1792A
EA-03-15
Snowy Wolf

September 3, 2003

Concerned Citizen,

The Upper Willamette Resource Area of the Bureau of Land Management, Eugene District has completed the Environmental Assessment (EA) and Finding of No Significant (FONSI) for the Snowy Wolf Timber Sale. The area of analysis is approximately 300 acres of commercial thinning located in the Lost Creek Watershed within Sections 23 and 25, T. 20 S., R. 1 W., Will. Mer.

You have expressed an interest in receiving copies of Environmental Assessments for district projects. Enclosed is a copy of the Environmental Assessment for your review and any comments. Public notice of this proposed action will be published in the Eugene Register Guard on September 3, 2003. The EA will also be available on the internet at http://www.edo.or.blm.gov/nepa. The public comment period will end on October 3, 2003. Please submit comments to me at the district office, by mail or by e-mail at OR090mb@or.blm.gov by close of business (4:15 p.m.) on or prior to October 3, 2003. If you have any questions concerning this proposal, please feel free to call Richard Hardt at 683-6690.

Comments, including names and street addresses of respondents, will be available for public review at the district office, 2890 Chad Drive, Eugene, Oregon during regular business hours (7:45 a.m. to 4:15 p.m.), Monday through Friday, except holidays, and may be published as part of the EA or other related documents. 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 law. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

Sincerely,

Emily Rice, Field Manager
Upper Willamette Resource Area

Enclosure

SNOWY WOLF
Timber Sale

Upper Willamette Resource Area
BLM Eugene District

ENVIRONMENTAL ASSESSMENT
Environmental Assessment No. 090 EA 03-15

August 2003

Contents

Snowy Wolf Timber Harvest
Upper Willamette Resource Area
BLM Eugene District

Environmental Assessment
Environmental Assessment No. OR 090 EA 03-15

1.0 PURPOSE AND NEED FOR ACTION
The Bureau of Land Management (BLM) proposes to implement a commercial thinning project in the Lost Creek Watershed. The proposed action is within the Matrix (General Forest Management Area) and Riparian Reserve land use allocations. The area of analysis, for the purposes of this environmental document, is approximately 300 acres of BLM lands located in T. 20 S., R. 1 W., sections 23 and 25, Will. Meridian (see maps in Appendix B).

The purpose of the action in the Matrix is to provide a sustainable supply of timber and thin stands to promote production of merchantable timber and maintain forest health and productivity. Specific objectives for the proposed thinning are to: 1) harvest anticipated mortality of small trees as the stand develops, 2) increase the proportion of merchantable volume in the stand, 3) maintain good crown ratios and stable wind-firm trees, 4) accelerate development of trees that can later provide large-diameter snags and down logs, 5) produce larger more valuable logs, 6) manage species composition and, 7) promote development of desired understory vegetation (RMP, p. 200). The need for the action in the Matrix is established in the *Eugene District Record of Decision and Resource Management Plan* (RMP), which directs that timber be harvested from Matrix lands to provide a sustainable supply of timber (RMP, p. 34). The need for this action is also established by the high tree density of these forest stands, which is reducing stand vigor and tree growth. Thinning would reduce stand density, which would increase vigor, growth rates, and wind-firmness.

The purpose of this action in Riparian Reserves is to speed the development of late-successional forest structural conditions and to manage roads to reduce sedimentation and road-related runoff and restore flow regimes (RMP, pp. 18-19, 24-25). The *Eugene District ROD/RMP (*USDI 1995, p.24*)* states that BLM should, "apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy Objectives." *The Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (April 1994) says, "Active silvicultural programs will be necessary to restore large conifers in Riparian Reserves. Appropriate practices may include . . . thinning densely-stocked young stands to encourage development of large conifers . . ." (*Northwest Forest Plan,* B-31). The need for the action in the Riparian Reserves is established by the high tree density of these forest stands, which is slowing the development of large conifers and other characteristics of late-successional forests.

