows would persist, the direct result of extension of the drainage network and delivery of runoff directly to the stream network.

B. Water Quality

Some segments of the proposed haul routes would continue to deliver some small measure of fine sediment to stream channels at the local level. The magnitude would depend on road surfacing, location with respect to streams and stream crossings, and the amount and season of traffic, including traffic not related to the proposed timber sale activities.

Effects from natural events and activities on private lands, described on page 36, would continue to have effects on sediment, turbidity and stream temperatures within the watershed.

Alternative Two – Proposed Action

A. Stream Flows

Temporary increases in annual water yield and low summer flows would be possible as a consequence of reduced rates of evapotranspiration associated with the removal of vegetation (Harr 1979). Such increases are usually only detectable when a substantial portion of a watershed has been harvested. Harr (1979), and Keppeler and Ziemer (1990) found that regrowth of shrubs and small trees commonly returns evapotranspiration rates to pre-harvest levels within 4-to-8 years.

As illustrated in Table 4-5, in all the project drainages in which regeneration harvest is proposed, a high percentage of forested acres in all ownerships are greater than ten years old. Ten years was selected as an appropriate age-class because it most closely the age of 4-to-8 years cited in the literature above.

Table 4-5 Drainage Area/ Percent in Forest at Least 10 Years Old

Drainage Name	Forested Acres	Acres/Percent > 10 Years of Age	Approximate Acres Proposed for Harvest	Acres/Percent > 10 Years of Age Post-Harvest
Bear Gulch	4,467	4,291 / 96	36	4,255 / 95
Upper West Fork	5,040	4,951 / 98	35	4,916 / 97
South West Fork	4,417	4,231 / 96	162	4,069 / 92
Canyon Pass	2,867	2,717 / 95	50	2,667 / 93
South Umpqua Morgan	1,497	1,464 / 98	7	1,457 / 97
Small Creek	1,361	1,354 / 99	141	1,207 / 89
Packard Gulch	663	663	42	621 / 94
Stinger Gulch	2,237	2,152 / 96	39	2,113 / 94

Peak Flows and the Transient Snow Zone (TSZ)

As noted on page 19, the Hi-Yo Silver and Screen Pass project areas are located in the TSZ, both in the Canyon Creek subwatershed. The risk of peak flow enhancement from the proposed timber harvest, combined with past harvest in the subwatershed, was evaluated using a model developed for the Oregon Watershed Assessment Manual by the Watershed Professionals Network (WPN 1999 p. IV-11). The model predicts that the risk of peak flow enhancement is proportional to the historic percentage of forested land in the TSZ, and the percent of this area with less than 30 percent crown closure.

The analysis, summarized in Table 4-6, indicates a low risk of peak flow enhancement from the proposed harvest.

Table 4-6 Risk of Increased Peak Flows from Proposed Harvest in the Canyon Creek Subwatershed

*Percent Area in the TSZ	*Present Percentage of Area in the TSZ with < 30% crown closure	*Percent Area in the TSZ with < 30% crown closure Post-Harvest	Risk of peak flow Enhancement
24	21	24	Low

* Approximate values from GIS and 1999 aerial photos

Peak Flows and Roads

Renovation of portions of the haul routes would reduce the potential for altering stream flow. Additional drainage would disperse captured flow rather than concentrating it, particularly at stream crossings, thus reducing the channel network density and potential effects to flow magnitude and timing. Although surface flow on roads is apparent on site, reductions in peak flow (~ 10 percent) attributable to road renovation may not be measurable at the drainage scale, and would not be measurable at the watershed scale.

In contrast to mid-slope roads, ridge top roads have little potential to capture subsurface flow or increase drainage density. All proposed road construction would be located on or near ridge tops and would subsequently have a negligible potential for altering magnitude and timing of streamflow.

Decommissioning of temporary roads and other roads not designated for retention would aid in the restoration of "natural hydrologic flow" (USDI, BLM 2001b). This may include sub-soiling or tilling of road surfaces, removal of cross drains, construction of water bars, and construction of suitable barriers to block vehicle access. Project design criteria, already described, would be implemented to reduce potential for sediments to negligible levels.

B. Water Quality

Forest roads can be a major contributor of fine sediment to streams (Reid 1981, Reid and Dunne 1984). Sediment delivery to streams may result from down cutting of ditch lines and erosion of unsurfaced road. Landslides may also result if drainage is concentrated onto unstable or erosive slopes. Road segments need to be connected directly to stream channels in order to deliver sediment-laden water. Forest roads with adequate drainage that diverts sediment-laden water to the forest floor where it can re-infiltrate would have a negligible risk for delivery of fine sediment to stream channels.

As noted on page 20, portions of the proposed haul routes may be diverting sediment-laden water into streams at stream crossings, but the effects are localized and limited to the headwater reaches of small intermittent streams. Subsequently, these effects would not be detectable at the watershed scale.

Renovation and drainage improvements to portions of the proposed haul routes would divert any intercepted groundwater and flow from road surfaces to the forest floor. Any water-borne sediment would then precipitate out as it passed overland. This would reduce the potential for sediment from winter hauling, and any risk to water quality in Win Walker Reservoir to negligible levels of short duration. Though likely not measurable, long-term improvements to water quality in streams along the haul routes and the watershed as a whole could be expected.

Road construction would have a negligible effect on water quality for reasons previously addressed. Addition measures that could be employed to reduce risks from timber hauling would include the installation of sediment-control devices such as silt fences and hay bales. These would be placed in ditch lines and at cross-drain outlets to trap sediment locally and prevent migration into any streams.

Riparian Reserves of at least 160 feet in width would be established on all stream sides so the proposed timber harvest would have no anticipated effect on stream shading or temperatures.

Cumulative Effects

Under either alternative, effects to watershed conditions would remain unchanged in association with: road density, road surfacing and drainage condition, and road location on private timber lands; timber harvest on private lands; and agricultural practices.

The following discussion is specific to the anticipated cumulative effects of the proposed action.

A. Stream Flows

The 512 acres of harvest proposed in South Umpqua River watershed represents less that 0.4 percent of the 141,455 acres in the watershed (SUWA, p. xi) and eight acres less than 0.02 percent of the 59,397 acres in the Middle South Umpqua Watershed (WA, p. viii). Following the proposed harvest, the percentage of forest stands, in all ownership within the South Umpqua River watershed, less than 30 years of age will remain below 25 percent. Subsequently, the combined past, present and future harvest is not expected to have any cumulative effect of increased stream flow and peak flow at the watershed scale.

The 2.35 miles of permanent road construction proposed are offset by the 2.75 miles of decommissioning described in Table 4.3 on page 30. This has no cumulative effect on the overall road density and drainage network. Consequently, the proposed road construction in combination with past, present and other reasonably foreseeable construction would not cumulatively effect stream flows and peak flows.

B. Water Quality

As described on pages 37, 38 and 43, measures to be implemented with respect to road renovations and improvements would limit or even reduce the potential for sediment to affect water quality. Any effect would be of short duration and localized in nature, such that there would be no cumulative effect at the watershed level.

Riparian Reserves on all intermittent and perennial streams would prevent solar heating of those stream reaches, so that regeneration harvest would not contribute to further elevation of stream temperatures, either locally or at the watershed scale.

V. Botany

Alternative One – No Action

In the absence of any timber cutting and road construction, there would be no direct effects to the population of wayside aster discussed on page 21 of this document, or any Bureau Sensitive species of fungi described on page 22.

Alternative Two – Proposed Action

Vascular Plants

The primary concerns for the population of wayside aster documented near the proposed location for the extension of Road 30-5-15.0, are the maintenance of canopy gaps sufficient to allow sunlight to stimulate flowering (Alverson and Kuykendall 1989), and protection of the site from physical disturbance.

By relocating the road to the north of the site, current canopy and light conditions would be maintained at a level suitable for flowering. The boundary of the site would be tagged for identification purposes. Any disturbance within the boundary of the site by either personnel or equipment would be prohibited. Timber would be directionally felled away from the site to maintain its physical integrity. With the implementation of these measures, conditions essential population persistence would be maintained and protected, and there would be no cumulative effects to the population.

Fungi

The proposed action would not affect any known sites for Bureau Sensitive species described on page 21, as these sites are several miles away and in different watersheds.

Surveys for these species are not considered practical for reasons discussed on page 22, so their presence is unknown. If sites are present in the proposed regeneration harvest units, loss of the sites would likely result as a consequence of the removal of substrate and modification of micro-climate, as described in the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (pp. 150-154).

It is anticipated, however, that the network of late-successional forest managed by the BLM within the watershed, and much of it in land use allocations reserved from regeneration harvest, will continue to provide in excess of 31,000 acres of potential habitat for these species. Consequently, no cumulative effects to these species are anticipated.

VI. Soils

Alternative One – No Action

In the absence of road construction and timber harvest, there would be no displacement of the duff and organic layers, or other forms of soil disturbance. As a consequence, there would be no compaction or erosion commonly associated with these activities. These potential effects would occur elsewhere in the Matrix as other forest stands are selected, analyzed and authorized for harvest to meet the Roseburg ASQ.

Absent prescribed burning for site-preparation, there would be no consumption of surface litter and organic matter. These effects would occur elsewhere in association with the harvest of other Matrix stands.

Alternative Two – Proposed Action

Construction of permanent, semi-permanent and temporary roads, as described on pages 7 and 8, would result in localized soil displacement and create the potential for erosion. Use of Best Management Practices applicable to these actions (ROD/RMP, Appendix D, pp. 132-133 and 136-138) would minimize erosion and effects to soil productivity, consistent with those described in the PRMP/EIS (pp. 4-13 to 4-16). Specifically:

- Roads would be located on stable side slopes or on ridge tops outside of Riparian Reserves and away from unstable areas.

- Roads not needed as a part of the permanent transportation system would be decommissioned and subsoiled to minimize the percent of the land base converted to roads and to achieve acceptable levels of amelioration of compaction as described in the PRMP/EIS (Volume II, Appendix FF, p. 223).

- Waste material from road excavation would be disposed of at approved upland disposal sites rather than sidecast on outslopes.

- Disturbed areas would be revegetated or artificially stabilized to prevent erosion.

- Permanent roads would be surfaced to minimize erosion.

Limited localized compaction, disturbance and erosion of soil could be expected as a consequence of both cable and ground-based yarding.

