COW CATCHER TIMBER SALE

Environmental Assessment
OR-105-98-05

South River Field Office
Roseburg District Bureau of Land Management

U.S. Department of the Interior, Bureau of Land Management
Roseburg District Office
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Chapter 1
PURPOSE AND NEED FOR ACTION

Background

The South River Field Office of the Roseburg District, Bureau of Land Management (BLM), proposes to prepare and offer for harvest an estimated 3.7 million board feet of timber, equivalent to approximately 5,920 hundred cubic feet (CCF). The project area consists of 155 acres located in Sections 5, 7, 9 and 17 of T. 31 S., R. 6 W., W.M. The acreage would be roughly split between the General Forest Management Area (GFMA) and Connectivity/Diversity Block land use allocations. These allocations comprise the Matrix lands, as designated by the Roseburg District *Record of Decision and Resource Management Plan* (USDI, BLM 1995a (ROD/RMP)).

The project area is the Riddle subwatershed within the Lower Cow Creek watershed. Proposed units were selected through a screening process that considered wildlife, fisheries and hydrology concerns, as described in the Cow Creek Watershed Analysis (USDI, BLM 1997). Watershed analysis (WA, p. 108) ranked this subwatershed as most preferable for timber harvest from both fisheries and water quality perspectives.

Purpose

The ROD/RMP (p. 33) designated the Matrix lands to "Produce a sustainable supply of timber and other forest commodities." Timber harvest would be conducted on suitable forest lands within the Matrix in accordance with the management actions/direction, and Best Management Practices contained in the ROD/RMP.

This environmental assessment (EA) will provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). It will consider the environmental consequences of the proposed action and no action alternatives, and consistency with the analysis of impacts contained in the Roseburg District *Proposed Resource Management Plan/Environmental Impact Statement* (USDI, BLM 1994 (PRMP/EIS)).

Need

There is a need for the proposed timber sale, in order to meet the Roseburg District's declared objective for an annual allowable sale quantity (ASQ) of 45 million board feet (ROD/RMP, p. 8). The sale is also needed to contribute toward the socioeconomic objectives of the PRMP/EIS (Vol. 1, p. xii) which estimated that BLM programs (including timber sales) would support 544 jobs and provide $9.333 million in personal income annually during the life of the plan.

Direction contained in the PRMP/EIS (p. 2-41) is to "Plan and design forest management activities to produce a sustained yield of products to support local and regional economic activity. A diversity of forest products (timber and nontimber) will be offered to support large and small commercial operations and provide for personal use."

The proposed timber sale is also needed to meet the requirements of the O&C Act which 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.

Implementation would conform to management direction from the ROD/RMP, as amended by the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 2001). The ROD/RMP incorporates the analysis contained in the PRMP/EIS. The PRMP/EIS incorporates the standards and guidelines of 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)) and the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 1994b (ROD)). The FSEIS and ROD constitute what is commonly known as the Northwest Forest Plan.

Chapter 2
DISCUSSION OF ALTERNATIVES

This chapter describes basic features of the alternatives analyzed in this document.

I. Alternative 1 - No Action

The stands proposed for harvest are allocated to the Matrix where the majority of timber harvest and silvicultural activities are authorized and scheduled to occur under management direction from the ROD/RMP. Under this alternative harvest of these stands would simply be deferred to a future date. Other forest stands in the Matrix allocations would be analyzed for timber harvest in order to meet the ASQ and socioeconomic objectives of the ROD/RMP and PRMP/EIS.

There would be no new road construction or road renovation. Opportunities to correct drainage problems and reduce sediment associated with both surfaced and unsurfaced roads would not be undertaken at this time. Proposed decommissioning to reduce overall road density in the watershed would not be undertaken either. The consequences of these actions would require separate environmental documentation, decisions and alternative funding at some future date.

II. Alternative 2 - Proposed Action

Under this alternative, five units comprising approximately 155 acres of timber would be prepared and offered for sale.

Riparian Reserves would be established on all intermittent and perennial streams based on a site-potential tree height of 160 feet for the Lower Cow Creek watershed. There are no fish-bearing streams within or adjacent to any of the proposed timber sale units, so all Riparian Reserves would be based upon a single site-potential tree height. Timber would be directionally felled away from Riparian Reserves to protect their integrity. No yarding would be authorized within or through the Riparian Reserves.

The calculation of a site-potential tree height of 160 feet is based on the average site index computed from inventory plots located throughout the watershed analysis unit (WA, p. 38), on forest lands capable of supporting commercial timber stands.

Retention trees would be selected to proportionately reflect the conifer species composition and the full range of diameter classes greater than 20 inches in diameter at breast height (DBH). Tree characteristics suitable for cavity nesters would also be considered in the selection process as a means of supplementing snag numbers. On average, 6 green conifers per acre would be retained in GFMA stands. In Connectivity/Diversity Blocks, 12-18 green conifers per acre would be retained, and up to two large hardwoods per acre where practicable (ROD/RMP, p. 152). In Unit A, California black oak would be retained where possible, particularly those trees greater than 10 inches DBH.

Where sugar pine trees are selected as retention trees, groups of three or four would be selected in close proximity to one another to facilitate pollination. Two sugar pine located in Unit F are components of the District's genetics program and would be reserved as retention trees and buffered with rub trees to reduce the potential for injury during harvest operations.

Worker safety, operational feasibility and potential tree mortality would be considered in selecting and locating retention trees, and reserving snags.

Decay Class 3, 4 and 5 down wood would be reserved under contract stipulations and count toward the requirement for 120 lineal feet per acre of large down wood, post-harvest.

Approximately 12 acres of Unit A would be available for ground-based harvest operations and subject to seasonal operating restrictions described below. The remainder of the sale area would be designated for cable yarding with equipment capable of maintaining one-end log suspension. These areas would be available for harvest during any season.

Ground-based yarding would be restricted to the dry season when soil moisture is low and soil structure is most resistant to compaction (ROD/RMP, p. 131), generally from mid-May until the onset of regular autumn rains in mid-to-late October. Operations would be designed so that primary skid trails and landings would affect less than 10 percent of the area. Main skid trails are those in which mineral soil is exposed on 50 percent or more of the trail's surface area. 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, main skid trails and landings would be subsoiled to reduce compaction and improve soil productivity. Portions of secondary skid trails would also be treated where warranted

Approximately 0.50 miles of an unsurfaced jeep road would be renovated to access a portion of Unit A, then decommissioned and blocked to vehicular access upon completion of site preparation and reforestation activities. Approximately 0.30 miles of semi-permanent roads would be constructed to provide all-season access to Units B, C and E. Semi-permanent roads would be blocked and winterized when not in use, and decommissioned in the first dry season following completion of harvest on the respective units.

Renovation and improvements to existing haul roads, other than those located within proposed units or specifically noted in Table 1, would total approximately four miles, including aggregate surfacing of approximately 1.7 miles of unsurfaced road(s). Other renovation and improvements would include the installation of additional cross-drain culverts, stabilization of road cuts and fills, and other erosion control measures.

Road Nos. 31-6-5.1, 31-6-7.1, and 31-6-7.5, totaling approximately 0.60 miles in length, are proposed for decommissioning subject to the agreement of parties holding access rights under reciprocal rights-of-way agreements.

Units A, B, C and E would be broadcast burned for site preparation, under conditions that would minimize fire intensity and duration. This would limit loss of or damage to snags and retention trees, and minimize the consumption of duff, surface litter and coarse woody debris. Burning in compliance with the directives of the Oregon Smoke Management Plan would result in negligible effects to air quality. Unit F would be hand piled and burned in the fall or winter months during periods of rain, and when soil and duff moisture content is high. All units would be planted and mulched within one year of the completion of site preparation.

Table 1- SUMMARY OF THE PROPOSED ACTION
(All values are approximate)

UNIT	ACRES	LAND USE ALLOCATION	YARDING METHOD (Acres)		ROAD CONSTRUCTION/ RENOVATION (Miles)			SITE PREPARATION	
			cable	ground-based	Semi-permanent (rock)	permanent (rock)	temporary (natural)	broadcast burn	hand-pile burn
A	47	GFMA	35	12			0.54 reno.	X	
B	9	GFMA	9		0.10			X	
C	21	GFMA	21		0.10			X	
E	60	Connectivity / Diversity	60		0.10	1.7 reno.		X	
F	18	Connectivity / Diversity	18						X
Totals	**155**		**143**	**12**	**0.30**	**1.7**	**0.54**		

III. Alternative Actions Considered but Eliminated From Detailed Analysis

Proposed Unit D was deferred from consideration at this time because the stand is dominated by younger trees with a widely scattered overstory of older trees. The area will be managed for the growth and development of the younger stand components and is forecast to be available for regeneration harvest in another 15-to-20 years.

A mid-slope road was proposed to access the portion of Unit E located east of an intersecting ridge. This road would have been extended in the future to access timber in areas located further downslope. Previously unidentified Riparian Reserves substantially reduced the available harvest acreage accessible by the proposed road. Since helicopter yarding is anticipated for future harvest entries elsewhere in the section, it was concluded that construction of the road was unnecessary, and that these isolated areas will be planned for a future helicopter entry. Additional acreage west of the ridge-top was added to Unit E in this analysis, to replace acreage eliminated on the east side.

Road No. 31-6-7.6; an unnumbered road in the southern portion of Unit E, east of the ridge-top road; an unnumbered road in the NE¼ of Section 7 of T. 31 W., R. 6 W.; and an unnumbered road in Section 17 of T. 31 S., R. 6 W., which parallels the north/south property line in the SE¼ of the section were proposed for decommissioning. Upon review, decommissioning these road segments was deemed unnecessary because there were no hydrological concerns, and in some instances the roads have naturally recovered and support trees and other vegetation.