1.1 Conformance
This environmental assessment (EA) is tiered to the *Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl* (Northwest Forest Plan ROD), April 1994, and the *Eugene District Record of Decision and Resource Management Plan* (RMP), June 1995 as amended by the *Record of Decision (ROD)* for *Amendments to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, January 2001* (Survey and Manage ROD). These documents are available

for review at the BLM Eugene District Office or on the internet at http://www.or.blm.gov/nwfp.htm. The Snowy Wolf project file contains additional information used by the Interdisciplinary Team (ID Team) to analyze impacts and alternatives and is available for review at the Eugene District Office.

1.2 Issues

The ID Team brought forward the following issues for analysis:

- ***What would be the disturbance and habitat modification effects to nesting owls and their progeny due to harvesting?***
  The analysis will address whether disturbance from management activities is likely to adversely affect northern spotted owls, and how harvest would modify existing dispersal, roosting, foraging, and nesting habitat.

- ***How would road construction and yarding affect soil compaction?***
  The analysis will assess the extent of soil compaction that would remain after management activities and after the application of mitigation measures.

- ***Would thinning in Riparian Reserves speed the development of late-successional forest structural characteristics?***
  Late-successional forest structural characteristics will be evaluated as the (1) abundance of large Douglas-fir trees (>32 inches in diameter), (2) the abundance of western hemlock and western red-cedar trees (>10 inches in diameter), and (3) the range of tree diameters.

- ***How would thinning in Riparian Reserves and road management actions affect stream temperature, sedimentation, and existing coarse woody debris?***
  Effects on stream temperature will be analyzed based on the stand density in the primary and secondary shade zones along streams. Sedimentation will be assessed based on (1) stream crossings that would be constructed or removed and their potential to deliver sediment to streams, and (2) road improvements and closures that would intercept road-related run-off. The effects on existing coarse woody debris will be evaluated qualitatively because of lack of knowledge about the indirect effects of thinning on the microclimate of adjacent stands and the effect of microclimate changes on down logs.

These issues serve to focus the analysis and the comparison of the alternatives. The Critical Elements of the Human Environment were considered and are summarized in the Environmental Consequences Section 4.0.

Issues Not Analyzed

The ID Team considered how timber harvest and road construction would affect the spread of noxious weeds, particularly the false-brome (*Brachypodium sylvaticum*) population in Area 1. However, this infestation was treated in May 2003, which addressed this concern (see *Affected Environment – Vegetation)*.

The ID Team also considered how thinning in Riparian Reserves would affect attainment of Aquatic Conservation Strategy objectives other than those related to stream temperature, sedimentation, and existing coarse woody debris. The ID team concluded that thinning would either have a negligible effect on other aquatic objectives or the effect could not be analyzed. Of particular interest was the effect of thinning and yarding on slope stability. Areas of instability were identified based on field examination and withdrawn under the Timber Production Capability Classification System or otherwise excluded from thinning (see *Affected Environment – Soils)*. Therefore, the ID team concluded that none of the alternatives would have an effect on slope stability.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section describes alternatives identified by the ID Team and alternatives eliminated from detailed analysis. Design features associated with these alternatives can be found in the appendices: Appendix A for project design features and Appendix B for maps of proposed harvest areas.

2.1 Alternative 1: No Action

No timber harvest or road management actions would occur within the project area at this time.

2.2 Alternative 2: Summer Logging with No Riparian Reserve Thinning

Timber Harvest in the Matrix

This alternative consists of three commercial thinning areas (Areas 1, 4, and 5) of approximately 151 acres of Matrix. The stands would be thinned from below; i.e., trees selected for harvest would be the suppressed, intermediate, and co-dominant conifer trees, leaving the best-formed and larger trees. Thinning would be designed to increase the proportion of merchantable volume in the stand through time and capture anticipated mortality from smaller trees as the stand continues to develop. Cut trees would be Douglas-fir and western hemlock. Healthy, well-formed Douglas-fir trees would be preferentially retained over western hemlock. Mistletoe-infected western hemlock would be cut. All western red-cedar, Pacific yew, and hardwood trees would be retained, except where necessary to accommodate logging systems or for safety.

Area 1 (92 acres): The thinning would reduce the number of trees from 220 trees per acre (TPA) to 70-90 TPA, with an average spacing of 25 feet.