Project design features and the application of Best Management Practices specific to ground-based operations would limit compaction. Primary skid trails and landings would affect less than 10 percent of the area designated for ground-based harvest. Existing trails would be used to the degree practical and count toward the 10 percent affected area, when combined with new trails and landings. After harvest the main skid trails, where exposed mineral soil comprises 50 percent or more of the surface area , and landings would be subsoiled to reduce compaction and improve soil productivity. Portions of secondary skid trails would also be treated where warranted. Tilling would reduce anticipated increases in soil bulk density by up to 80 percent.

Maintaining a minimum one-end suspension of logs during cable yarding would reduce soil displacement. Yarding roads would be water barred where necessary to reduce the potential for channeling of run-off and possible surface erosion. As a result, the effects to soils would be consistent with those identified and considered in the PRMP/EIS (p. 4-15).

On Category 1 soils, noted and defined on pages 22 and 23, site preparation would utilize hand piling, and burning during wet weather to minimize the consumption of surface litter and organic matter. Broadcast burning would be planned to minimize the duration and intensity of the fire. When conducted under conditions of high soil moisture, consumption of litter and organic material would be minimized and the potential for surface erosion of exposed mineral soil would be reduced.

Because any potential effects on soils are anticipated to be strictly localized in nature, no cumulative effects are anticipated.

VII. Air Quality

Alternative One – No Action

Absent of regeneration harvest, there would be no need for site preparation prior to reforestation. As a consequence, there would be need for broadcast burning, or hand piling and burning and no localized effects to air quality. Potential effects to air quality would occur in the South River Resource Area as other forest stands are selected for regeneration harvest, and prescribed burning for site preparation is conducted prior to replanting.

Alternative Two – Proposed Action

Burning would be conducted when the prevailing winds are blowing away from DAs in order to minimize or eliminate the potential for smoke intrusions. The potential for smoke intrusion would be further reduced by: burning units slowly; avoiding multiple ignitions close to one another; and burning under atmospheric conditions that favor good vertical mixing so that smoke and other particulate is borne aloft and dispersed by upper elevation winds.

State smoke management restrictions limit or prohibit burning during periods of stable atmospheric conditions when residual smoke from previously burned units may become trapped by a surface inversion. Under these conditions aggressive mop-up would be used to minimize the potential for residual smoke.

For broadcast burning of units D, I, L, and the portion of E planned for treatment, potential short-term effects to the Roseburg DA on ignition days, comparable to those described in the PRMP/EIS (Chapter 4-9 to 4-12). Potential effects to the Grants Pass and Medford DAs would be negligible because of the greater distances from the proposed units. The risk of a smoke intrusion would be minimized but not eliminated by the strategies of smoke management. Should a smoke intrusion occur, air quality in Roseburg could be impacted for a period of up to 24 hours.

Broadcast burning proposed for Unit D and a the western half of E on Myrtle Morgan, and Unit K on Hi-Yo Silver could result in short-term effects to air quality within one-quarter to one mile of the units. These effects would be characterized by some haziness that could persist for 3 to 5 days. None of these units are sufficiently close to any major highways that motorist safety would be affected.

Hand piling would be the designated site preparation on all remaining units. Piles would be burned in the autumn or winter months. Short term impacts to air quality within one-quarter to one mile of units would persist for 1-to-3 days. There would be no effect on the Grants Pass or Medford DAs. Potential effects to the Roseburg DA would be negligible because ignition would be accomplished during unstable fall and winter weather conditions when winds and atmospheric instability favor rapid smoke dispersion, and precipitation washes particulates from the air.

No cumulative effects to air quality are anticipated for the reasons described above.

VIII. Monitoring

Monitoring would be done in accordance with the ROD/RMP, Appendix I (pg. 84, 190-191, & 193-199). Specific Resources to be monitored would include: Riparian Reserves; Matrix; Air Quality; Water and Soils; Wildlife Habitat; Fish Habitat; and Special Status Species Habitat.

Chapter 5
LIST OF AGENCIES/PERSONS CONTACTED AND PREPARERS

This project was first identified in the Roseburg BLM Project Planning Update (Fall 1998). Any timber sale notice would be published in *The News-Review*, Roseburg, Oregon, if a decision is made to implement any of the sales.

A. Agencies & Persons Contacted:

Adjacent Landowners
Cow Creek Band of Umpqua Tribe of Indians
NOAA-Fisheries
Seneca Jones Timber Company
State Historic Preservation Office
Registered Down-stream Water Users
City of Canyonville
Roseburg Resources Company
Silver Butte Timber Company
U.S. Fish and Wildlife Service

B. Agencies, organizations, and individuals to be notified of completion of the EA:

City of Canyonville
Douglas Timber Operators
Oregon Department of Environmental Quality
Oregon Department of Forestry
NOAA-Fisheries
Umpqua Watersheds
Cascadia Wildlands Project
Klamath Siskiyou Wildlands Center
Oregon Department of Fish and Wildlife
Oregon Natural Resources Council
U.S. Fish and Wildlife Service
Ronald S. Yockim, Attorney-at-Law

C. List of Preparers:

Dave Fehringer	Presale Forester	Project Leader
Bill Adams	Fuels Mgmt. Specialist	Air Quality and Rural Interface
Paul Ausbeck	Environmental Coordinator	EA Writer
Gary Basham	Botanist	Special Status Plants/Noxious Weeds
Dave Harman	Engineer	Transportation
Ed Horn	Soil Scientist	Soils
Craig Kintop	Forester	Silviculture
Helmut Kreidler	Engineer	Transportation
Chris Langdon	Wildlife Biologist	Wildlife
Dave Mathweg	Outdoor Rec. Planner	Recreation and Visual Resources
John Royce	Supervisory Specialist	Management Representative
Don Scheleen	Archaeologist	Cultural Resources

LITERATURE AND REFERENCES CITED:

Alverson, E.R., and K. Kuykendall. (1989) Field Studies on Aster vialis. Final Report Submitted to the BLM by the Oregon Department of Agriculture. February 1990.

Anthony, R.G. and Forsman, Franklin, Anderson, Burnham, White, Schwarz, Nichols, Hines, Olson, Ackers, Andrews, Biswell, Carlson, Diller, Dugger, Fehring, Fleming, Gerhardt, Gremel, Gutiérrez, Happe, Herter, Higley, Horn, Irwin, Loschl, Reid, and Sovern. 2004. Status and Trends in Demography of Northern Spotted Owls. A Draft Report to: Interagency Regional Monitoring Program, Portland, OR. April 30, 2004. 180 pp.

Beschta, R. L. 1978. Long-term Patterns of Sediment Production Following Road Construction and Logging in the Oregon Coast Range. Water Resources Research 14-6: pp 1011-1016.

Castro, J. and F. Reckendorf. 1995. Effects of Sediment on the Aquatic Environment: Potential NRCS Actions to Improve Aquatic Habitat. Natural Resources Conservation Service. Oregon State University, Department of Geosciences, Corvallis, Oregon.

Chen, J., J. F. Franklin, and T. A. Spies. 1992. Vegetation responses to edge environments in old-growth Douglas-fir forests. Ecological Applications 2: 387-396.

Chen, J., J.F. Franklin, and T.A. Spies. 1995. Growing season microclimatic gradients from clearcut edges into old-growth Douglas-fir forests. Ecological Applications 5: 74-86.

Courtney, S P, J A Blakesley, R E Bigley, M L Cody, J P Dumbacher, R C Fleischer, A B Franklin, J F Franklin, R J Gutiérrez, J M Marzluff, L Sztukowski. 2004. Scientific evaluation of the status of the Northern Spotted Owl. Sustainable Ecosystems Institute, Portland, Oregon, USA.

Daw, S. K., S. DeStefano, and R. J. Steidl. 1998. Does survey method bias the description of Northern goshawk nest-site structure? Journal of Wildlife Management 62: 1379-1384.

Daw, S. K. and S. Destefano. 2001. Forest characteristics of Northern Goshawk nest stands and post-fledging areas in Oregon. Journal of Wildlife Management 65: 59-65.

Duncan, N., T. Burke, S. Dowlan, and P Hohenlohe. 2003. Survey Protocol for Survey and Manage Terrestrial Mollusk Species From the Northwest Forest Plan. Interagency Survey and Manage Program. Portland, Oregon.

Federal Register 1998a. Endangered and Threatened Species; Threatened Status for Two ESUs of Steelhead in Washington, Oregon, and California. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. March 19, 1998 (Vol. 63, Number 53).

Federal Register 1998b. Endangered and Threatened Species; Threatened Status for Oregon Coast Evolutionary Significant Unit (ESU) of Coho Salmon. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. August 10, 1998 (Vol. 63, Number 153/Rules and Regulation).

Federal Register. 2002. Endangered and Threatened Species; Magnuson-Stevens Act Provisions; Essential Fish Habitat (ESSENTIAL FISH HABITAT). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. January 17, 2002 (Vol. 67, No. 12).

Forest Ecosystem Management Assessment Team (FEMAT). 1993. Forest Ecosystem Management: An Ecological, Economic, and Social Assessment.

Forsman, E.D., E.C. Meslow, and H.M. Wight. 1984. Distribution and biology of the spotted owl in Oregon. *Wildlife Monograph* No. 87.

Foster, S.C., C.H. Stein, and K.K. Jones. 2001. A guide to interpreting stream survey reports. *Edited by* P.A. Bowers. Information Reports 2001-06. Oregon Department of Fish and Wildlife. Portland, Oregon.

Franklin, F.F.., and C.T. Dyrness. 1973. Natural Vegetation of Oregon and Washington USDA, Forest Service. Portland, Oregon. Technical Report PNW-8.

Gammon, J. 1986. Unpublished Draft Status Report, Aster Vialis. Oregon Natural Heritage Data Base. Portland, Oregon.

Greenberg, J., and K.F. Welch. 1998. Hydrologic Process Identification For Western Oregon. Prepared for Boise Cascade Corporation and the Oregon Watershed Enhancement Board, Salem, Oregon.

Harr, R.D. 1976. Forest practices and streamflow in western Oregon. USDA Forest Service Technical Report PNW-GTR-49.

Harr, R.D. 1986. Effects of clearcutting on rain-on-snow runoff in western Oregon: A new look at an old study. Water Resources Bulletin 22(7): 1095-1100.

Harr, R.D., R. L. Fredriksen, and J. Rothacher. 1979. Changes in Streamflow Following Timber Harvest in Soutwestern Oregon. USDA Forest Service. RES. Pap. PNW-249.