IV. Resources That Would Be 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 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 and tribal governments.

As discussed in the text of this document, cultural resources would not be affected, and no measurable increase or decrease on the introduction or rate of spread of noxious weeds is anticipated.

The BLM is required to consider the impacts of management actions on National Energy Policy. There are no transmission or transport facilities or rights-of-way in the project area. No commercially usable energy sources are known to exist. No permits or rights-of-way for geothermal, solar or wind power generation exist. As a consequence, no adverse effect on energy resources would be anticipated.

Chapter 3
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/Vegetation

There are 118,324 acres in the Lower Cow Creek watershed. Non-forest lands account for 19,043 acres, with the remaining 99,281 acres considered as commercial forest land. In 1997, an estimated 40,486 acres were in late-seral forest (WA, p. 28). Approximately 1,630 acres of non-forest lands and 40,820 acres of forested lands are managed by the BLM. Ninety-nine percent of these lands are managed by the South River Resource Area (WA, p. 4).

The BLM administers 26,774 acres (WA, p. 25), or roughly 66 percent of the remaining late-seral forest in the watershed. Eighty-three percent, or roughly 22,200 acres of these forest lands are allocated as Late-Successional or Riparian Reserves and managed for resource values other than timber. Late-Successional or Riparian Reserves are not scheduled for regeneration harvest, though density management may be applied to younger forest stands within these allocations. Removal of late-seral forest managed by the BLM has been limited to a small number of acres associated with road construction conducted by private timber companies under the terms of reciprocal rights-of-way agreements. Only 3,880 acres BLM-administered timber lands are allocated to the Matrix and considered available for regeneration harvest (WA, p. 104).

Forest stands proposed for harvest are located in the Interior Valleys and Foothill Zone. The stands are generally 110-to-220 years old and composed primarily of Douglas-fir. Other dominant overstory conifers include ponderosa pine, sugar pine and incense-cedar.

Pacific madrone, bigleaf maple and chinkapin are the predominant hardwood species, though as previously noted, Unit A also contains California black oak.

Understory vegetation is generally composed of salal, Oregon-grape, sword fern, poison-oak, various species of manzanita, hazel, bracken fern, evergreen huckleberry, canyon live oak, forbes and grasses. It also contains hardwood and conifer regeneration in varying densities and stages of development.

Sections 9 and 17 are allocated to a Connectivity/Diversity Block. Management objectives include the maintenance of 25-30 percent of the Block as late-successional forest in order to provide dispersal pathways between Late-Successional Reserves (ROD/RMP, p. 34). In Section 9, there are 556 acres of late-successional forest or approximately 88 percent of the 628 acres. In Section 17, there are 225 acres of late-successional forest, or 39 percent of the 649 acres.

II. Wildlife

A. Special Status Species

Special Status Species are those: listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, as amended; candidates or species proposed for listing under the ESA; or designated as Bureau Sensitive or Bureau Assessment. Bureau Sensitive species are eligible for federal or state listing or candidate status as designated under nationwide BLM 6840 policy. Bureau Assessment species are also designated under Oregon/Washington BLM 6840 policy. They are not presently eligible for listing or candidate status under the ESA, but are species of State concern and may require protection or mitigation in the application of BLM management activities.

1. Threatened or Endangered Species

The Federally-endangered Columbian White-tailed deer (*Odocoileus virginianus leucurus*), the Federally-threatened marbled murrelet (*Brachyramphus marmoratum*), bald eagle (*Haliaeetus leucocephalus*), and northern spotted owl (*Strix occidentalis caurina*) are all documented on the Roseburg District.

Bald eagles are known to roost and hunt along Cow Creek and the South Umpqua River during the winter months. Annual inventories by Isaacs and Anthony (2002) between 1971and 2002 have not identified any nesting sites and territories within the South River Resource Area, however. The project area is outside of the historical range of the Douglas County population of Columbian white-tailed deer, and outside of the marbled murrelet management zone. As a consequence, no effects to these species are anticipated and they will not be discussed further in this analysis.

<u>Northern Spotted Owl</u>

The northern spotted owl is known to use forest stands in the project area. Six territorial home ranges overlap proposed timber sale units. An additional site (Brush Creek) has been unoccupied since approximately 1990 and is not considered viable.

Suitable nesting, roosting and foraging habitat for the northern spotted owl is generally characterized by stands with large conifer trees that have large diameter limbs, crown deformities, and large broken tops, limbs, or cavities which would provide nest sites (Forsman 1984; Hershey 1995; Forsman and Giese 1997).

The maximum number of acres of habitat available within a 0.7-mile radius is 985, and 3,398 acres within a 1.3-mile radius. Acres of suitable habitat currently available are summarized in Table 2.

Table 2 - Acres of Available Suitable Habitat for Northern Spotted Owl Territories Overlapping the Project Area

Spotted Owl Site/Master Number	Total BLM Acres within a 1.3 Mile Radius	Suitable Habitat Acres on BLM within a 1.3 Mile Radius
Catching Cr. - 2000	1458	998
*Council Creek. - 1910	1615	928
*Crawford Creek - 4016	365	172
Island Creek - 0301	1619	1051
Rattlesnake Creek - 0300	1549	806
Upper Middle Creek - 0303B	1442	942

* Activity center is located on private lands and does not receive 100-acre activity center.

Proposed Unit E is located within Critical Habitat Unit (CHU) OR-63. This CHU was established by the U.S. Fish and Wildlife Service because of its unique geographical location in the Rogue/Umpqua Area of Concern, where Federal lands provide a link between the Klamath and Coastal Provinces.

There are 10,986 acres in this CHU. Based on 1998 data, 47 percent of the CHU, or 5,129 acres may be described as suitable habitat capable of providing essential nesting, roosting and foraging opportunities. The portion overlapping the Lower Cow Creek watershed contains 3, 810 acres of suitable habitat.

2. Candidate or Proposed Species

There are no terrestrial species documented on the Roseburg District that are currently proposed for listing, or candidates for listing under the Endangered Species Act.

3. Bureau Sensitive Species

A Del Norte salamander (*Plethodon elongatus*) site was located in the southeast quadrant of Unit A near an abandoned jeep road, in 1998. The site is partially overlapped by a Riparian Reserve. The amended Standards and Guidelines for Survey and Manage (p. 49) have designated the species as uncommon, as opposed to rare. Long-term persistence of the species can be achieved only a portion of known sites managed. To this end, sites located prior to September 30, 1999, would continue to be protected and managed.

The project area is within the geographic range of the northern goshawk (*Accipiter gentilis*), which are known to utilize a variety of different forest types for hunting. Older forest stands are typical of the type of habitat used for nesting (Marshall 1998). The project area was evaluated and surveyed for the presence of nesting goshawks. The results of the surveys were negative. As a consequence, no effects would be anticipated and the species will be discussed no further in this analysis.

B. SEIS Special Attention Species

These are species designated for protection under Survey and Manage standards and guidelines in the Northwest Forest Plan as amended by the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*, and incorporated into the Roseburg District ROD/RMP.

Species documented on the Roseburg District or adjoining administrative units with a reasonable possibility of occupying the project area include the great gray owl (*Strix nebulosa*) and the red tree vole (*Arborimus longicaudus*).

Survey protocols for the great gray owl specify that the area be above 3,000 feet in elevation and within 1,000 feet of natural meadows larger than 10-acres in size. These habitat features are absent, so the project area is not considered to be suitable habitat. As a consequence, pre-disturbance surveys are not required, and the great gray owl will not be discussed further in this analysis.

The red tree vole is an arboreal rodent that primarily inhabits Douglas-fir where it nests and feeds, though it has been known to feed on the needles of other conifers, including western hemlock, Sitka spruce and true firs. Red tree voles are known to utilize stands in the project area. A partial survey of the project area was conducted in January, 2000, but was not completed to protocol. A single occupied nest tree was located in Unit A.

Based upon data considered in the 2001 Annual Species Review for Survey and Manage, requirements for pre-disturbance surveys were modified. Within the central portion of the vole's distribution range, an area including the Roseburg District, range of habitat types, available habitat and the number of vole sites identified were sufficient to remove concerns for species persistence in this portion of the range. The requirement for pre-disturbance surveys was removed, but management of known sites is to continue.

On May 1, 2003, the previously identified nest tree was revisited, but no nest was observable from the ground. An adjacent tree was climbed and no nest remains could be observed. The site was on the edge of a clearcut on adjacent private lands. It is assumed that the nest was blown out of the tree by winds. Absent any nest, no habitat management area will be established, and the red tree vole will be discussed no further in this analysis.

III. Fish and Essential Fish Habitat

A. Aquatic Habitat Conditions

Aquatic habitat surveys by the Oregon Department of Fish and Wildlife (1994), Lower Cow Creek WA (USDI, BLM 2002), and observations by BLM fisheries biologists form the basis for describing current aquatic habitat conditions at the 5th-field watershed level. Owing to the small spatial extent of the timber sale and the more immediate potential affect at the project level, habitat conditions of 7th field drainage, Council Creek, have also been included.

- **Habitat access** evaluates physical barriers that restrict or eliminate access by fish to historically available habitat. Habitat access in the watershed is considered poor (ODFW 1994) and is most closely associated with improperly installed or functioning culverts on stream crossings.

  There are no fish-bearing streams in the immediate project area. The only fish-bearing stream is Council Creek. Access is considered good because, in 1995, the Roseburg District retrofitted a culvert beneath BLM Road No. 31-6-5.0, installing log weirs and an offset baffle system within the pipe which successfully restored access for adult and juvenile salmonids.