Area 4 (42 acres): The thinning would reduce the number of trees from 230 TPA to 70-90 TPA, with an average spacing of 25 feet.

Area 5 (23 acres): The thinning would reduce the number of trees from 200 TPA to 100-120 TPA, with an average spacing of 22 feet.

Thinning would be accomplished with a combination of cable and ground-based yarding systems. Cable harvest systems would be utilized on approximately 104 acres; ground-based systems would be utilized on approximately 47 acres (see maps in Appendix B).

Density Management within Riparian Reserves

No density management activities would occur in Riparian Reserves at this time.

Roads

Under Alternative 2, all new road construction would be temporary, dirt-surfaced roads, 14 feet wide with no ditch. New road construction would be decommissioned and/or blocked the same year as the timber harvest. Decommissioned roads would be tilled as sub-grade conditions allow. No new roads would be constructed within Riparian Reserves.

Prior to timber haul, a new culvert would be installed in Area 5 where Road 20-1-10.3 crosses Stream 11, which currently lacks a culvert.

2.3 Alternative 3 – Winter Logging with Moderate Riparian Reserve Thinning

Timber Harvest in the Matrix

Thinning prescriptions in the Matrix would be the same as in the other action alternatives. All thinning would be accomplished with cable-yarding systems.

Density Management within Riparian Reserves

The outer portion of Riparian Reserves (approximately 55 acres) would be thinned with the same thinning prescription as the adjacent Matrix: 70-90 TPA in Areas 1 and 4, and 100-120 TPA in Area 5. This prescription was developed with the expectation that the thinned areas would be thinned a second time when regeneration harvest is conducted in the Matrix portion of the project area. No harvest would occur within 75 feet on either side of the streams, except for Streams 11, 15, and 22 in Area 5, where no harvest would occur within 100 feet or more of the streams because of slope stability concerns (see maps in Appendix B). Other than created snags and down logs described below, cut trees would be removed to reduce the risk of wildfire and Douglas-fir bark beetle infestation. This Riparian Reserve thinning would be consistent with the recommendations in the Lost Creek Watershed Analysis (p.110).

Roads

Under Alternative 3, all new road construction would be gravel-surfaced roads suitable for winter hauling. Roads shorter than 300 feet would be 14 feet wide with a ditch. Longer roads would be 16 feet wide with a ditch. After completion of timber harvest operations, the gravel surfacing would be removed from Spurs 1A in Area 1 and Spurs 4A and 4B in Area 4, the sub-grade tilled, and the road blocked. However, Roads 20-1-23.4 and 20-1-23.5 (see Appendix B) would be left gravel-surfaced and open, because the sub-grade is too rocky for tilling. No new roads would be constructed within Riparian Reserves.

A culvert would be installed on Road 20-1-10.3, as in the other action alternatives.

Snag and Down Log Creation

Within thinned areas in the Riparian Reserve, 4 snags per acre would be created by basal girdling, and 150 linear feet (6 trees) per acre of down logs would be created by felling trees. Most treated trees would be Douglas-fir, and all would be live trees with a diameter greater than 18 inches. This proposed creation of snags and down logs may be modified or eliminated if comparable amounts are created naturally or as a result of harvest operations. The objective would be to create snag and down log amounts equal to roughly half of the amounts typically found in unmanaged stands of this age.

2.4 Alternative 4 – Winter Logging with Heavy Riparian Reserve Thinning (Proposed Action)

Alternative 4 would differ from Alternative 3 only in the Riparian Reserve thinning prescription. Riparian Reserve stands would be thinned to approximately 40 TPA, except for the Riparian Reserve stands associated with Stream 15 in Area 5, which would be thinned to the upland prescription: 100-120 TPA. The Riparian Reserve prescription of 40 TPA was developed with the expectation that the thinned areas would not be thinned a second time. All other design features of Alternative 4 would be the same as Alternative 3.