Harr, R. D., and B. A. Coffin. 1992. Influence of Timber Harvest on Rain-On-Snow Runoff: A Mechanism for Cumulative Watershed Effects. American Institute of Hydrology. Pp. 455-469.

Hicks, B.J., R.L. Beschta and R.D. Harr. 1991. Long-term changes in streamflow following logging in western Oregon and associated fish implications. Water Resources Bulletin 27(2): 217-226.

Hickman, Gene. 1994. General Vegetation Section of Soils Report - Douglas Area. USDA Soil Conservation Service.

Jones, J.A. 2000. Hydrologic processes and peak discharge response to forest removal, regrowth, and roads in 10 small experimental basins, western Cascades, Oregon. Water Resources Research, VOL. 36, NO. 9, pp 2621-2642.

Lint, J. B., B. Noon, R. Anthony, E. Forsman, M. Raphael, M. Collopy, and E. Starkey. 1999. Northern Spotted Owl Effectiveness Monitoring Plan for the Northwest Forest Plan. PNW-GTR-440. USDA Forest Service Pacific Northwest Research Station. Portland, Oregon, USA.

Keppler, E.T. and R.R. Zeimer. 1990. Logging Effects on Streamflow: Water Yields and Summer Flows at Casper Creek in Northwest California. Water Resources Research 26:1669-1679.

MacDonald, L. H. 1991. Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska. U.S. Environmental Protection Agency, Region 10. Seattle, Wasington.

O'Dell, T.E., J.F. Ammirati, and E.G. Schreiner. 1999. Ectomychorrizal Basidiomycete Diversity and Abundance on a Moisture Gradient in the *Tsuga Heterophylla* Zone. Canadian Journal of Botany.

Oliver, Chadwick D. and Bruce C. Larson. 1996. Forest Stand Dynamics. Updated Edition. McGraw-Hill Book Co.

Oregon Department of Environmental Quality. 2002. Oregon's Final 2002 Water Quality Limited Streams-303(d) List.

Oregon Department of Fish and Wildlife (ODFW). 1995. Aquatic Inventory Project: Physical Habitat and Fish Surveys for *Canyon Creek, WF Canyon Creek, Saint John Creek (Canyon)*

Oregon Department of Fish and Wildlife (ODFW). 2001. Aquatic Inventory Project: Physical Habitat and Fish Surveys for *Packard Gulch*

Reid, L. M. 1981. Sediment Production from Gravel-Surfaced Forest Roads, Clearwater Basin, Washington. Fisheries Research Institute. College of Fisheries, University of Washington. Seattle, Washington. FRI-UW-8108.

Reid, L. M., and T. Dunne. 1984. Sediment Production From Forest Road Surfaces. Water Resources Research 20-11: pp 1753-1761.

Reynolds, R. T., E. C. Meslow, and H. M. Wight. 1982. Nesting habitat of coexisting *Accipiter* in Oregon. Journal of Wildlife Management 46: 124-138.

Richardson, M.J. 1970. Studies on *Russula emetica*and other agarics in a scots pine plantation. British Mycological Society 55:217-219

Stednick, J.D. 1996. Monitoring the effects of timber harvest on annual water yield. Journal of Hydrology 176: 79-95.

USDA, United States Forest Service and USDI, Bureau of Land Management (BLM). 1994a. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.

USDA, Forest Service and USDI, BLM. 1994b. Record of Decision and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.

USDA, Forest Service and USDI, BLM. 2003. Instruction Memorandum 2003-050. Implementation of 2002 Survey and Manage Annual Species Review.

USDA, Forest Service and USDI, BLM. 2004a. Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl.

USDA, Forest Service and USDI, BLM. 2004b. Record of Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy.

USDA, Forest Service and USDI, BLM. 2004c. Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines.

USDI, BLM. 1991a. Formal Section 7 Consultation on 174 Bureau of Land Management Fiscal Year 1991 Timber Sales. U.S. Fish and Wildlife Service. Portland, Oregon.

USDI, BLM. Oregon State Office. 1992. Record of Decision Western Oregon Program - Management of Competing Vegetation.

USDI, BLM. Roseburg District. 1994. Roseburg District Proposed Resource Management Plan and Environmental Impact Statement.

USDI, BLM. Roseburg District. 1995a. Record of Decision and Resource Management Plan.

USDI, BLM. Roseburg District. 1995b. Roseburg District Integrated Weed Control Plan and Environmental Assessment.

USDI, BLM. Roseburg District, South River Field Office. 1999. Middle South Umpqua Watershed Analysis.

USDI, BLM. Roseburg District, South River Field Office. 2001a. South Umpqua Watershed Analysis and Water Quality Restoration Plan.

USDI, BLM. 2001b. Western Oregon Districts Transportation Management Plan. Roseburg District Office, Roseburg, Oregon.

USDI, BLM. Roseburg District. 2003. Projected Condition of Critical Habitat Unit OR-63. Unpublished report on file. Roseburg, Oregon. 12 pp.

USDI, BLM. 2004. Record of Decision and Resource Management Plan Amendment for Management of Port-Orford-Cedar in Southwest Oregon, Coos Bay, Medford, and Roseburg Districts.

USDI, BLM. 2004a. Roseburg District Annual Program Summary and Monitoring Report. Roseburg, Oregon.

USDI, BML. 2004b. Roseburg District. South River Programmatic Restoration Environmental Assessment.

USDI, U.S. Fish and Wildlife Service. 1991. Critical Habitat for the Northern Spotted Owl: Maps and Legal Descriptions. Portland, Oregon. USA. 39 pp.

Watershed Professionals Network (WPN). 1999. Oregon Watershed Assessment Manual. Prepared for the Governor's Watershed Enhancement Board, Salem, Oregon.

Weasma, T. R. 1999. Draft Management Recommendations for *Monadenia (Shastelix) chaceana*, the Chace Sideband *in* Management Recommendations for Survey and Manage Terrestrial Mollusks. Interagency Survey and Manage Program. Portland, Oregon.

Wemple, Beverley C., J. A. Jones, and G. E. Grant. 1996. Channel Network Extension by Logging Roads in Two Basins, Western Cascades, Oregon. Water Resources Bulletin, Vol. 32, No. 6.

Woodbridge, B., G. Silovsky, and K. Austin. 1993. Survey Protocol for Northern Goshawk on National Forest Lands in the Pacific Northwest Region. USDA Forest Service, Oregon Department of Fish and Wildlife, and Washington Department of Fish and Wildlife.

Ziemer, R.R. 1998. Flooding and stormflows. USDA Forest Service General Technical Report, PSW-GTR-168, pp. 15-24.

APPENDIX A

Summary of Proposed Road Construction, Renovation and Decommissioning

Hi-Yo Silver

Road Renovation

Renovation of Road No. 30-6-35.0 would be limited to some additional aggregate surfacing at four intermittent stream crossings in the southeast corner of Section 23, T. 31 S., R. 6 W. Renovation of Road No. 31-6-26.0 would be similarly limited to additional aggregate surfacing at three intermittent stream crossings.

Permanent Road Construction

RI-1	0.50 miles	RI-2	0.05 miles
RL-1	0.30 miles	RL-2	0.05 miles

Myrtle Morgan

Road Renovation

Renovation to the following roads would include surface blading and shaping; relocation or realignment of road segments as dictated by the need for user safety; clean-out, repair, or replacement of drainage structures; installation of additional drainage structures; roadside brushing; and aggregate surfacing.

Road No.	Length (approx.)
29-4-32.0	1.20 miles
30-5-14.0	2.45 miles
30-5-15.0	0.40 miles

Permanent Road Construction

Construction would include aggregate surfacing and installation of drainage structures.

30-5-10.2	0.50 miles
30-5-15.0	0.95 miles

Semi-Permanent Road Construction

RD-1	0.15 miles	RF-1	0.15 miles
RG-1	0.10 miles	RH-1	0.10 miles

Temporary Road Construction

RA-1	0.10 miles	RB-1	0.11 miles

Screen Pass

Road Renovation

Renovation to the following roads would include surface blading and shaping; relocation or realignment of road segments as dictated by the need for user safety; clean-out, repair, or replacement of drainage structures; installation of additional drainage structures; roadside brushing; and surfacing with crushed aggregate.

Road No.	Length
31-5-15.0	4.47 miles
31-5-34.0	1.90 miles
32-5-3.0	1.36 miles
32-5-3.0	0.40 miles
32-5-17.0	0.05 miles

Temporary Road Construction

Spur 1	0.12 miles
Spur 2	0.59 miles
Spur 3	0.08 miles
Spur 4	0.09 miles

Appendix B

Special Status Wildlife Species Eliminated From Further Discussion

Appendix B

Special status wildlife species eliminated from further discussion

Common Name	Status	Habitat Features Used	Reason Eliminated
Bald Eagle	Federal Threatened	Large trees near large bodies of water (Buehler 2000, Isaacs and Anthony 2003)	No habitat
Marbled Murrelet	Federal Threatened	Mature trees with large branches or platforms (Nelson 1997)	Out of range
Rotund Lanx	Bureau Sensitive	Umpqua River and major tributaries (USDA/USDI 1994)	No habitat
Green Sideband	Bureau Sensitive	Deciduous trees and brush in wet forest, low elevation; strong riparian associate (USDA/USDI 1994, Frest and Johannes 2000)	Protected by Riparian Reserves if present
Traveling Sideband	Bureau Sensitive	Dry, open, undisturbed forest; strong riparian associate (USDA/USDI 1994, Frest and Johannes 2000)	Protected by Riparian Reserves if present
Oregon Giant Earthworm	Bureau Sensitive	Riparian forest with deep soil, only known in Willamette Valley	No habitat
Insular Blue Butterfly	Bureau Sensitive	Moist meadows and riparian areas (Scott 1986)	No meadow habitat, protected by Riparian Reserves if present
Western Pond Turtle	Bureau Sensitive	Marshes, ponds, lakes, rivers with emergent structure; and adjacent forest (Storm and Leonard 1995)	No habitat
American Peregrine Falcon	Bureau Sensitive	Cliffs or other sheer vertical structure, generally in open habitat near water (White et al. 2002)	No habitat
Arctic Peregrine Falcon	Bureau Sensitive	Cliffs or other sheer vertical structure, generally in open habitat near water (White et al. 2002)	No habitat
Burrowing Owl	Bureau Sensitive	Dry grassland/shrub habitat, or open suburban areas. Often associated with burrowing mammals (Haug et al. 1993)	No habitat
Common Nighthawk	Bureau Sensitive	Many open habitats used for nesting (Poulin et al. 1996)	No habitat
Lewis' Woodpecker	Bureau Sensitive	Open woodlands with ground cover and snags (Tobalske 1997)	No habitat
Oregon Vesper Sparrow	Bureau Sensitive	Grassland, farmland, sage. Dry, open habitat with moderate herb and shrub cover (Jones and Cornely 2002)	No habitat