- The condition of **substrat**e, or spawning gravel for salmonids (coho salmon, steelhead, and cutthroat trout) is assessed as fair (ODFW 1994) and is primarily the result of fine sediments embedded in the gravels. Sediment originates from many sources, including mining, timber harvest, road building & use, and agricultural activities. Council Creek substrate conditions appear to be similar, if not slightly better, than those assessed at the 5th -field level. ODFW data equates the percentage of fines (4 percent) and gravel composition (32 percent) as "good" for habitat benchmarks. However, observations by BLM fisheries biologists in 2002 indicate this same reach is moderately embedded with 9-10 percent fines. Intermittent tributaries downstream of road culverts connected to road drainage ditches are more severely embedded with up to 20 percent fines. Headwater streams within or adjacent to proposed units do not display these conditions because accumulations often only occur in low gradient reaches located well downstream from the project area.

- Stream **pools** provide crucial habitat for juvenile anadromous and resident fish. These pools also harbor many prey species on which juvenile fish feed. Pool frequency and quality within the watershed as well as the Council Creek drainage are considered poor. Factors affecting the quality of pools include sediment, cover, pool size and depth, and availability of large wood. As described in greater detail below, there is no basis on which to conclude that there is a lack of large wood affecting the numbers and quality of stream pools in Riparian Reserves within the proposed timber sale units.

- **Large woody debris** (LWD) consists of downed trees and logs that provide cover, reduce stream velocities, promote meander and create off-channel habitat, collect and hold beneficial substrates (gravel), and provide long-term sources of organic materials and nutrients. It is considered deficient at the 5th-field level because of past timber management practices on Federal lands, and harvest on private lands where logs were and may still be salvaged from streams.

  Riparian Reserves within proposed timber sale units have not been previously entered for salvage or other timber harvest. Current amounts of LWD in streams adjacent to the units (7th field scale) fall within the natural range of loading for streams with high gradients of 7-14 percent. Forest stands in the Riparian Reserves are generally 120-years of age or greater and would provide LWD for the long term.

- **Off-channel habitats** are areas adjacent to streams that may include beaver ponds, side channels, and backwaters. Juvenile salmonids, particularly coho salmon, seek refuge in these areas during winter storms and summer heat. These areas may provide reservoirs of water to maintain stream flow and moderate fluctuations in water temperature during periods of low flows. They also provide shade to moderate water temperatures during the summer, and provide habitat for a variety of terrestrial and aquatic wildlife that include prey for juvenile salmon. Function the 5th-field watershed level is considered poor for reasons similar to those for LWD.

  Riparian Reserves within the proposed timber sale units consist of mature and undisturbed riparian forest, but because of the high gradients of the tributaries, off-channel habitat is absent on these small streams. Upper reaches of Council Creek contain off-channel habitat and refugia that are in good condition and representative of the project site level.

B. Special Status Species

The National Marine Fisheries Service designated the Oregon Coast coho salmon (*Oncorhynchus kisutch*) ESU as threatened (Federal Register 1998a Vol. 63, No. 153), and proposed the Oregon Coast steelhead (*O. mykiss*) ESU as a candidate for threatened species designation (Federal Register 1998b Vol. 63, No. 53).

Critical habitat for the Oregon Coast coho salmon was defined, under provisions of the Endangered Species Act of 1973, as amended, as all river reaches accessible to listed stocks of coho salmon utilizing coastal streams south of the Columbia River and north of Cape Blanco, excluding areas below specific dams, none of which are located within the vicinity of the project area (Federal Register 2000a Vol. 65, No. 32). NOAA Fisheries approved a consent decree, which withdrew the Critical Habitat designation for Oregon Coast coho salmon on May 7, 2002.

The Umpqua River cutthroat trout (*O. clarki clarki*) was previously listed as endangered by the National Marine Fisheries Service. The listing was withdrawn on April 19, 2000, with concurrence from the U.S. Fish and Wildlife Service (Federal Register, Vol. 65, No. 81), on the determination that it was not a unique Evolutionary Significant Unit (ESU), but a part of the larger Oregon Coastal cutthroat trout ESU. The National Marine Fisheries Service subsequently determined the entire ESU warranted candidate status (Federal Register 1999 Vol. 64, No. 64), and transferred jurisdiction on final listing and responsibility for consultation to the U.S. Fish and Wildlife Service (Federal Register 2000b Vol. 65, No.78). Candidate status is still under review.

Bureau Sensitive species present in the watershed, but not within the project area, include the Pacific lamprey (*Lampetra tridentate*) and Umpqua chub (*Oregonichthys alawatseti*). Distribution of these species in the watershed is largely unknown, but it is assumed that the protection afforded to listed species and aquatic habitat would address any concerns that would exist relative to these two species.

C. Essential Fish Habitat

Essential Fish Habitat (EFH) is designated by the Magnuson-Stevens Fishery Conservation and Management Act of 1996 as habitat this is currently or was historically available to Oregon Coast coho and chinook salmon (*O. tshawytscha*) (Federal Register 2002 Vol. 67, No. 12). There is no EFH adjacent to any of the proposed timber sale units. The nearest EFH is located downslope and approximately 0.35 miles of Unit E.

IV. Water Quality/Resources

Mean annual precipitation for Riddle, Oregon, as measured over the past 50 years at the National Oceanic and Atmospheric Administration weather station, is approximately 32 inches. In the project drainages it is estimated to be in the range of 35-55 inches. Precipitation occurs primarily as rain, though some may fall as snow in the Transient Snow Zone (TSZ), between 2,000 and 5,000 feet in elevation. On average, 85 percent of the precipitation occurs between October and April. Summer months are characterized by extremely low base flows that generally result in headwater streams going dry.

Peak Flows and the Transient Snow Zone

Research indicates timber harvest in the TSZ can contribute to higher than normal peak flows (Harr and Coffin 1992). This may occur when snow accumulations in openings created by timber harvest are rapidly melted by warm rain-on-snow events.

To assess the present risk of increased peak flows, the project drainages were evaluated using a model developed for the Oregon Watershed Assessment Manual (Watershed Professional Network 1999 p. IV-11). The model predicts peak flow enhancement, proportional to the percentage of land base in a drainage that is within the TSZ and the percentage of lands in the TSZ with less than 30 percent crown closure. Table 3 illustrates the present condition and predicted relative risk for peak flow enhancement within the project drainages.

Table 3 – Risk of Increased Peak Flows from Existing Harvested Area

Drainage (7^{th} field)	*Drainage Acres in TSZ (acres)	*Percent of Drainage Area in TSZ	*Current Area in TSZ with < 30 percent crown closure	Risk of peak flow Enhancement
Council Creek	1063	38	13	Low
Beatty Creek	610	20	15	Low
Catching Creek	1244	37	<5	Low
Island Creek	857	42	9	Low

* Approximate values from GIS and 1999 aerial photos

The Oregon Department of Environmental Quality (ODEQ) has established water quality standards designed to protect the most sensitive beneficial use of each water body. Water bodies that do not meet established standards are placed on the state's 303(d) list as Water Quality Limited (ODEQ 1998). There are no streams listed within the project area.

Sediment

There are no streams listed as impaired by of fine sediment, though Council Creek was observed to have moderate levels. The most probable source is surface erosion of skid trails and roads adjacent to the creek.

All of the roads constituting the proposed haul routes are located in the Council Creek drainage or adjacent ridges, and comprise about one-third of the mid-slope roads in the drainage. Field inspection revealed that road drainage was being diverted into several tributary crossings. This includes three small tributaries to Council Creek located along Road No. 31-6-5.0. Deposits of fine sediment from the road surface and ditch lines were observed at these crossings. The road also crosses several small tributaries that serve as principal road drainage.

V. Soils

Soils throughout the area range from shallow (10 to 20 inches) to very deep (greater than 60 inches) over fractured sedimentary bedrock. Soils are primarily sedimentary with some minor volcanic components. Soils range from poorly drained to well drained and are generally loamy in texture with gravel and rock fragments. No granitic, serpentine or hydric soils were identified in the immediate project area, though there are scattered occurrences in the watershed (WA, p. 52).

Portions of Units A, B, E and F, representing approximately 25 acres or 20 percent of the total unit acres, are considered steep with slopes in excess of 70 percent and classified as Category 1 for susceptibility to adverse effects from broadcast burning for this reason.

VI. Vascular and Non-Vascular Plants

A. Special Status Species

Criteria for designating vascular plants as Special Status Species are identical to those for for wildlife. Surveys were conducted for the following species, with negative results.

Kincaid's lupine	*Lupinus sulphureus var. kincaidii*	Federally-threatened
Wayside aster	*Aster vialis*	Bureau Sensitive
Clustered lady's-slipper	*Cypripedium fasciculatum*	Bureau Sensitive

B. SEIS Special Attention Species

Based on the available habitat, surveys were conducted for the following list of species.

Bryophytes
Rhizomnium nudum
Tetraphis geniculata
Ulota megalospora

Lichens
Hypogymnia duplicata
Lobaria linata
Pseudocyphellaria rainierensis

Fungi
Aleuria rhenana
Bondarzewia montana
Otidea leporina
Otidea onotica
Otidea smithii
Polyozellus multiplex

Vascular Plants
Cypripedium montanum
Astragalus umbraticus

Mountain lady-slipper (*C. montanum*) was located in Unit A, and woodland milk vetch (*A. umbraticus*) in Unit F.

VII. Air Quality/Rural Interface

The proposed project area is located approximately 20 miles south by southwest of Roseburg, a Designated Area for smoke management purposes. The City of Riddle is located approximately six miles northeast of the project area and is not within a Designated Area.