2.5 Comparison of Alternatives

ELEMENTS	ALT. 1 NO ACTION	ALT. 2	ALT. 3	ALT. 4
Thinning Harvest Acres (Matrix)	0	151	151	151
Density Management Acres (RR)	0	0	55	55
TOTAL ACRES HARVESTED	**0**	**151**	**206**	**206**
New Dirt-Surfaced Road Construction (miles)	0	1.15	0	0
New Gravel-Surfaced Road Construction (miles)	0	0	1.15	1.15
Existing Road Improvement (miles)	0	0.53	0.53	0.53
Roads Decommissioned or Blocked (miles)	0	2.11	1.54	1.54

2.6 Alternatives Considered but Not Analyzed in Detail

Other Areas

Other stands (originally numbered Areas 2, 3, 6, and 7) were considered for inclusion in the proposed project. Field examination of the stands revealed that these other stands were too young or otherwise not suitable for commercial thinning at this time, and therefore an alternative that included these stands would not respond to the purpose and need for the action.

Lighter Matrix Thinning Prescriptions

This alternative would employ lighter thinning prescriptions in the Matrix to maintain stand densities more similar to those contemplated in the silvicultural appendix of the Eugene District RMP (pp., 199-202). This alternative was eliminated from detailed analysis because it would have effects that would be substantially similar to alternatives analyzed in detail. Preliminary stand modeling of thinning all areas to 100-120 TPA revealed only minor differences in the volume productivity of the stand from the prescriptions proposed in the action alternatives. Specifically, the lighter thinning would result in little difference in the amount of merchantable timber in the stand and the average diameter of the stand at the likely time of a future harvest entry.

Moderate Riparian Reserve Thinning with No Future Entry

This alternative would be similar to Alternative 3, but would not anticipate a future second thinning in the Riparian Reserves. A future second thinning is not part of the action considered in Alternative 3, but is included as an analytical assumption about reasonably foreseeable future actions to assist in effects analysis. Preliminary analysis demonstrated that a single moderate thinning would not be effective in speeding the development of late-

successional forest structural characteristics and therefore would not meet the purpose of the action in the Riparian Reserves. Therefore, the Interdisciplinary Team concluded that it is not reasonably foreseeable that, if the Riparian Reserves are thinned now, a future action to harvest timber in the Matrix would not include a second thinning in the Riparian Reserves.

Helicopter Logging

Helicopter logging was considered for those acres not accessible by existing roads. This alternative was not analyzed in detail, because the project area already has an extensive road system and most of the project area has gentle slopes. The construction of helicopter landings would likely result in disturbance and compaction comparable to road and landing construction in the action alternatives and other effects would be similar. Therefore, this alternative would have substantially similar environmental effects to alternatives analyzed in detail, at considerably greater cost.

3.0 AFFECTED ENVIRONMENT

The resources in the project area do not differ substantially from those discussed in Chapter 3 of the RMP Environmental Impact Statement (EIS) and the Lost Creek Watershed Analysis, and those analyses are incorporated here by reference. The resources analyzed below are also discussed in greater detail in the Snowy Wolf project file.

3.1 Vegetation

The forests in the project are 40-55-year-old stands that regenerated naturally after clearcut harvest and burning. The stands consist primarily of Douglas-fir, western hemlock, and western red-cedar, with scattered Pacific yew, madrone, and red alder. Many of the western hemlock trees are infected with dwarf mistletoe. Stand understories consist of salal, bigleaf maple, vine maple, cascara buckthorn, and oceanspray. The stands are currently in a stem exclusion phase, and the high overstory density is suppressing the growth of smaller trees and understory vegetation. Stand conditions in the outer portion of the Riparian Reserves are largely similar to the uplands. The immediate riparian zone of many of the streams in the project area is dominated by deciduous trees, mostly red alder and bigleaf maple.

Area 1 was harvested in approximately 1945. Portions of the stand were pre-commercially thinned. Current stand density is approximately 220 trees per acre (TPA), of which 180 TPA are Douglas-fir.

Area 4 was harvested in approximately 1960. The stand was pre-commercially thinned. Current stand density is approximately 230 TPA, of which 190 TPA are Douglas-fir.

Area 5 was harvested in 1945 in the southern part and 1960 in the northern part. Portions of the stand were pre-commercially thinned. Current stand density is approximately 200 TPA, of which 130 TPA are Douglas-fir.