Common Name	Status	Habitat Features Used	Reason Eliminated
Crater Lake Tightcoil	Bureau Sensitive	herbaceous growth, large woody debris, or rocky cover in or near perennially wet areas of mature forest	Protected by Riparian Reserves if snail is present
Purple Martin	Bureau Sensitive	Secondary cavity nester, usually in woodpecker holes. Can use burned or logged areas if snags present (Brown 1997)	Poor habitat
Columbian White-Tailed Deer	Bureau Sensitive	Oak woodland	No habitat
Fisher	Bureau Sensitive	Closed canopy forest with ground-level structure and den snags (USDA/USDI 1994)	No population at these elevations
Townsend's Big-Eared Bat	Bureau Sensitive	Mines, caves, human structures	No habitat
Cascade Torrent Salamander	Bureau Assessment	Very cold, clear streams, seeps or springs and adjacent moist forest or rocks (USDA/USDI 1994, Corkran and Thoms 1996)	Protected by Riparian Reserves if present
Cascades Frog	Bureau Assessment	Moist forest or brush, riparian (Corkran and Thoms 1996)	Protected by Riparian Reserves if present
Foothill Yellow-Legged Frog	Bureau Assessment	Low-gradient streams with bedrock or gravel substrate (Corkran and Thoms 1996)	Protected by Riparian Reserves if present
Northern Red-Legged Frog	Bureau Assessment	Margins of ponds or slow streams, forest interior when moist (Corkran and Thoms 1996)	Protected by Riparian Reserves if present
Tailed Frog	Bureau Assessment	Cold fast-flowing perennial streams and headwaters in forested areas (USDA/USDI 1994, Corkran and Thoms 1996)	Protected by Riparian Reserves if present
Common Kingsnake	Bureau Assessment	Moist, thick riparian vegetation; though can use many habitat types (Storm and Leonard 1995)	Protected by Riparian Reserves if present
Harlequin Duck	Bureau Assessment	Larger fast-flowing streams and riparian areas (Thompson et al. 1993, Robertson and Goudie 1999)	No habitat
Western Least Bittern	Bureau Assessment	Wetland, marsh with emergent vegetation (Gibbs et al. 1992)	No habitat
White-Tailed Kite	Bureau Assessment	Low-elevation grassland, farmland or savannah and nearby riparian areas (Dunk 1995)	No habitat
Brazilian Free-Tailed Bat	Bureau Assessment	Roosts in caves, mines, buildings	No habitat
Del Norte salamander	Bureau Assessment	Rocky substrate and talus often associated with riparian areas	No habitat

APPENDIX C

Special Status Botanical Species Eliminated from further Discussion

Common Name	Taxon	Status	Habitat Features Used	Reason Eliminated
Kincaid's Lupine	Vascular Plant	Federallly Threatened	Open woods, meadows (USDI BLM 1991)	Surveyed Not Found
Shrubby Rock Cress	Vascular Plant	Bureau Sensitive	Dry, rocky serpentine slopes, ridges (Hickman 1993)	No Habitat
Bensoniella	Vascular Plant	Bureau Sensitive	Along the margins of bogs, meadows, and springs in mixed coniferous forests in partial and full sun (USDI BLM 1991)	No Habitat
Oregon Willow Herb	Vascular Plant	Bureau Sensitive	Bogs and marshes (USDI BLM 1991)	No Habitat
Slender Meadow Foam	Vascular Plant	Bureau Sensitive	Vernally moist to wet rocky slopes and meadows on various substrate including serpentine (USDI BLM 1991)	No Habitat
False Caraway	Vascular Plant	Bureau Sensitive	Meadows or along the edge of coniferous forest (USDI BLM 1991)	Surveyed Not Found
Umpqua Swertia	Vascular Plant	Bureau Sensitive	Moist meadows and moist coniferous forest. Mostly grows in shaded conditions but can also occur in full sun (USDI BLM 1991)	Surveyed Not Found
Umpqua Mariposa Lily	Vascular Plant	Bureau Sensitive	Grassland and forests on serpentine soils (USDOI BLM 1991)	No Habitat
Clustered Lady Slipper	Vascular Plant	Bureau Sensitive	Dry to moist conifer and mixed evergreen forest (USDI BLM 1991)	Surveyed Not Found
Crinite Mariposa Lily	Vascular Plant	Bureau Sensitive	Dry open slopes or under open canopies on serpentine soils (USDI BLM 1991)	No Habitat
Thompson's Mistmaiden	Vascular Plant	Bureau Sensitive	Seasonally wet rock outcrops on open slopes (USDI BLM 1991)	Surveyed Not Found
Tall Bugbane	Vascular Plant	Bureau Sensitive	Woods and thickets (USDI BLM 1991)	Surveyed Not Found
Dense-flowered Horkelia	Vascular Plant	Bureau Sensitive	Meadows and open woods (USDI BLM 1991)	Surveyed Not Found
Kalmiopsis	Vascular Plant	Bureau Sensitive	Dry, stony mountain slopes (USDI BLM 1991)	Surveyed Not Found
Hitchcock's Blue-eyed Grass	Vascular Plant	Bureau Sensitive	Valley grasslands and oak savannahs (USDI BLM 1991)	Surveyed Not Found
American Funaria Moss	Bryophyte	Bureau Assessment	Shaded forests on fine textured soil (Schofield 1992)	Surveyed Not Found
Pseudoleskeella	Bryophyte	Bureau Assessment	Serpentine endemic	No Habitat
Grass Fern	Vascular Plant	Bureau Assessment	Volcanic or granite rock crevices and ledges under a forest canopy (Hickman 1993, USDI BLM 1991)	Surveyed Not Found
Timwort	Vascular Plant	Bureau Assessment	unknown	Surveyed Not Found
Gold Poppy	Vascular Plant	Bureau Assessment	Fields and brushy slopes of the foothills and valleys (USDI BLM 1991)	Surveyed Not Found

Common Name	Taxon	Status	Habitat Features Used	Reason Eliminated
Three Colored Monkey Flower	Vascular Plant	Bureau Assessment	Vernal pools and wet meadows (USDI BLM 1991)	No Habitat
Coffee Fern	Vascular Plant	Bureau Assessment	Dry rock outcrops mostly in the open sun but at times along shaded stream banks (USDI BLM 1991)	Surveyed Not Found
California Sword Fern	Vascular Plant	Bureau Assessment	Rock outcrops beneath forest canopies or on open slopes. Often inside rock overhangs or on shear bluffs and cliffs (USDI BLM 1991)	Surveyed Not Found
Heckner's Stonecrop	Vascular Plant	Bureau Assessment	Rock outcrops which are typically serpentine and occasionally gabbro (igneous) on moderately steep south to west exposed slopes (USDI BLM 1991)	Surveyed Not Found
Humped Bladderwort	Vascular Plant	Bureau Assessment	Shallow water in the valleys and mountains (USDI BLM 1991)	Protected by Riparian Reserves
Lesser Bladderwort	Vascular Plant	Bureau Assessment	Shallow standing or slow moving water (USDI BLM 1991)	Protected by Riparian Reserves
Water-meal	Vascular Plant	Bureau Assessment	Lakes, ponds, and pools of standing water (USDI BLM 1991)	Protected by Riparian Reserves
Dotted Water-meal	Vascular Plant	Bureau Assessment	Lakes, ponds, and pools of standing water (USDI BLM 1991)	Protected by Riparian Reserves
Hairy Sedge	Vascular Plant	Bureau Assessment	Moist meadows, open forests (University and Jepson Herbaria Website accessed 6/23/2004)	Surveyed Not Found
Saw-tooth Sedge	Vascular Plant	Bureau Assessment	unknown	
California Globe Mallow	Vascular Plant	Bureau Assessment	Streambanks and moist ground in the shade or open (USDI BLM)	Surveyed Not Found
Schistostega pennata	Non-vascular Bryophyte	Bureau Assessment	Rotten Stumps and logs in shaded and humid locations. It occurs on mineral soil in shaded pockets of overturned tree roots, often with standing water much of the year. (USDI BLM and USDA FS 1999)	Surveyed Not Found
Microcalicium arnarium	Non-vascular Lichen	Bureau Assessment		Surveyed Not Found
Pannaria rubiginosa	Non-vascular Lichen	Bureau Assessment	Found in association with mature Douglas-fir/western hemlock forest. (Lesher, et al. 2000)	Surveyed Not Found