There are no lands zoned as R-5 for 1-5 acre residential properties located within 3-mile of any proposed units. As a consequence, there are no special urban/rural interface management considerations, and it will not be discussed further in this analysis.

VII. Cultural Resources

Two sites of potential historical value were identified. A hydraulic mining ditch is located in Section 5 in proposed Unit A, within a Riparian Reserve. There would be no entries into the Riparian Reserve for timber harvest or road construction that could disturb the ditch.

An old wagon road that once provided local access to Middle Creek passes through proposed Unit E in Section 9. It was determined not to be of historical significance. Concurrence on these determinations was received from the Oregon State Historic Preservation Office and cultural resources will not be discussed further in this analysis.

IX. Recreation and Visual Resources

The proposed project area does not contain any potential or known recreational resources or values of a unique nature which would require special consideration or protection. The proposed project area is located on lands designated in the ROD/RMP as Visual Resource Management (VRM) Category IV which allows for extensive modifications to the landscape. As a consequence, no effects on these resources are anticipated and they will not be discussed further in this analysis.

X. Noxious Weeds

Noxious weeds are a problem throughout the United States. The BLM Oregon State Office reported that the acreage of infestation nationwide increased between 1985 and 1991 at the average rate of 14 percent per year. Exact figures on the extent of infestation on the Roseburg District are not available, but an assumed annual increase of 14 percent would represent at least 1,000 acres as described on page 7 of the *Roseburg District Integrated Weed Control Plan and Environmental Assessment* (USDI, BLM 1995b).

The Oregon Department of Agriculture (ODA) has developed a rating system for noxious weeds comparable to that contained in BLM Manual 9015 - Integrated Weed Management. The ODA Noxious Weed Rating System designates weeds as types "A," "B," and "T," which are equivalent to types "A," "B," and "C" described in BLM Manual 9015 - Integrated Weed Management.

> Type "A" weeds are of known economic importance which occur in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.
>
> Type "B" weeds are of economic importance which are regionally abundant, but of limited distribution in some counties. Where implementation of a fully-integrated statewide management plan is infeasible, biological control shall be the main approach.
>
> Type "T" weeds are designated by the State Weed Board as target weed species on which the ODA will implement a statewide management plan.

The Roseburg District's strategic plan for dealing with noxious weeds is tiered to the *Northwest Area Noxious Weed Control Program Environmental Impact Statement* (USDI 1985) and *The Supplemental Record of Decision for the Northwest Area Noxious Weed Control Program* (USDI, BLM 1987).

Examples of noxious weeds suspected or previously documented in the project area include but are not necessarily limited to:

"A" Noxious Weed	"**B" Noxious Weeds**	**"T" Noxious Weeds**
Woolly distaff thistle	Bull thistle	Yellow starthistle
Purple starthistle	Canada thistle	Woolly distaff thistle
	Rush skeletonweed	Rush skeletonweed
	Scotch broom	

Implementation of the *Integrated Weed Control Plan* by the District is ongoing in an effort to prevent or reduce rates of spread of weed populations. Efforts include control of target species in areas in which management activities are planned, and the implementation of management practices aimed at reducing the potential for spread to uninfected areas or establishing conditions favorable for weed germination. These measures have included mowing, limited herbicide applications, washing of heavy equipment used in logging and road construction, seeding and mulching of exposed soil, and revegetation of disturbed areas with indigenous plant species. As a consequence, increases or decreases in local populations of noxious weeds are anticipated to be negligible regardless of the alternative selected, and no further discussion of noxious weeds is necessary in this analysis.

Chapter 4
ENVIRONMENTAL CONSEQUENCES

This chapter discusses how the specific resources identified in the previous chapter would or would not be affected in the short term and long term, by implementation of the alternatives contained in this analysis. The discussion also identifies potential impacts or consequences that would be expected.

I. Alternative 1 - No Action

The "no action" alternative is analyzed as a comparison to the action alternative as a basis for determining if there are any effects beyond those analyzed in the Roseburg District PRMP/EIS.

Under this alternative, no harvest would occur in the proposed project area. This would not meet the need for action described in Chapter 1 (pp.1-2) of this assessment, because it would not meet the ROD/RMP objective of producing a sustained supply of timber and other forest commodities that would contribute to the local economy. It would also fail to meet the legislative requirement of the O&C Act to manage these lands for a sustainable supply of timber.

As a consequence, other forest stands in the Matrix allocations would be analyzed for harvest to meet the objectives of the Roseburg District ROD/RMP and requirements of the O&C Act.

A. Timber/Vegetation

Individual trees would continue to mature and age, exhibiting an eventually decline in rate of height growth and crown expansion, even though limited photosynthesis and diameter growth would continue. As the vigor of individual trees declines they would become more susceptible to attack from insects and disease, and more prone to wind throw or damage.

Small canopy gaps and openings would form as periodic mortality of individual trees or groups of trees occurs. Surrounding overstory and understory trees would then occupy the newly available growing space created by the canopy gaps (Oliver and Larson 1996). Openings that have occurred in these stands in the past are stocked with trees 30-to-40 years of age.

Once growing space is fully occupied, increased competition between individual trees would result in mortality or suppression of a portion of the trees. Forest fuels composed of branches, needles, dead and suppressed trees would accumulate on the forest floor, increasing the risk of fire. When coupled with conditions of drought and extreme weather conditions, this could result in catastrophic fire of a stand replacing nature.

B. Wildlife

This alternative would have no direct effects on any species occupying BLM-managed lands in the project area, or on habitat that they may utilize. Potential effects would be deferred to a future time when the stands are rescheduled for harvest. In the near term, other Matrix stands would be analyzed for harvest. Effects to wildlife and habitat would occur in these areas, consistent with the assumptions and analysis of the PRMP/EIS.

1. Threatened or Endangered

Northern Spotted Owl

This alternative would not directly affect northern spotted owls. Suitable habitat provided by BLM-managed lands would remain relatively unchanged until such time as a future harvest entry is made or a natural disturbance occurs.

Designated Critical Habitat for the Northern Spotted Owl

This alternative would have no effect on the intended function of Federally-managed lands within CHU OR-63. Barring other disturbances, there would be reduction or modification in levels of suitable habitat. In the longer term, younger stands in the CHU would continue to develop and mature a greater abundance and quality of dispersal and foraging habitat, and a gradual increase in the amount of suitable habitat.

2. Bureau Sensitive

Del Norte salamander

The Del Norte salamander site in Unit A would not be directly affected because there would be no disturbance of current habitat conditions. Indirect effects could arise from continued casual use of the abandoned jeep road which would not be blocked under this alternative.

C. Fish and Essential Fish Habitat

Under this alternative, there would be no timber harvest, log hauling, road renovation, road construction and road decommissioning. As a consequence, there would be no direct effects to anadromous or resident fish, aquatic habitat, or EFH located downstream of the project area.

Fish and habitat downstream of the project area would continue to be indirectly and cumulatively affected by actions on privately-managed forest and agricultural lands. These activities would likely include harvest of riparian forest, run-off from fields and pastures, and run-off from unsurfaced roads and tractor skid trails.

The use of unsurfaced roads in the watershed, particularly during periods of wet weather, would continue to generate sediments. These would be concentrated by improperly functioning road drainage systems rather than dispersed across the landscape where they would be filtered out before reaching active waterways. The effect would be continued degradation of water quality and spawning substrates, and impairment of feeding and rearing conditions for fish other aquatic wildlife, and continued degradation of EFH.

D. Water Quality/Resources

This alternative would have no direct affect on water quality in the project area or at the watershed level. Forest stands in the project area would continue to provide shade to streams, moderating summer water temperatures at the project level. Elevated water temperatures would persist at the watershed level due to a lack of streamside shading on agricultural lands and recently harvested private forest lands. Allotted water withdrawals would continue to deplete the normal low summer flows, contributing to elevated summer water temperatures.

Excess fine sediment would persist as a result of erosion from unsurfaced roads, improperly installed or failing culverts, and a lack of sufficient cross drainage.

Though not measurable at the drainage scale, roads proposed for renovation or decommissioning would retain a potential for increasing the magnitude of peak flows by extending the drainage network.

E Soils

Under this alternative, there would be no direct effects to soils in the project area at this time, as harvest would be deferred to a future date. Effects to soils would occur in conjunction with other Matrix stands selected for timber harvest. These could include displacement of the surface horizons, compaction, and surface erosion in association with road construction, renovation and decommissioning, as well as harvest operations.

There would be no road renovation in the project area that would reduce or eliminate erosion of natural surface roads and unstable fill and cut slopes.

There would be no broadcast burning for site preparation, either. Potential reductions in duff and surface litter, and exposure of mineral soil associated with prescribed burning would occur in other Matrix stands where site preparation is employed.

F. Air Quality

This alternative would not have any affect on air quality in the project area, because there would be no prescribed burning for site preparation. Potential impacts associated with prescribed burning would occur elsewhere in the Resource Area, in association with site preparation following timber harvest on other suitable forest lands within the Matrix.

II. Alternative 2 - Proposed Action

This alternative would meet the need for action described in Chapter 1 (p.1) of this assessment. The proposed harvest would contribute an estimated 3.7 million board feet or 5,920 CCF of timber toward the Roseburg District's stated objective of an annual allowable sale quantity. This would be consistent with ROD/RMP objectives for producing a sustained supply of timber and other forest commodities that would contribute to the local economy. It would also be consistent with the requirement of the O&C Act to manage these lands for a sustainable supply of timber.