Down Logs and Snags

Most upland parts of the project area lack down logs, except for scattered root wads left from the previous timber harvest and small, recently-fallen logs that resulted from the death of suppressed trees. However, most riparian areas within 75-100 feet of streams contain moderate to large amounts of large, well-decayed logs (>24 inches in diameter and >10 feet in length, decay classes 3, 4, or 5), which is within the range typically found in unmanaged stands of this age. Large, well-decayed logs are an important habitat feature for many riparian-associated animals, especially terrestrial and semi-aquatic amphibian species. These species

generally require moist, cool, relatively stable habitats in or near streams and have low dispersal abilities.

The project area has very few snags. Small, short-lived snags that resulted from the death of suppressed trees are scattered throughout the project area. The quality and amount of snags is well below both the range typically found in unmanaged stands of this age and the levels necessary to maintain critical life history needs of snag-associated species.

Additional discussion of the current condition of down logs and snags in the watershed is presented in the Lost Creek Watershed Analysis (pp. 83-84).

Noxious Weeds

Small infestations of Scotch broom, bull thistle, Canada thistle, St. Johns-wort, and tansy ragwort occur along roads within the project area. False-brome (*Brachypodium sylvaticum*) occurs along Road 20-1-23 in Area 1. This infestation was treated in May 2003 with the Waipuna heat and steam machine for killing weeds (see *Manual and Mechanical Removal of Invasive Weeds* Categorical Exclusion Review, CE-02-08). The site will be monitored, and treatments will continue as needed, likely over the next three years. In all of the action alternatives, the road would be blocked following timber harvest operations, which would limit the spread of seeds, and the road would be decommissioned after control of the false-brome population (See Appendix A for project design features).

3.2 Threatened and Endangered Species

Northern Spotted Owl (Threatened)

The project area is within designated Critical Habitat Unit, CHU-OR-20. This CHU was designated to provide nesting, roosting, foraging, and landscape dispersal habitats between the western slopes of the Cascade Ranges and the Willamette Valley.

Two northern spotted owl sites are located adjacent to the project area: the East Buckhorn and Lost Guiley sites, both of which have been occupied by pairs or single owls in most years since they were first located. Both owl sites are considered "at risk" for successful occupation and reproduction because of the small acreage of habitat within their provincial home range (499 acres of nesting and 613 acres of dispersal habitat within 1.2 miles of the East Buckhorn owl site, and 181 acres of nesting and 725 acres of dispersal habitat within 1.2 miles of the Lost Guiley owl site). Owl sites are generally considered "at risk" when there is less than 1,182 acres of nesting habitat within the provincial home range.

No nesting habitat exists within the project area, but there is approximately 170 acres of nesting habitat within 0.25 mile of the project area. All of the project area is dispersal habitat and there is an additional 577 acres of dispersal habitat within 0.25 mile of the project area. Approximately 130 acres of dispersal habitat within the project area currently functions as roosting and foraging habitat for the nearby owl sites and/or buffers adjacent nesting habitat.

Additional discussion of the current conditions for northern spotted owls and other threatened and endangered species is presented in the Lost Creek Watershed Analysis (pp. 70-74).

3.3 Survey and Manage

Sparassis crispa, a Survey and Manage category D fungi species, was found in Area 1. The site will be managed with a 60-foot buffer to protect it from direct disturbance. *Ramalina thrausta*, a Survey and Manage category A lichen species, was found as litterfall and in small trees in Area 4. The sites will be managed with a 180-foot buffer to protect the host trees and assure a future source of inoculum. *Chaenotheca furfuracea,* a Survey and Manage category

F lichen species, was found in Areas 1 and 5, but does not require a buffer. For an explanation of Survey and Manage categories, see the Survey and Manage ROD (Standards and Guidelines, pp. 7-14). Protocol surveys for vascular plants, bryophytes, and lichens did not reveal any other Survey and Manage known sites.