APPENDIX D

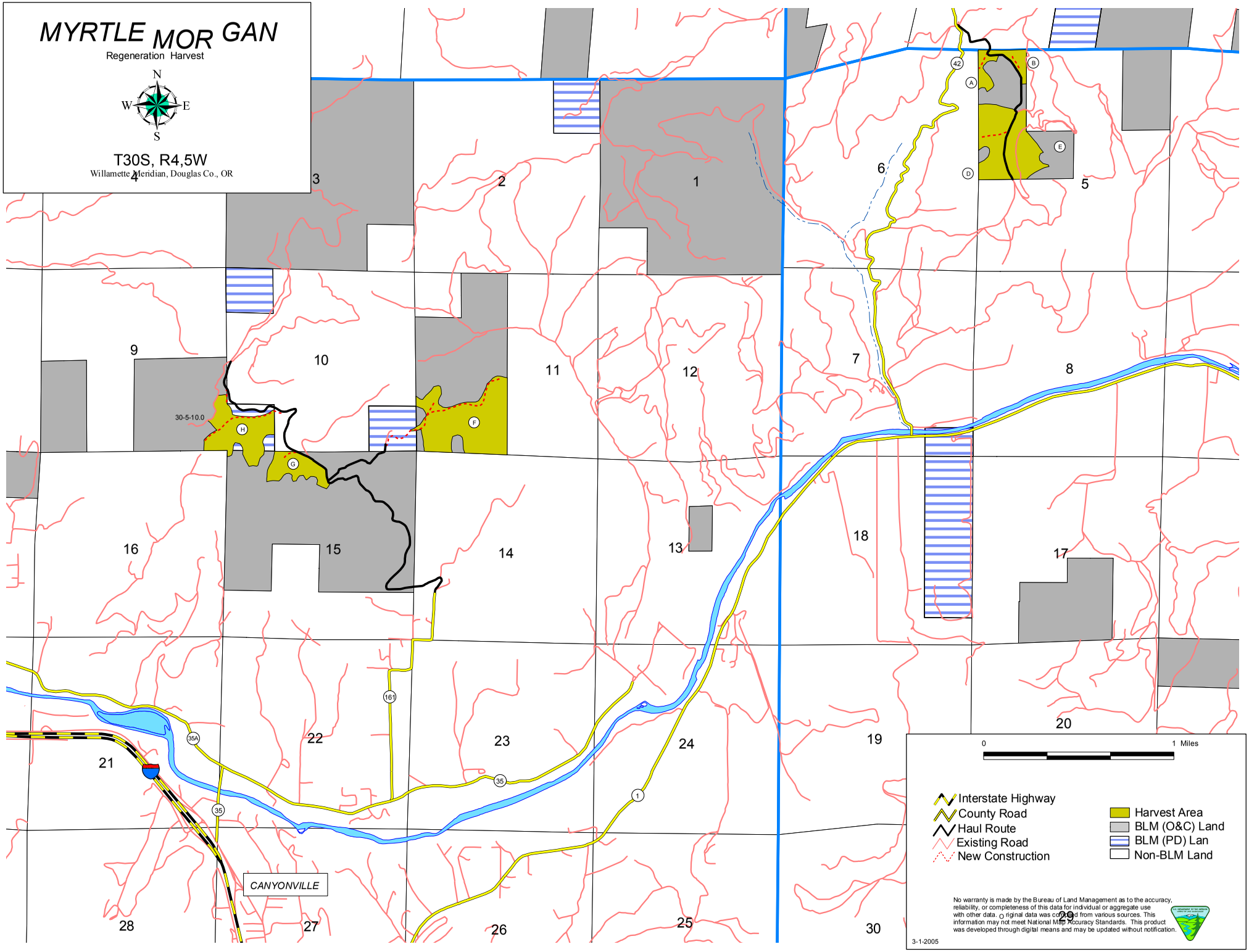
Maps of the Proposed Units and Haul Routes

MYRTLE MORGAN

Regeneration Harvest

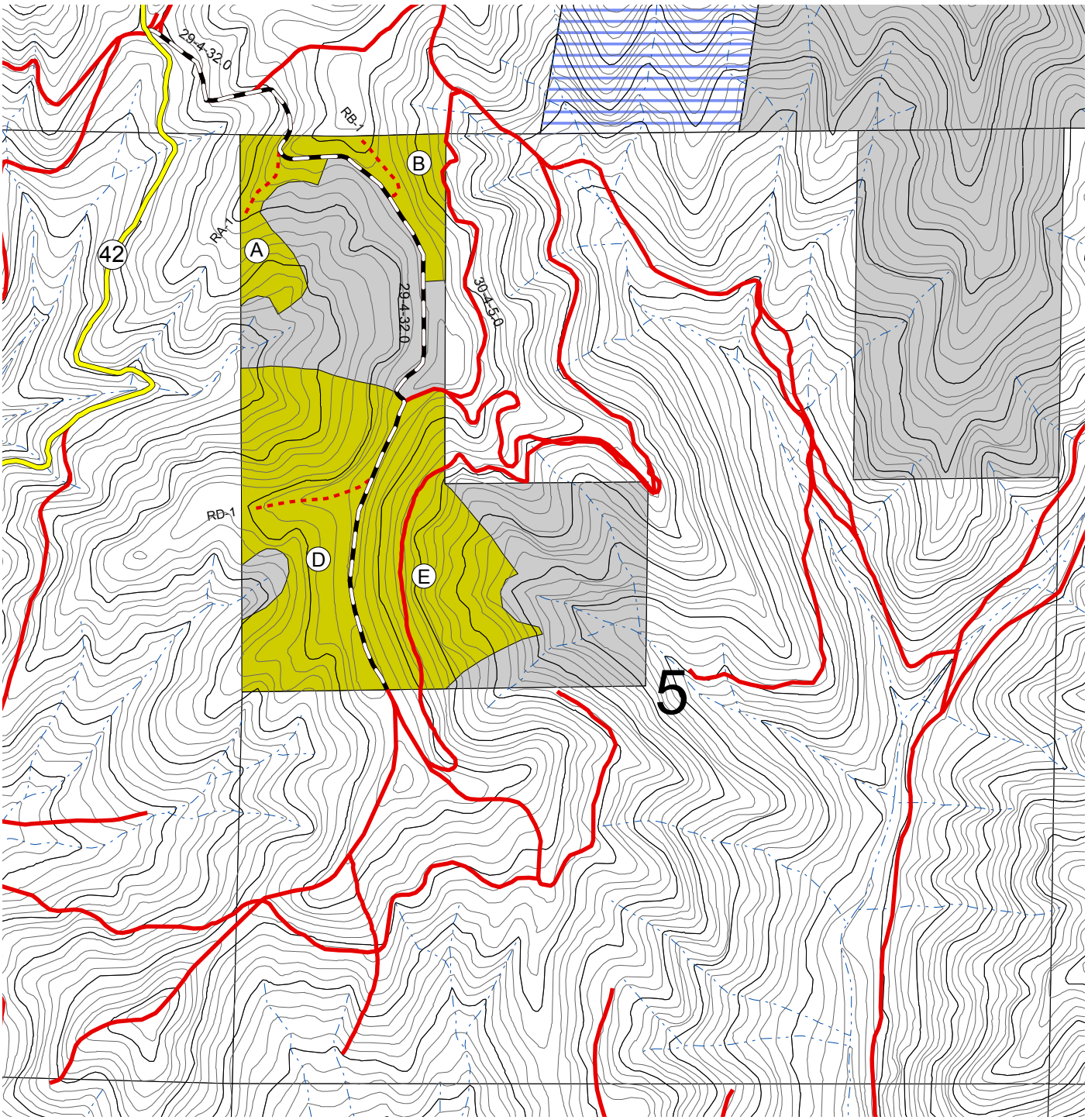
T30S, R4,5W

Willamette Meridian, Douglas Co., OR



MYRTLE MORGAN

Regeneration Harvest



1,000 0 1,000 Feet

N
W E
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T30S R4W

Willamette Meridian, Douglas Co., OR.

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

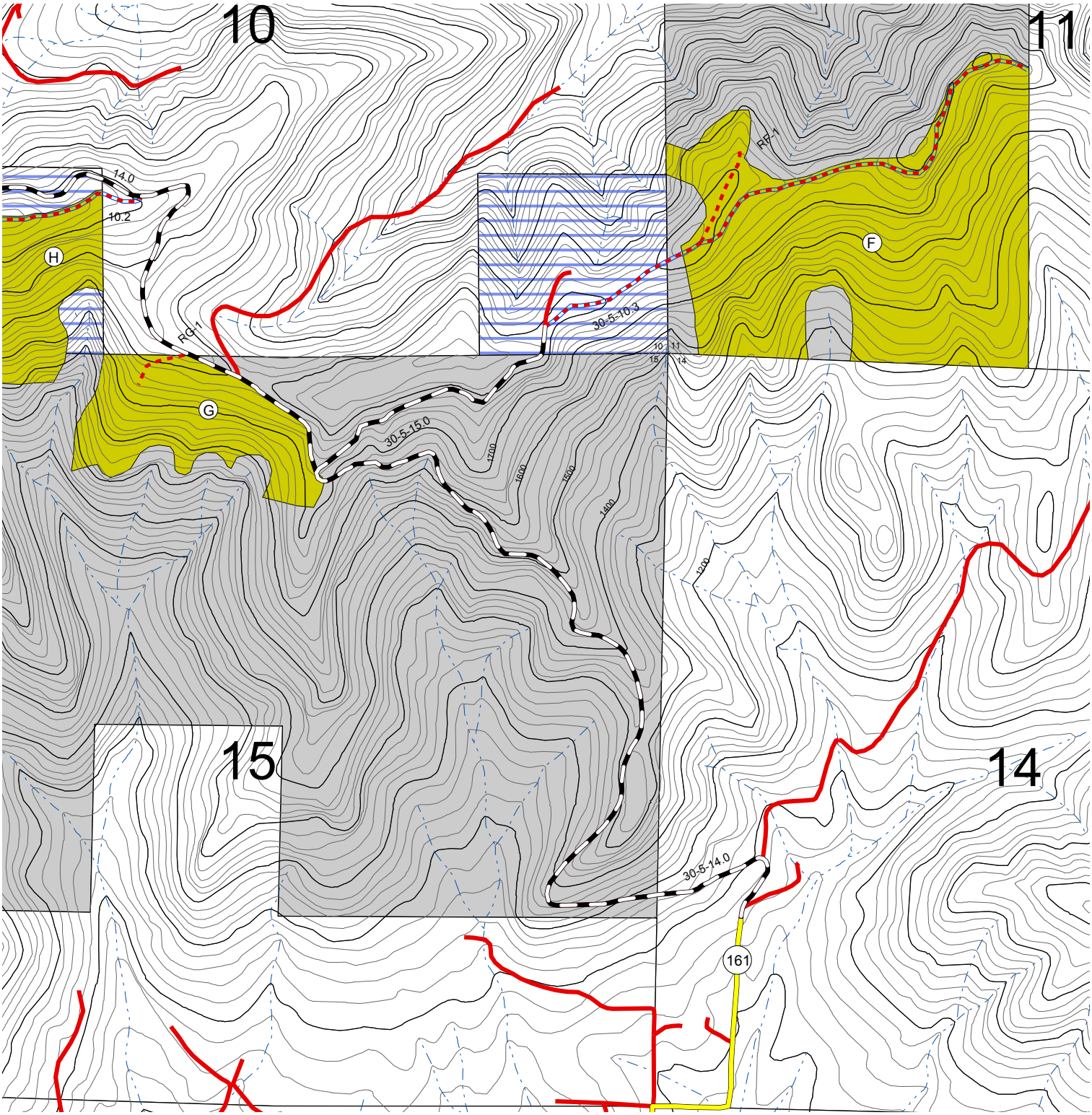
County Road
Existing Road
Construct, Decommission
Renovate, Permanent Rock
Stream
100' Contour
20' Contour

Harvest Area
BLM (PD) Land
BLM (O&C) Land
Non-BLM Land

3-10-2005

MYRTLE MORGAN

Regeneration Harvest



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T30S R5W

Willamette Meridian, Douglas Co., OR.