A. Timber/Vegetation

The proposed harvest of 155 acres would represent approximately 4 percent of available late-seral stands allocated as Matrix in the watershed, and 22 percent of the anticipated decadal harvest in the watershed (WA, p. 108). Aging stands that are declining in annual growth would be replaced with young, vigorous stands, which would more efficiently produce a sustainable supply of timber and other forest commodities.

Hand piling and broadcast burning would be utilized to reduce logging residues and competition from brush and hardwood species. This would facilitate reforestation efforts and establishment of new trees following harvest, consistent with direction found in the ROD/RMP (p. 62-64) and the *Record of Decision Western Oregon Program - Management of Competing Vegetation* (USDI, BLM 1992).

Reforestation would be accomplished by planting a mixture of Douglas-fir, ponderosa pine, sugar pine, and incense-cedar within one year of site preparation. These seedlings would be grown from seed sources adapted to the local conditions.

Moisture and soil temperatures would be the primary factors limiting reestablishment of trees following harvest. Seedlings would be mulched in order to retain soil moisture and reduce competition from grasses. Shading would be installed on exposed southern and western aspects to protect seedlings from excess solar heating. As a result, harvested sites would be fully restocked within the 5-year time frame prescribed by the ROD/RMP.

B. Wildlife

1. Special Status Species

Threatened or Endangered Species

Northern Spotted Owl

Proposed timber harvest would remove suitable nesting, roosting and foraging habitat from within the territorial home ranges of six owl sites. Harvest of Unit E would remove 25 acres of suitable habitat from within a 0.7 mile radius of the Catching Creek owl activity center, but none within ¼-mile.

Suitable habitat would also be removed from the outer portions of owl home ranges, in the 0.7-to-1.3 mile radius. Table 4 illustrates the effect of the proposed harvest on suitable habitat for individual owl ranges overlapping the proposed project area. These effects are consistent with those previously analyzed in the PRMP/EIS (Vol. 1, pg. 4-54 to 4-64) and incorporated by reference into the ROD/RMP.

Table 4 - Suitable Habitat Removed by Spotted Owl Site

Spotted Owl Site/Master Number	Suitable Habitat Presently Available on Federal Lands Within 0.7-Mile Radius	Suitable Habitat Removed/Remaining on Federal Land within 0.7-Mile Radius	Suitable Habitat Presently Available on Federal Lands Within 1.3 Mile Radius	Suitable Habitat Removed/Remaining on Federal Land within 1.3-Mile Radius [1]
Catching Creek 2000	546 acres	25/521 acres	998 acres	79/919 acres
Council Creek 1910	144 acres	0/144 acres	928 acres	147/781 acres
Crawford Creek 4016	26 acres	0/26 acres	172 acres	45/127 acres
Island Creek 0301	355 acres	0/355acres	1051 acres	9/1042 acres
Rattlesnake Creek 0300	356 acres	0/356 acres	806 acres	54/752 acres
Upper Middle Creek 0303	437 acres	0/437 acres	942 acres	7/935 acres

[1] Acres removed do not add up to 155 acres, because multiple territories overlap the same available habitat.

Another proposed timber sale, Loose Laces, is located in the Riddle subwatershed and overlaps one of the owl sites identified above. This proposed sale would remove an additional 20 acres of suitable habitat from the 0.7-to-1.3 mile radius of the Catching Creek home range.

Designated Critical Habitat for the Northern Spotted Owl

Proposed harvest would remove approximately 60 acres of suitable habitat in CHU-OR-63. This would reduce the available suitable habitat on Federal lands in the CHU by 1.2 percent, from 5,129 acres to 5,069 acres. Adjacent Late-Successional Reserves and Riparian Reserves are anticipated to continue to fulfill the designated biological function of this CHU, however (FSEIS, Vol. II, Appendix G, Biological Opinion, pp. 20-22).

Two units of the proposed Loose Laces timber sale would remove an additional 140 acres of suitable habitat from within CHU-OR-63. This would represent a cumulative reduction in suitable habitat of 5.1 percent.

The Del Norte salamander site in proposed Unit A would be unaffected, because there would be no harvest activities, road renovation or decommissioning within an established habitat management area, merged with the adjacent Riparian Reserve and plant protection buffer described on p. 26 of this document. The jeep road, previously described, would be blocked to prevent casual use that might disturb the site.

C. Fish and Essential Fish Habitat

1. Aquatic Habitat Conditions

Under this alternative, the potential direct and indirect affects on aquatic habitat, fish, and EFH would be posed by two distinct actions. The first is the actual physical harvest of timber, consisting of felling, bucking and yarding. The second is effects associated with road construction and renovation, proposed road decommissioning, and the physical hauling of logs from the sale area.

The proposed timber harvest would not pose any direct or indirect risks, nor would not contribute any cumulative effects or risks to fisheries resources. The Forest Ecosystem Management Assessment Team (FEMAT 1993, p. V-35) found that properly delineated Riparian Reserves would ". . . assure protection of riparian and aquatic functions." Riparian Reserves would be established on all perennial and intermittent streams, based on a site-potential tree height of 160 feet, as described on p. 3 of this document. There would be no timber harvest, yarding or road construction within the Riparian Reserves, and the widths would be adequate to protect against any potentially adverse effects, as described below.

- Absent harvest or construction activities within the Riparian Reserves, potential direct delivery of sediment into streams would be eliminated because the Riparian Reserves would filter out any overland transport of sediment before it reached live water. Riparian Reserves would protect stream banks and channels from disturbance that could result in abnormal erosion and the creation of sediment. As a result, there would be no degradation of spawning **substrates**, or interference with feeding, rearing or spawning of resident and anadromous fish.

- Existing large woody debris in the Riparian Reserves would remain in the stream channels and adjacent areas where it would continue to provide for the creation and maintenance of **pool habitat** on site and/or downstream.

- Cool water temperatures would be maintained by mature timber within the Riparian Reserves, which would provide stream-side shade and a long-term supply of **large woody debris** for recruitment into streams.

- **Off-channel** habitat would be maintained and continue to provide cover for juvenile fish, feeding habitat, and an abundance of prey species.

Road construction and renovation, road decommissioning, and log hauling on the existing road network during winter months all have the potential to directly and indirectly affect aquatic habitat, fish, and EFH through generation of measurable quantities of fine sediments which could then become embedded in **substrates** or remain suspended resulting in increased turbidity. **Access** to available habitat would be unaffected because no road construction is proposed which would necessitate installation of new stream crossings.

Embedded sediments have been linked to low survival rates for fish embryos, and increased turbidity has been associated with disturbance of normal feeding and territorial behavior in juvenile fish. It has also been shown to reduce growth and displace juvenile coho from occupied habitat (Bjornn and Reiser 1991).

The likelihood would be extremely low, however, and the extent not measurable at the project level or against existing baseline conditions for the watershed.

Approximately 2 miles of the lower end of the haul route is located immediately adjacent to Council Creek. The County portion of the road is paved and produces no sediment. Approximately 0.4 of a mile of BLM Road No. 31-6-5.0 is unpaved and intersects Council Creek at a stream crossing via culvert. This aggregate surfaced road segment has the potential to generate and deliver sediment during timber haul. Paving with mixed bituminous asphalt prior to hauling timber, would eliminate this risk to aquatic habitat, fish and EFH.

Among the other practices and other project design features available to reduce or eliminate potential sediment associated with roads and road use, are:

- Location of temporary or semi-permanent roads on stable ridge-top or side-slope locations outside of the Riparian Reserves. Any sediment that might arise from these roads would filter out as water passes overland, so that no sediment would be expected to reach live streams.

- Semi-permanent and temporary roads would be decommissioned following use by blocking or subsoiling, followed by seeding and mulching or other means of revegetation.

- Along the haul route, including segments of privately-controlled roads such as Road No. 31-6-4.0, additional cross-drain culverts would be installed above stream crossings on tributary streams. These added culverts would divert road surface and ditch line run-off onto vegetated slopes where sediment would settle out rather than being delivered into live water at a stream crossing.

- Splash pads or other manner of armoring and energy dissipation would be installed at the outfall of cross-drain culverts to prevent erosion of loose material, erodible soils or steep slopes.

- Resurface and crown main haul routes to accommodate timber haul during wet weather, and to reduce the potential for road surface erosion and sediment generation.

- Restricting hauling on any unsurfaced roads to the dry season would make the mobilization of any sediment improbable.

Cumulative effects from management actions on private lands would continue to affect the aquatic habitat and fish. Under the requirements of the Oregon Forest Practices Act, it is assumed that there will be less retention of riparian vegetation and down wood on privately owned lands, particularly on smaller streams. This will result in an overall reduction in large wood and in the amount of quality habitat for priority fish species over the long term. (PRMP/EIS, Vol. 1, pg. 4-49).

Other effects that are reasonably certain to occur on industrial timber lands and private agricultural lands include: generation and delivery of fine sediment to stream channels resulting from less restrictive yarding procedures and smaller riparian management areas along streams; and sedimentation, substrate embeddedness, and stream bank erosion resulting from grazing and watering livestock in or near stream channels.

2. Effects to Essential Fish Habitat

The establishment of Riparian Reserves would fully protect aquatic habitat and water quality in the immediate vicinity of harvest units. There would be no identifiable activities from timber harvest with the potential to degrade this habitat.

As discussed above, there would be indirect and short-term effects expected in association with sediment, but the overall effect would be a long-term improvement in the sediment regime and spawning and rearing habitat.

D. Vascular and Non-Vascular Plants

Special Attention species in the proposed sale area would be unaffected by the proposed timber harvest. Protocol surveys located two species as noted on p. 15. These would be managed in accordance with current management recommendations to protect habitat and microclimate conditions essential to the persistence of the species (FSEIS, 1994).