3.4 Soils

Soils in the project area are primarily Klickitat and Peavine series, with smaller amounts of McCully, Honeygrove, Blachly, and Kinney series (Soil Conservation Service, Lane County Soil Survey, 1987). Past logging with ground-based yarding caused some soil compaction and displacement of surface soils which has resulted in minor, localized reductions in site productivity. Excavated skid trails are still evident on some steep slopes, especially in the north end of Area 4. However, there are currently few signs of active erosion, and the total areal extent of compaction in the project area is well below the RMP standard (RMP, p. 37).

Klickitat stony loam occurs on the broad ridgetop and steep, east-facing slope on the west side of Area 1 and on northeast aspects in Areas 4 and 5. Klickitat soils are typically deep and moderately productive, but high cobble and gravel content may make these sites droughty. The stoniness also limits the suitability of Klickitat soils for ground-based yarding, because compaction cannot be ameliorated through tillage.

Peavine silty clay loam occurs on gentle and moderate slopes on the north and west side of Area 1 and the north end of Area 4. This soil is moderately deep and productive, but permeability is moderately slow, making these soils prone to compaction. This soil is suitable for ground-based yarding with application of Best Management Practices.

Blachy and McCully clay loams occur on moderate slopes. McCully soils are found on both sides of Road 20-1-23 on the south end of Area 1. A small band of Blachly soils occurs along the southwest side of Area 5. These soils are very similar; deep and productive, but permeability is moderately slow. Heavy clay subsoil makes these soils susceptible to deep compaction and limits their suitability for ground-based yarding.

Kinney cobbly loam occurs on gentle slopes in Area 5 adjacent to Road 20-1-26.3. This deep, highly productive soil is on old, stabilized slump areas and is suitable for ground-based yarding.

Honeygrove silty clay loam occurs on gentle slopes in a small area on the north end of Area 1. This soil is deep and productive, but clay subsoil makes this soil susceptible to deep compaction and limits its suitability for ground-based yarding, except where existing skid trails can be utilized.

Approximately 9.5 acres in the project area have been withdrawn under the Timber Production Capability Classification System. The inner gorges of Streams 11, 15, and 22 are prone to instability and excessive erosion. Two small areas (on the east aspect of Area 1 and a small outcrop in Unit 5) have shallow, low-productivity soils that make them unsuitable for commercial timber harvest. Hydric soils (wetlands) in the project area are limited in extent and tend to be located near streams within the inner portion of Riparian Reserves.

3.5 Hydrology and Water Quality

The project area is within the Lost Creek 6th-field watershed, which is within the Middle Fork Willamette/Lookout Point 5th-field watershed. Streams in the project area are tributaries of Lost Creek, which is on the 2002 Department of Environmental Quality 303(d) Water Quality Limited List for elevated summer temperatures and dissolved oxygen.

The project area ranges in elevation from about 1900 feet to 2500 feet. About half of Area 1 and half of Area 5 are in the transient snow zone (>2100 feet). The rest of the project area is in the rain-dominated zone, rarely impacted by rain-on-snow events.

The existing roads in the project area have been graded and maintained, and sedimentation from roads to streams is not apparent. Natural stream flow has been diverted in several locations by past road construction, but these sites have revegetated, and sedimentation does not appear to be problematic at this time. The log culvert has failed where Road 20-1-26.3 crosses Stream 20 in Area 5. No culvert can be found where Road 20-1-10.3 crosses Stream 11 in Area 5, and water is apparently draining through the fill.

3.6 Fisheries

Descriptions of the fisheries conditions in the Lost Creek watershed are contained in the Lost Creek Watershed Analysis (pp. 84-99) and the Lost Guiley Timber Sale EA (OR-090-EA-03-08) (pp. 14-15) and are incorporated here by reference. Areas 4 and 5 are located approximately 4 miles above the confluence of Guiley Creek with Lost Creek. The northern and southern halves of Area 1 are 2.5 and 3.2 miles, respectively, above the confluence.

4.0 ENVIRONMENTAL EFFECTS

This analysis incorporates by reference the analysis of cumulative effects in the Final Supplemental EIS for the Northwest Forest Plan (Chapters 3&4, pp. 4-10) and the RMP EIS (Chapter 4). Those documents analyze most cumulative effects of timber harvest and other related management activities. None of the alternatives considered here would have cumulative effects on any resources beyond those effects analyzed in the above documents. The following section supplements those analyses, providing analysis particular to the alternatives considered here, the relevant issues for this action, and site-specific information.