1,000 0 1,000 Feet

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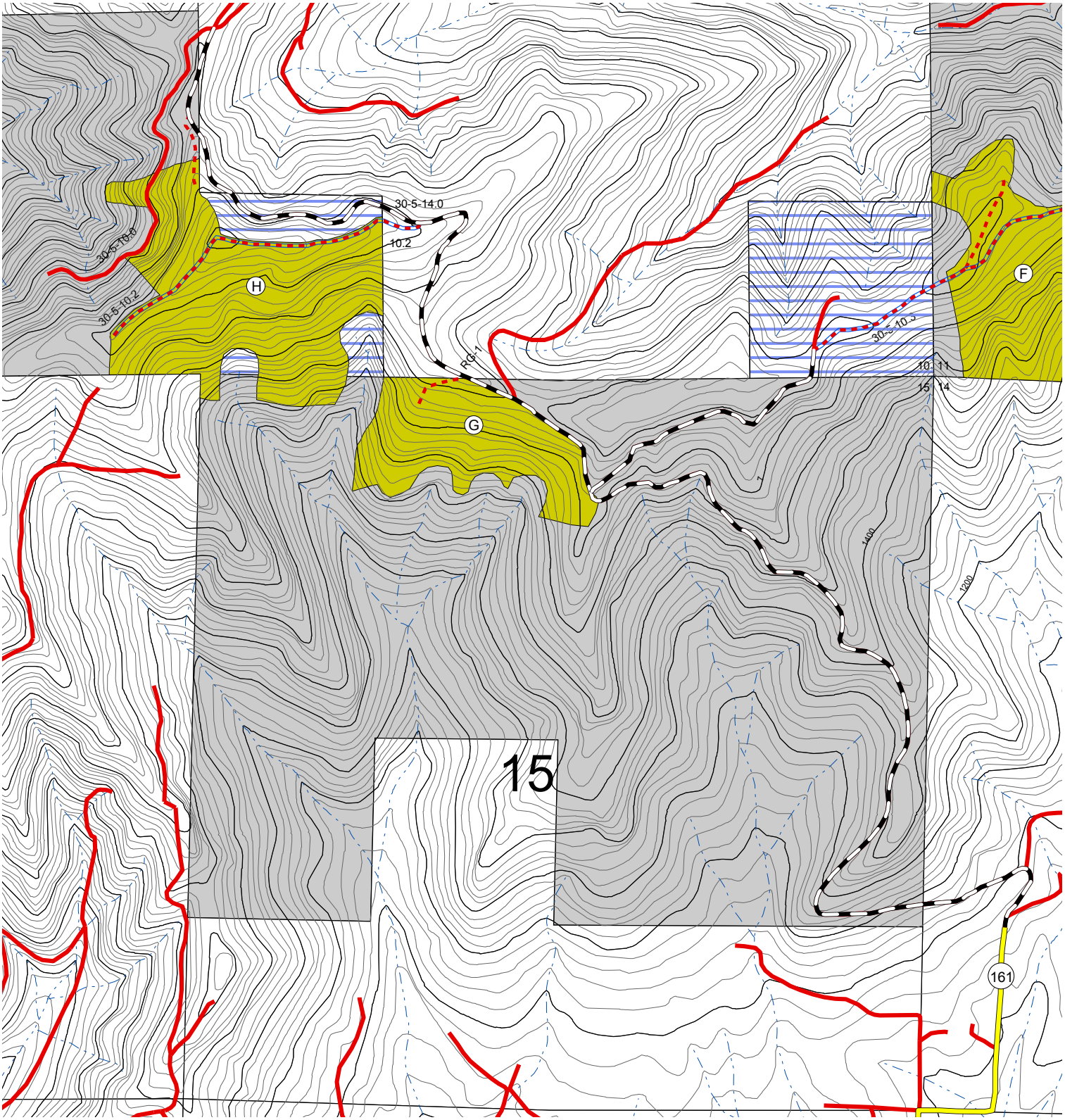
County Road
Existing Road
Construct, Permanent Rock
Construct, Decommission
Renovate, Permanent Rock
Stream
100' Contour
20' Contour

Harvest Area
BLM (PD) Land
BLM (O&C) Land
Non-BLM Land

5-3-2004

MYRTLE MORGAN

Regeneration Harvest



N
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T30S R5W

Willamette Meridian, Douglas Co., OR.

1,000 0 1,000 Feet

County Road
Existing Road
Construct, Permanent Rock
Construct, Decommission
Renovate, Permanent Rock
Stream
100' Contour
20' Contour

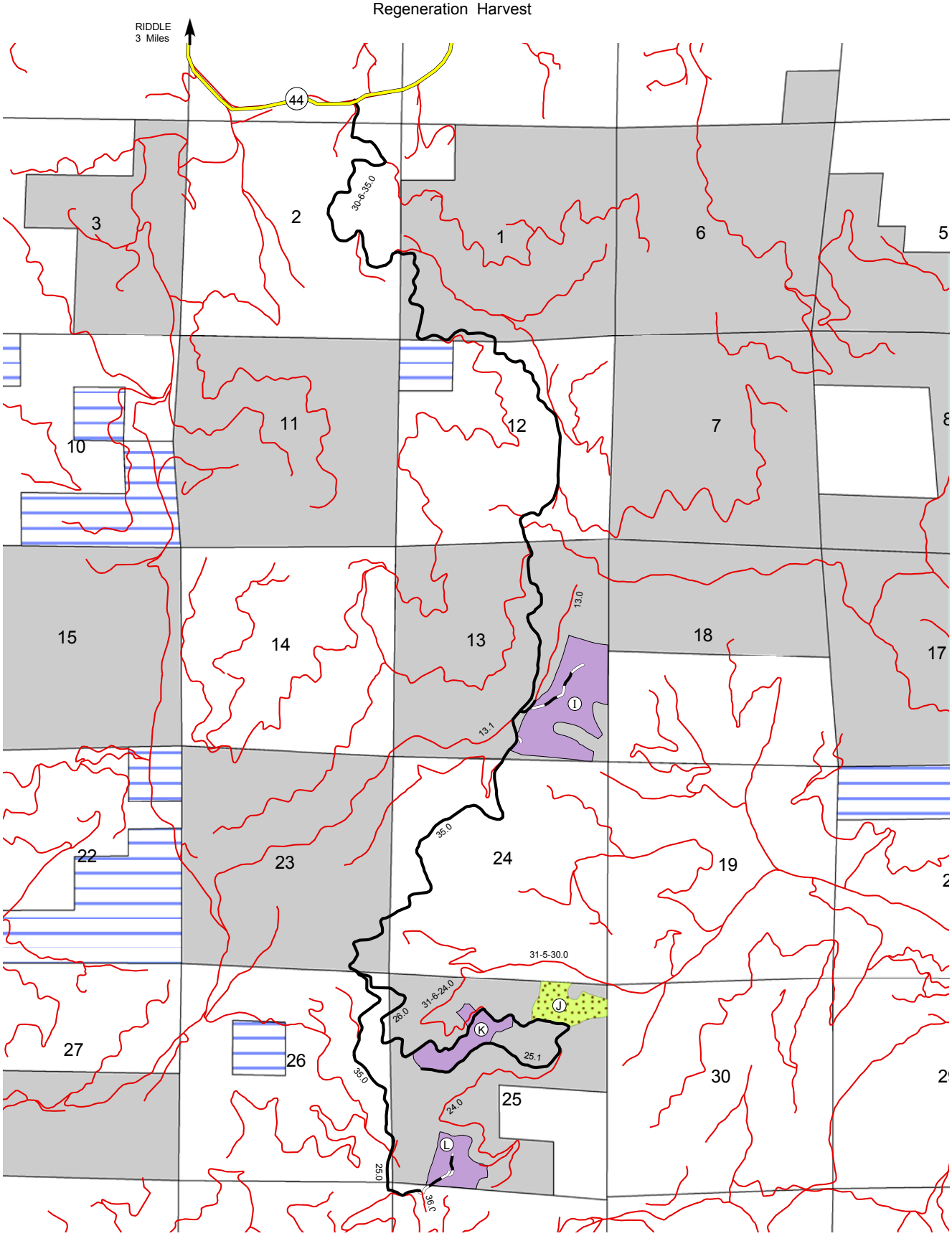
Harvest Area
BLM (PD) Land
BLM (O&C) Land
Non-BLM Land

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

5-5-2004

HI YO SILVER

Regeneration Harvest



N
W E
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T31S R6W
Willamette Meridian, Douglas Co., OR.