For the mountain lady's slipper located in Unit A, the site would be protected from the effects of timber harvest and site preparation by the establishment of a 160-foot radius buffer. The site would also receive additional protection afforded by the overlapping buffer on the Del Norte salamander site, described on page 23 of this document. As a consequence, there would be no concerns for persistence.

No protection would be required for the woodland milk-vetch located in proposed Unit F. The species occupies open areas that are free of forest canopy, and would not be affected by timber harvest. Site preparation would consist of hand piling and burning logging slash, and would not pose a risk for the milk-vetch.

E. Water Quality/Resources

Peak Flows and the Transient Snow Zone

An analysis was conducted, using a TSZ model developed for the Oregon Watershed Assessment Manual and described on p. 14, to assess the potential for increases in peak flows for the drainages in which harvest is proposed under this alternative. Model results indicate that changes in risk level would remain unchanged from pre-harvest levels, as illustrated in Table 5.

Table 5 –Risk of Increased Peak Flows from Proposed Harvest

Drainage (7^{th} field)	*Percent of Area in the TSZ	*Present percent of Area in TSZ below 30 percent crown closure	*Percent of Area Post-Harvest in TSZ below 30 percent crown closure	Risk of peak flow Enhancement
Council Creek	38	13	18	Low
Beatty Creek	20	15	No change	Low
Catching Creek	37	<5	<5	Low
Island Creek	42	9	10	Low

* Approximate values from GIS and 1999 aerial photos

Renovation of the haul roads would reduce their potential to alter stream flow because they would no longer function as an extension of the drainage network. Although surface flow is apparent at the site level, peak flow increases associated with the roads is not considered measurable (~ 10 percent) at the drainage scale.

Sediment

Renovation of approximately 8.8 miles of the proposed haul route, in accordance with Best Management Practices (ROD/RMP, pp. 133-134), to the standards required for new construction would divert flow from road surfaces and ditch lines away from stream channels and toward the forest floor where it could re-infiltrate and deposit any water-borne sediment. Surfacing roads with aggregate, stabilizing cut banks and fill slopes, restoring out slope or crown sections, providing adequate drainage and improving stream crossings (ROD/RMP, pp. 136-137) would reduce the potential for sediment generation. In addition, the proposed paving of a portion of Road No. 31-6-5.0, described above, would eliminate it as a source of sediment.

As a consequence of the proposed road renovation and improvements, sediment delivery to stream channels during winter hauling would be negligible. The renovation would provide long-term benefits to flow routing and water quality in the Council Creek drainage and at the greater watershed scale.

F. Soils

Compaction and soil displacement 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 the percentage of the area that would be subjected to compaction, and post-harvest tilling of skid trails would reduce anticipated increases in soil bulk density by approximately 80 percent. Cable yarding would maintain a minimum one-end suspension of logs to reduce soil displacement, and 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.

The areas of Category 1 soils are dispersed throughout proposed units and constitute only 20 percent of the affected areas. 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. Exposure of bare soil would not be expected to exceed 30 percent, and the risk of large-scale surface erosion would be eliminated.

The renovated jeep road in proposed Unit A would be subsoiled following harvest to reduce compaction, then blocked and water barred to reduce the potential for channeling and sediment transport, and to discourage casual use. The jeep road that runs beside the mountain lady's slipper and the Del Norte salamander sites would be blocked to use but would not be subsoiled in order to avoid potential disturbance of the sites.

G. Air Quality

The proposed prescribed burn treatments would be conducted under approved clearances and in accordance with the objectives and directives of the Oregon Smoke Management Plan. Air quality objectives would be included in unit-specific prescribed fire plans.

The potential for adverse impacts to air quality would be minimized by implementing a variety of smoke management strategies. These strategies would include: burning when the wind is blowing away from sensitive areas such as Roseburg, to avoid smoke intrusions; burning slowly to allow for atmospheric dilution and dispersal of particulates; spatially separating units to be burned; burning under atmospheric conditions that favor good vertical mixing of air masses so that smoke is lifted to an elevation where it may be borne away by favorable transport winds; and burning hand piles during periods of rain in the autumn and winter months. These strategies would minimize potential impacts to air quality by avoidance of smoke drift into designated areas on the day of ignition.

Oregon State Smoke Management restrictions also limit burning during periods of stable atmospheric conditions when residual smoke from previously burned unit(s) may be trapped below a surface inversion. Under these conditions, a strategy of aggressive mop-up would be implemented to extinguish smoldering fires that would contribute smoke. Additional ignitions would also be limited or entirely curtailed under these circumstances.

III. Other Federal Timber Harvest and Restoration Activities Planned in the Lower Cow Creek Watershed With Potential Cumulative Effects at the Watershed Scale

There is presently one other regeneration harvest under consideration on BLM-managed lands in the Lower Cow Creek watershed. The Loose Laces timber sale analysis proposes 190 acres of regeneration harvest in the Shoestring, Russel Creek and Catching Creek drainages. No offering of the sale has been scheduled. When added to the 155 acres proposed for harvest in this analysis, there would be a cumulative removal of approximately 9 percent of the late-seral forest within Matrix lands in the watershed. No permanent road construction is proposed for the Loose Laces timber sale. Approximately 15 miles of existing roads would be renovated in association with the sale, and 1.3 miles of road have been identified for possible decommissioning. Timber harvest and hauling would employ comparable project design features, such that the sale would not adversely affect listed fish or EFH, nor cumulatively effect baseline watershed conditions.

Three large stream-crossing culverts were proposed, analyzed and authorized for replacement. Replacement of culverts on Live Oak and Union Creeks was accomplished in the summer of 2002. Replacement of a large culvert on Russel Creek is slated for accomplishment in the summer of 2003. These projects will reduce sediment associated with channel downcutting and bank erosion. Replacement of the Russel Creek culvert will restore access to approximately 22 miles of habitat used by resident and/or anadromous fish. By the time the Cow Catcher timber sale would be offered and harvested, potential sediment generated by the replacement of these culverts will have flushed through and will not cumulatively add to baseline conditions. The effects of these actions on EFH have been consulted with the National Marine Fisheries Service.

Other potential forest removal could occur in association with road construction conducted under reciprocal rights-of-way agreements. The exact amounts of forest removal are difficult to quantify but are not anticipated to exceed tens of acres per decade. Road construction conducted under terms of reciprocal rights-of-way agreements will employ measures designed to minimize potential for additional degradation of water quality and aquatic habitat.

IV. 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 and SEIS Special Attention Species Habitat.

Chapter 5
LIST OF AGENCIES/PERSONS CONTACTED AND PREPARERS

This project was included in the Roseburg BLM Project Planning Update (Spring 1997). If a decision is made to implement the preferred alternative, notice of decision would be published in *The News-Review*, Roseburg, Oregon.

I. Agencies & Persons Contacted:

Adjacent Landowners & Down-stream Water Users
City of Riddle, Oregon
Coquille Indian Tribe
Cow Creek Band of Umpqua Tribe of Indians
National Marine Fisheries Service
Oregon Department of Fish and Wildlife
Roseburg Resources Company
Silver Butte Timber Co.
State Historic Preservation Office
U.S. Fish and Wildlife Service

II. The following agencies, organizations, and individuals would be notified of the completion of the EA:

City of Riddle, OR, Mayor Bill Duckett
Douglas Timber Operators, Bob Ragon - Executive Director
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Department of Forestry
Oregon Natural Resources Council
National Marine Fisheries Service
Steve Carter, Northwest Hardwoods
U.S. Fish and Wildlife Service
Umpqua Watersheds, Inc.
Ronald S. Yockim, Attorney-at-Law

III. List of Preparers:

Frank Oliver	Wildlife Biologist & Project Leader
Paul Ausbeck	NEPA Coordinator & EA Writer
Bill Adams	Fuels Mgmt. Specialist
Bill May	Engineer
Gary Basham	Botanist
Don Scheleen	Archaeology
Tom Katwyk	Forester/Silviculture
Ed Horn	Soil Scientist
Rob Hurt	Fisheries Biologist
Matt Fairchild	Fisheries Biologist
Lowell Duell	Hydrologist
Larry Standley	Hydrologist
Dave Mathweg	Outdoor Recreation Planner
John Royce	Management Representative