4.1 Unaffected Resources

The following resources or concerns are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern, cultural resources, prime or unique farm lands, floodplains, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, Wilderness, Native American trust resources, minority populations or low income populations.

Effects on threatened and endangered species and wetlands are addressed in the issues below. All of the action alternatives would include activities that could affect air quality, including smoke from prescribed burning for slash disposal and dust from road use and construction. Given the minor amount and diffuse nature of these activities that would occur, all of the alternatives would have a negligible effect on air quality, and the effects have been already analyzed in the RMP EIS (pp. 4-10 - 4-14). Additional information is presented in the Fuels Report which is included in the Snowy Wolf project file and available for review at the Eugene District Office.

4.2 What would be the disturbance and habitat modification effects to nesting owls and their progeny due to harvesting?

Alternative 1 (No Action)

Under Alternative 1, there would be no direct effects to nesting owls or their habitat. However, nesting habitat would develop more slowly in the Riparian Reserves than in Alternatives 3 and 4. Within the provincial home range of the nearby owl sites, adverse

cumulative effects from timber harvest in the area would be similar to, but less than the action alternatives.

Alternative 2 - Summer Logging with No Riparian Reserve Thinning

The use of dirt-surfaced roads would require that timber harvest be conducted during the summer, when activities could disturb nearby owl nesting. This disturbance would be likely to adversely affect owls. The critical nesting season when owls and their young are most vulnerable to disturbance is from March 1 to July 15, but the nesting season continues until September 30. Therefore, even if seasonal restrictions were to limit activities until after July 15, project activities could still disturb juveniles or adults and disrupt normal behavior, reduce foraging opportunities, and expose adults or juveniles to increased risk of predation, including mortality of young. The intensity and likelihood of such disturbances depend on adult owl behavior, the ability of juveniles to thermoregulate and fly, distance between owls and project activities, the type of activity, and the time of year. The likelihood of disturbance affecting owls generally decreases later in the nesting season.

Alternative 2 would not directly affect nesting habitat, because there is no nesting habitat within the areas proposed for harvest. However, the likelihood of successful reproduction in nearby nesting habitat would be affected by impacts to nearby foraging and roosting habitat. Thinning would degrade existing dispersal habitat by temporarily reducing canopy cover, degrading existing coarse woody debris, and possibly increasing brush growth which would reduce foraging opportunities. Thinned stands would still function as minimal quality dispersal habitat, but would not function for roosting, foraging, or buffering of nearby nesting habitat until canopy cover recovers in 10-20 years. The thinned stands would experience increased growth, which could speed development of late-successional structural components necessary for nesting (e.g., multi-layered canopies, large crowns, large limbs, and tree cavities). However, Matrix stands would likely be regenerated in about 30 years.

This proposed project, combined with the recent Lost Guiley timber sale, would degrade about 38% of the dispersal habitat in the home range of the East Buckhorn owl site and 28% of the dispersal habitat in the home range of the Lost Guiley owl site. Some of the project area (e.g., Area 4) is used by more than one owl site, increasing its importance on the landscape for owls.

It is reasonably foreseeable within the next 10-20 years that there will be additional thinning projects in dispersal habitat within the home ranges of these owl sites (up to 1,000 acres out of a total of 1,338 acres of existing dispersal habitat on BLM-managed lands). Although regeneration harvest of some 60-80 year old stands on BLM-managed lands is possible, it is unlikely that nesting habitat would be harvested in the next 10-20 years because of the age-class distribution in the watershed. Non-federal lands in the area currently provide some dispersal habitat and negligible amounts of nesting habitat. It is likely these non-federal lands will continue to be harvested and will not grow back to nesting habitat because of intensive timber management. This cumulative degradation of existing dispersal habitat within these home ranges, especially in proximity to high-use core areas, would decrease the likelihood that the nearby two sites would be occupied or successfully reproduce.