0 1 Miles

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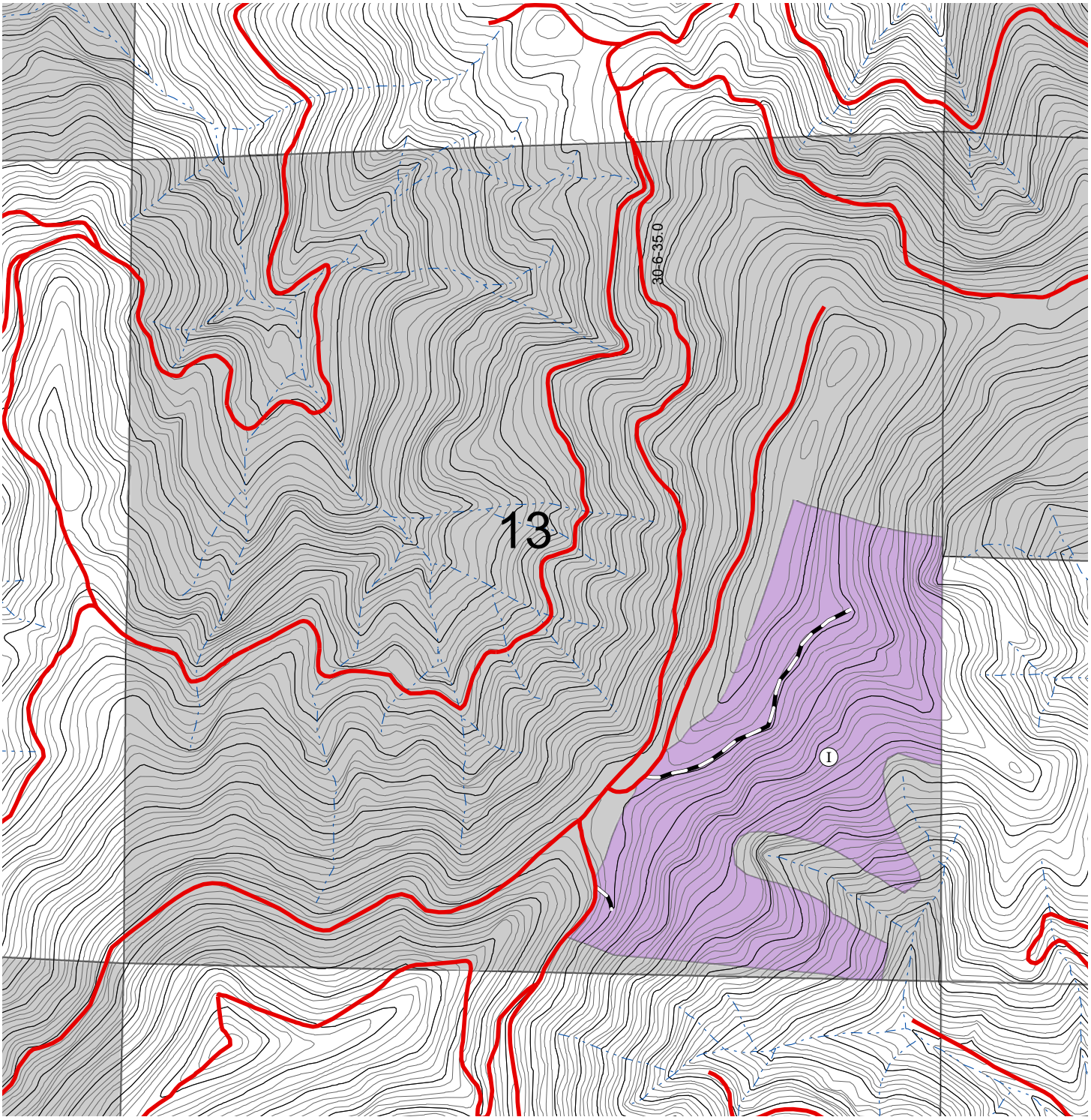
Existing Road
Construct, Permanent Rock
County Highway
Haul/Access Road

Harvest Area
Considered / Eliminated Area
BLM (O&C) Land
BLM (PD) Land
Non-BLM Land

4-14-2004

HI YO SILVER

Regeneration Harvest



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Feet

N
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S

T31S R6W
Willamette Meridian, Douglas Co., OR.

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

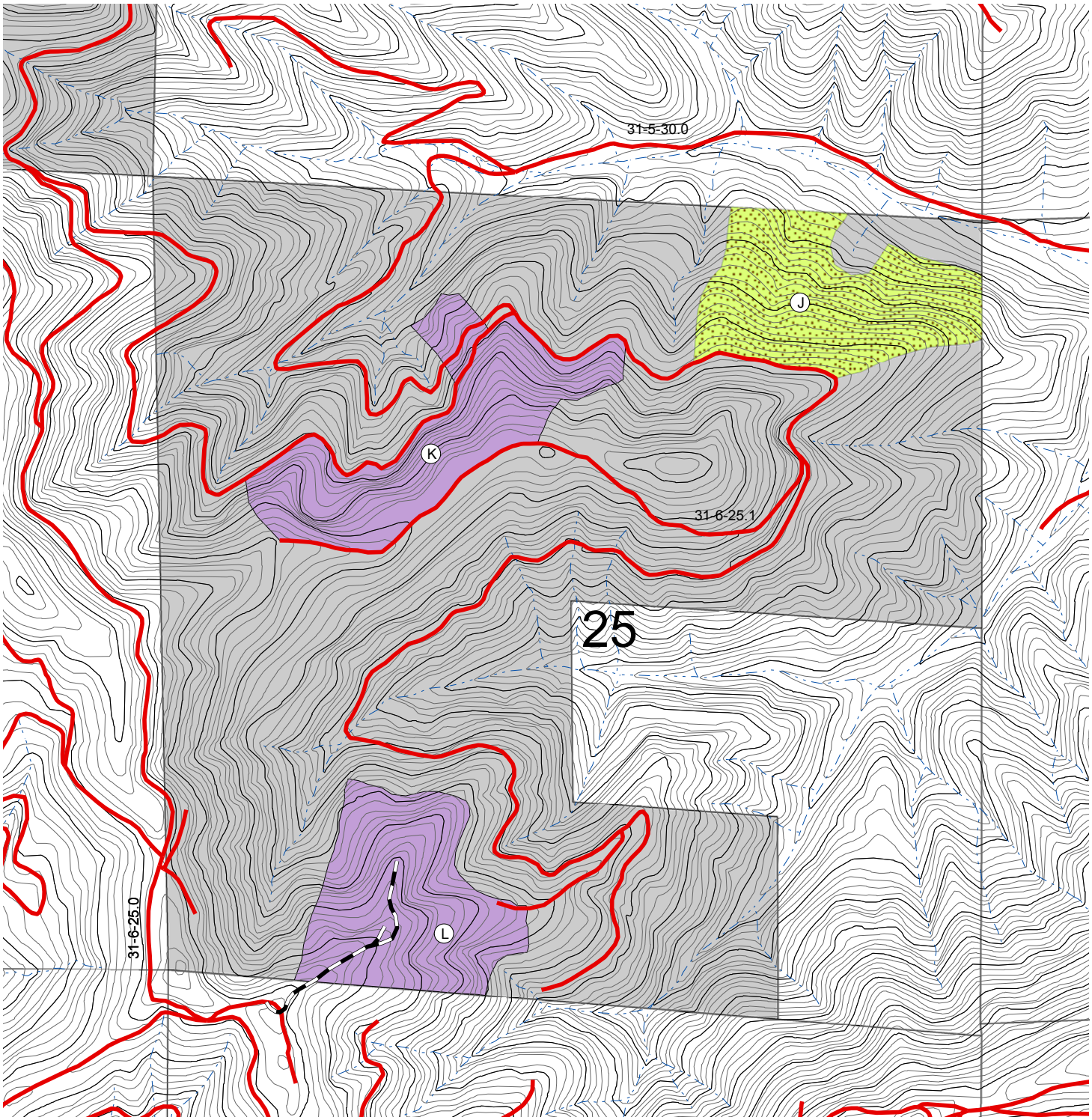
Existing Road
Construct, Permanent Rock
Stream
100' Contour
20' Contour

Harvest Area
BLM (O&C) Land
Non-BLM Land

4-14-2004

HI YO SILVER

Regeneration Harvest



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T31S R6W
Willamette Meridian, Douglas Co., OR.

1,000 0 1,000 Feet

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

Existing Road
Construct, Permanent Rock
Stream
100' Contour
20' Contour
Harvest Area
Considered / Eliminated Area
BLM (O&C) Land
Non-BLM Land

4-14-2004

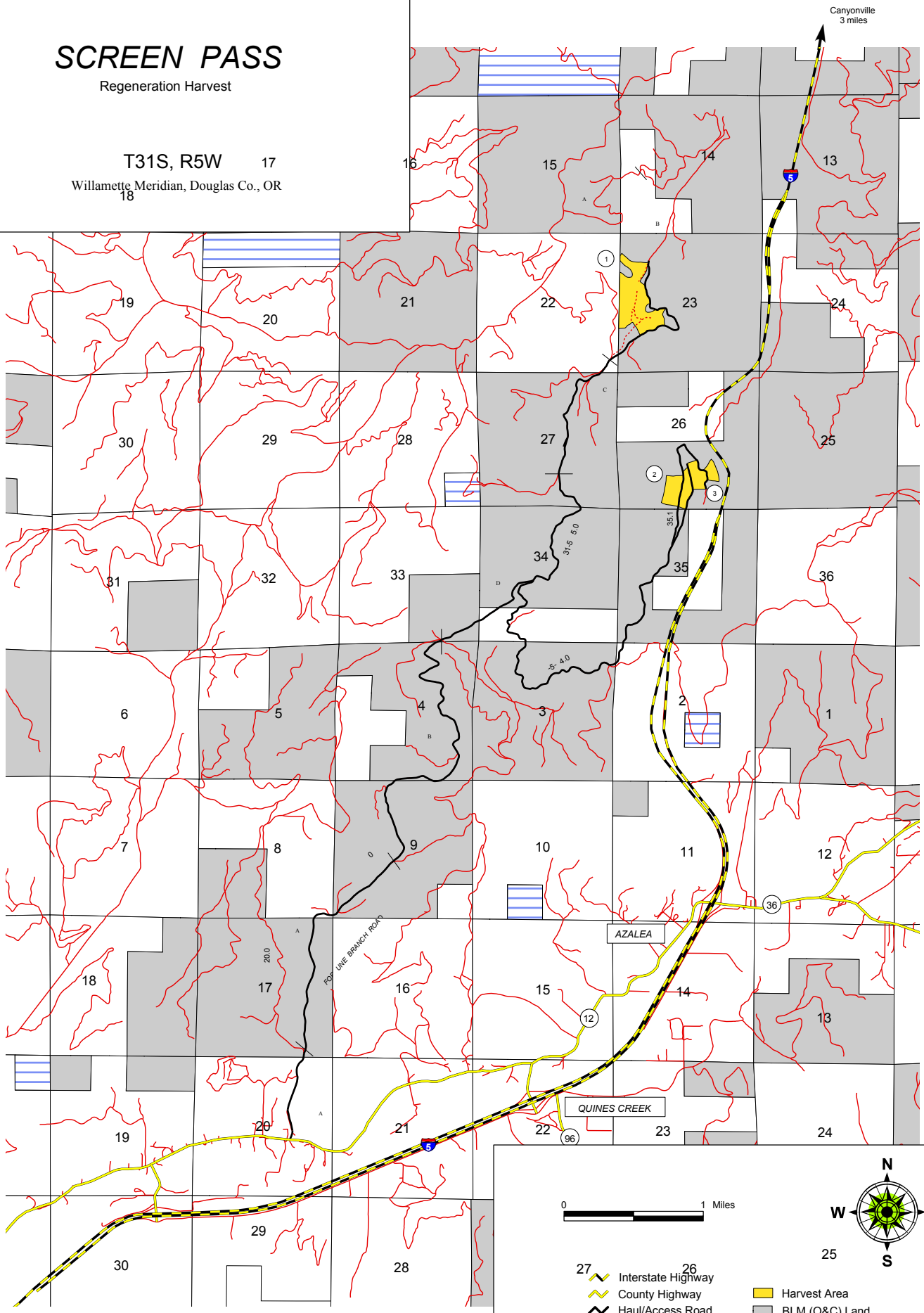
Can Can E.A.