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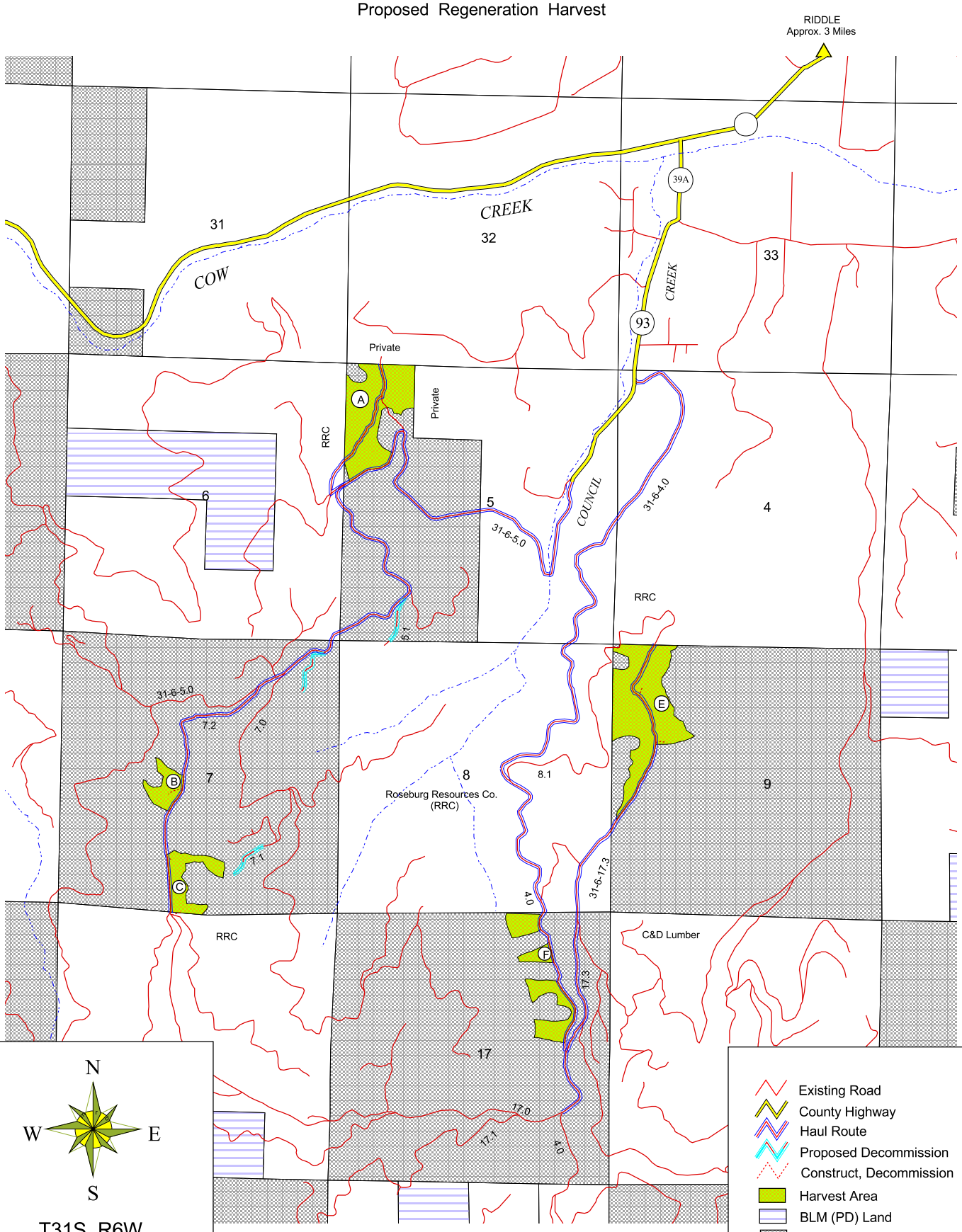
APPENDIX A

Project Area and Proposed Unit Maps

COW CATCHER

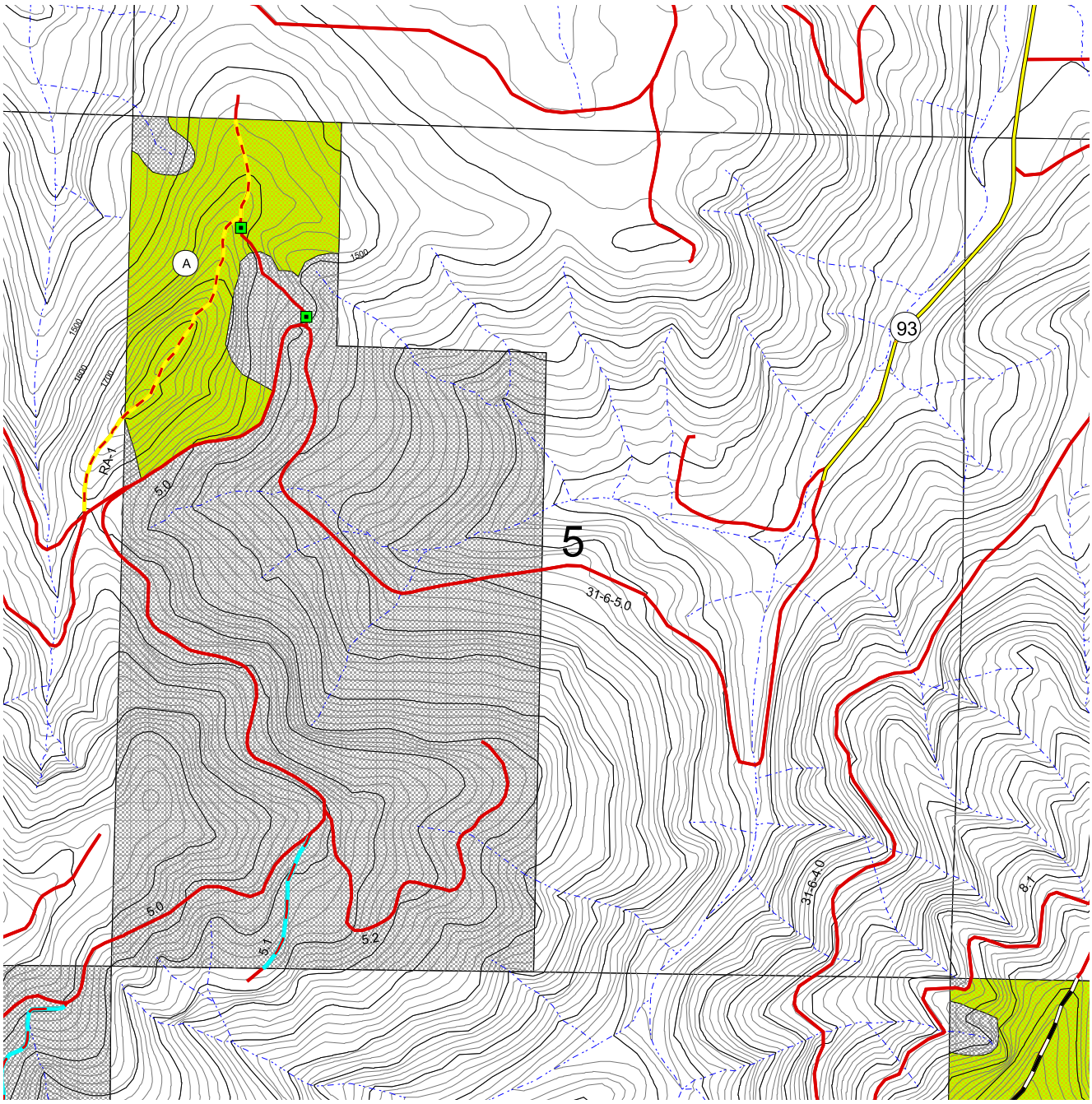
Proposed Regeneration Harvest



5-28-2003

COW CATCHER

Proposed Regeneration Harvest



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Willamette Meridian, Douglas Co., OR.

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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 be updated without notification.

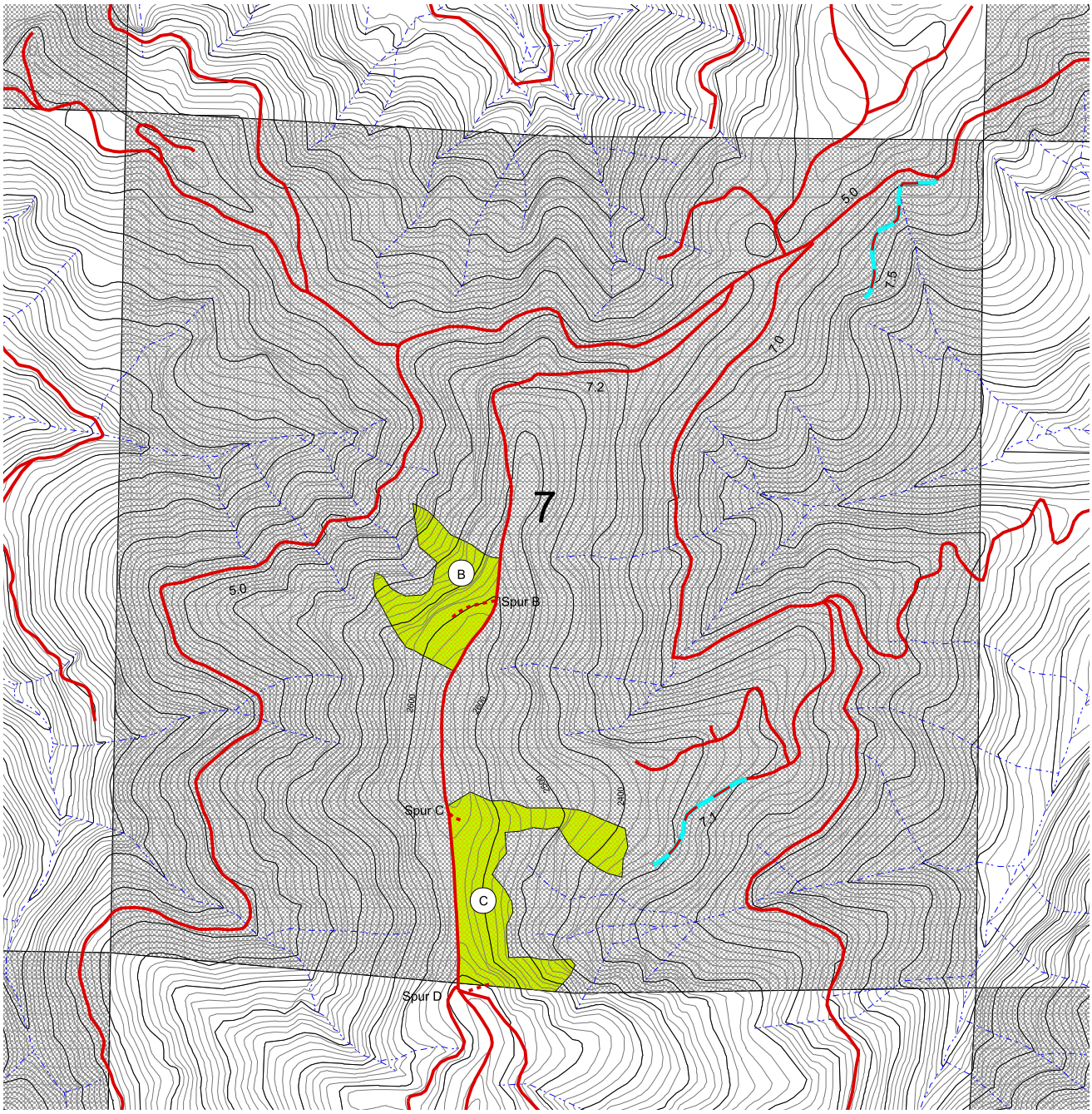
Harvest Area
BLM (O&C) Land
Private Land

Construct Roadblock
Existing Road
Renovate, Rock
Proposed Decommission
Renovate, Decommission
100' Contour
20' Contour
Stream

4-10-2003

COW CATCHER

Proposed Regeneration Harvest



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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 be updated without notification.