SCREEN PASS

Regeneration Harvest

T31S, R5W

Willamette Meridian, Douglas Co., OR



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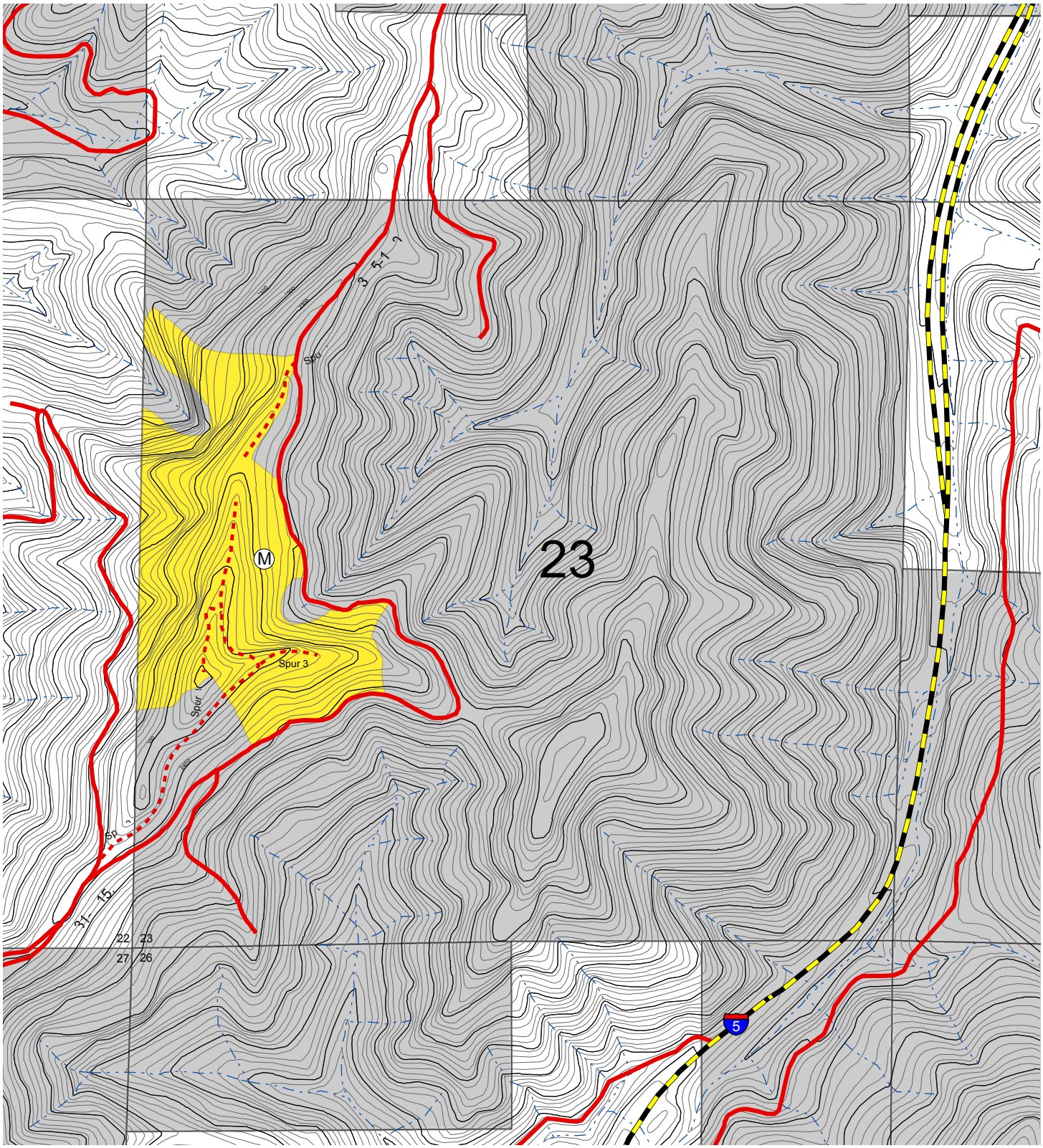
SCREEN PASS

Regeneration Harvest



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T31S, R5W

Willamette Meridian, Douglas Co., OR

0 1,000 Feet

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

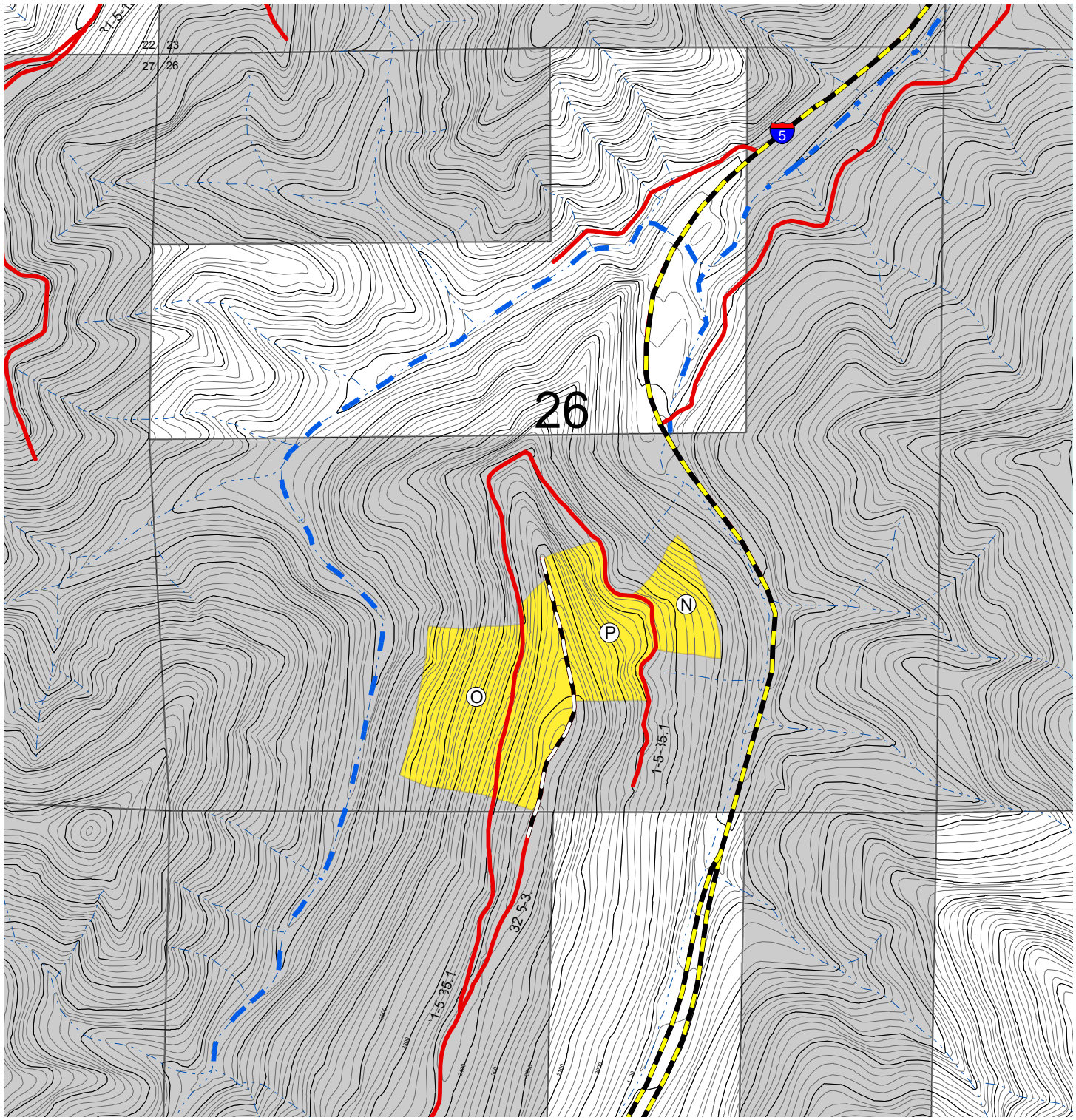
Interstate Highway
Existing Road
Construct, Decommission
Stream
20 ft. Contour Line
100 ft. Contour Line

Harvest Area
BLM (O&C) Land
Non-BLM Land

5-26-2004

SCREEN PASS

Regeneration Harvest



N
W E
S

T31S, R5W

Willamette Meridian, Douglas Co., OR

0 1,000 Feet

Interstate Highway
Existing Road
Renovate, Permanent/Rock
Stream
Fish Bearing Stream
20 ft. Contour Line
100 ft. Contour Line

Harvest Area
BLM (O&C) Land
Non-BLM Land

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

5-25-2004

Appendix E

Status of Regeneration Harvest Authorized In the Connectivity/Diversity Block Land Use Allocation on the Roseburg District FY 1995-2004

Sale Name	FY Sold	Acres in Connectivity/Diversity Block Allocation	Current Sale Status
Right View	1995	32	Harvested
High Noon	1996	40	Harvested
Red Top Salvage I	1997	123	Harvested
Buck Fever	1998	67	Unawarded
Class of 98	1998	22	Unawarded
Dream Weaver	1998	26	Unawarded
Christopher Folley	1999	63	Unawarded
Final Curtin	1999	36	Unawarded
Cow Catcher	2003	27 (Unit 4)	Harvested
Cow Catcher	2003	54 (Unit 5)	Enjoined
Total		490	

APPENDIX F

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order.

These resources or values are either **not present** or **would not be affected by the proposed actions or alternative**, unless otherwise described in this EA. This negative declaration is documented below by individuals who assisted in the preparation of this analysis.

ELEMENT	NOT PRESENT	NOT AFFECTED	IN TEXT
Air Quality		X	X
Areas of Critical Environmental Concern	X		
Cultural Resources		X	X
Environmental Justice		X	
Farm Lands (prime or unique)	X		
Floodplains	X		
Invasive, Non-native Species		X	X
Native American Religious Concerns	X		
Threatened or Endangered Wildlife Species			X
Threatened or Endangered Plant Species		X	X
Wastes, Hazardous or Solid	X		
Water Quality, Drinking/Ground		X	X
Wetlands/Riparian Zones		X	
Wild & Scenic Rivers	X		
Wilderness	X		
Visual Resource Management		X	X