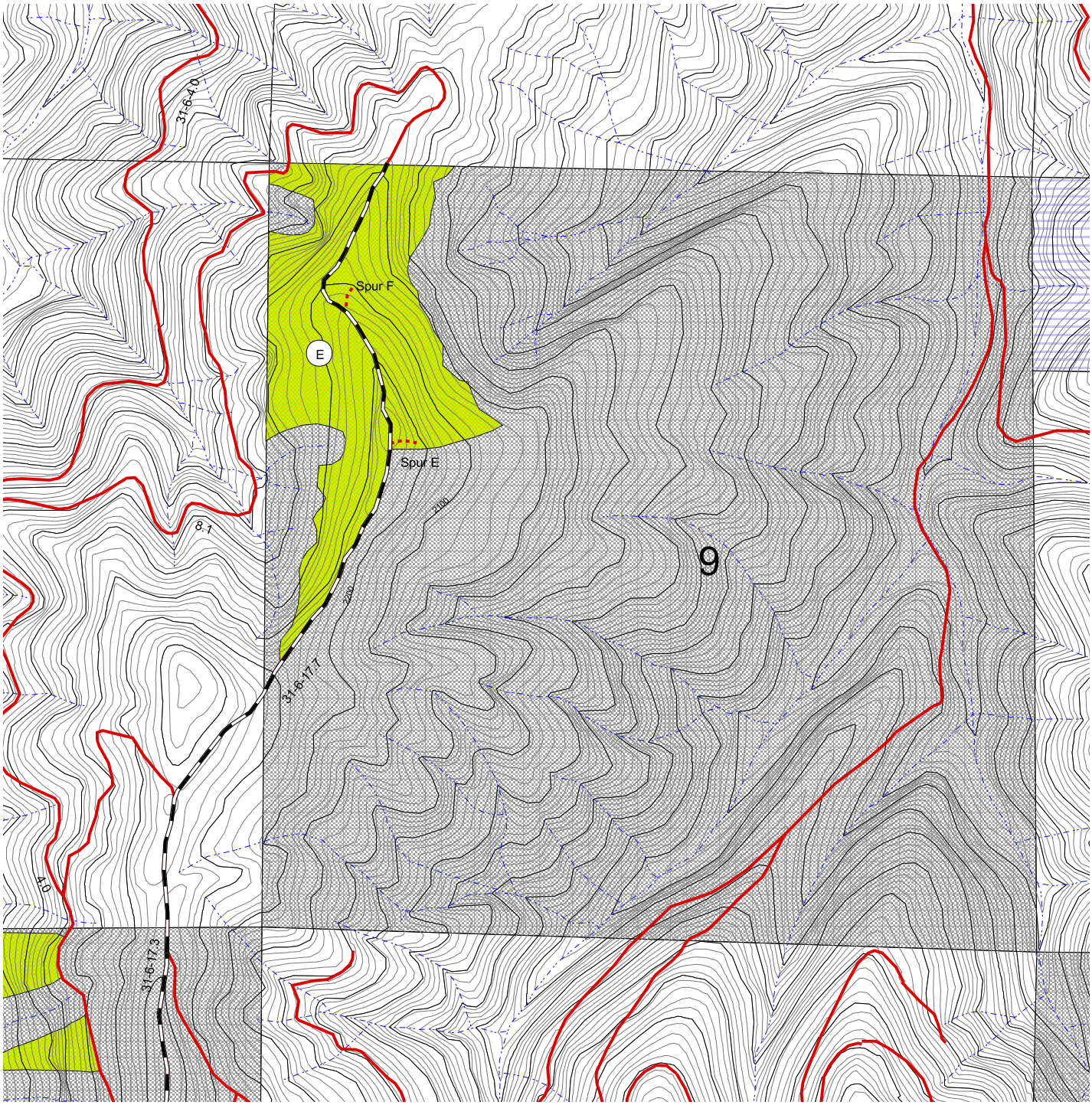
Harvest Area
BLM (O&C) Land
Private Land

Existing Road
Proposed Decommission
Construct, Decommission
100' Contour
20' Contour
Stream

4-10-2003

COW CATCHER

Proposed Regeneration Harvest



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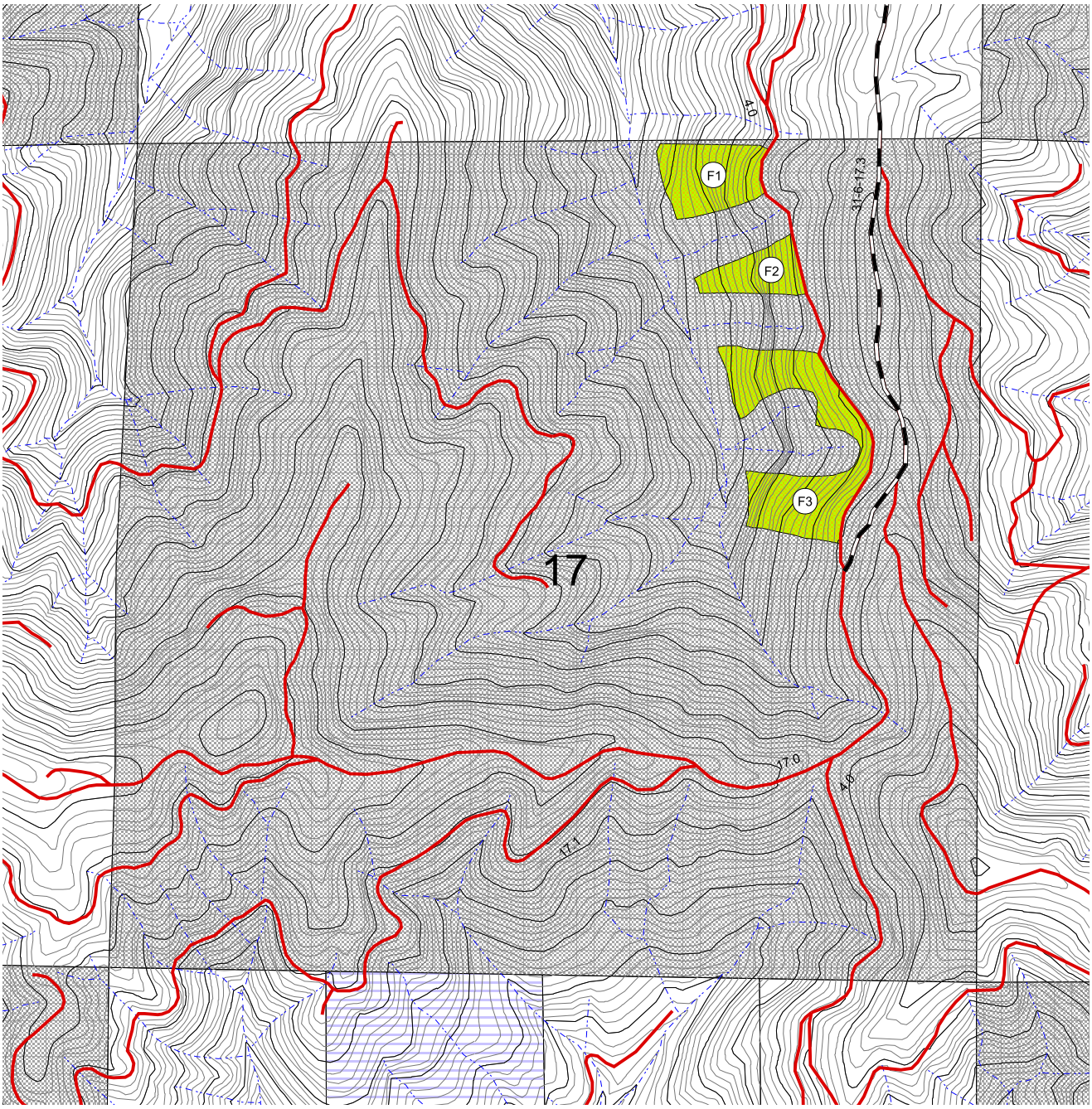
Harvest Area
BLM (O&C) Land
Private Land

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

4-10-2003

COW CATCHER

Proposed Regeneration Harvest



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Willamette Meridian, Douglas Co., OR.

1000 0 1000 Feet

1"=1000'

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 be updated without notification.

Harvest Area
BLM (O&C) Land
Private Land

Existing Road
Renovate, Rock
100' Contour
20' Contour
Stream

5-28-2003

APPENDIX B
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