Alternative 3 - Winter Logging with Moderate Riparian Reserve Thinning

The use of gravel-surfaced roads would allow timber harvest to be conducted October 1 - February 28, thereby avoiding disturbance of owl nesting from harvesting and hauling. However, some road construction and culvert replacement activities would occur July 15 - September 30, which could cause some disturbance of owl nesting (See

Alternative 2). These potential disturbance effects would be much less in likelihood and amount than Alternative 2.

The overall effects of Alternative 3 on owl habitat would be similar to Alternative 2, except in the Riparian Reserves. An additional 55 acres of dispersal habitat would be degraded by thinning portions of the Riparian Reserves. This would result in effects to dispersal habitat that would be similar to, but greater than, those described in Alternative 2. However, thinning and the creation of coarse woody debris would speed the development of nesting habitat in the Riparian Reserves.

Alternative 4- Winter Logging with Heavy Riparian Reserve Thinning

The effects of Alternative 4 of owls would be the same as in Alternative 3, except that the more intense Riparian Reserve thinning would increase the time until these areas would recover their dispersal habitat function (approximately 15-25 yrs). However, Alternative 4 would be the fastest to develop nesting habitat.

4.3 How would road construction and yarding affect soil compaction?

Alternative 1 (No Action)

No additional soil compaction or displacement would occur beyond what currently exists, but soil porosity would not be restored on the existing skids trails and road segments that would be tilled under the action alternatives.

Alternative 2 - Summer Logging with No Riparian Reserve Thinning

Yarding of timber would cause soil compaction and displacement of surface soil and organic matter, but impacts would be within the scope anticipated in the RMP EIS (pp. 4-15 – 4-18). With cable yarding, soil compaction is usually confined to a strip less than 4 feet wide, especially where yarded logs are relatively small. After harvest, compacted cable corridors would occupy approximately 3 acres, which is within the range that the RMP anticipated would have an insignificant effect on future stand growth (RMP, pp. 37, 166). Soil compaction within cable yarding corridors tends to last less than 10 years and have a minimal effect on long-term site productivity.

Ground-based yarding has the potential for greater soil compaction than cable systems, because ground-based skid trails cover a greater area than cable yarding corridors, and compaction extends deeper and lasts longer if untreated. Under Alternative 2, ground-based yarding would occur on approximately 47 acres, only on suitable soils (primarily Kinney and Peavine soils) and slopes less than 35 percent. After harvest, skid trails would occupy about 5 acres. Tillage with an excavator would restore infiltration and hasten vegetative recovery, which would mitigate any long-term effects to soil productivity. Maximizing the use of existing skid trails, then tilling after harvest, would reduce existing compaction.

Construction of temporary roads would cause soil compaction and loss of topsoil, but most new roads and some existing roads would be tilled following timber harvest operations. Although tillage would not totally restore soil function, it would restore infiltration, reduce the potential for prolonged erosion, and speed the recovery back to a forested condition. The exceptions are Roads 20-1-23.4 and 20-1-23.5, which are on soil that is too rocky to till. There would be an irretrievable loss of soil productivity on these two roads, constituting approximately 2 acres.

Alternative 3- Winter Logging with Moderate Riparian Reserve Thinning

Soil would be displaced and compacted on approximately 4 acres of cable corridors, slightly more than Alternative 2. Because all yarding would be done with cable systems, there would be no compaction from ground-based yarding, but also no tilling to ameliorate existing skid trails. Otherwise, the effects of yarding on soil compaction would be the same as in Alternative 2.

Roads would be surfaced with gravel and would be slightly wider than the dirt-surfaced roads in Alternative 2. Landings would be larger than in Alternative 2 and most would be surfaced with pit run rock (unsorted rock that includes large cobbles) to facilitate winter operations. Therefore, more acreage would be committed to facilitate harvest: approximately 6.5 acres, compared to 3 acres in Alternative 2. Following logging, rock removal and tillage would occur on all tillable soils. The gravel would not be removed from Roads 20-1-23.4 and 20-1-23.5, because the soil is too rocky to till. Therefore, although these two roads would remain open in Alternative 3, they would have the same overall effect on soil compaction as in Alternative 2. The pit run rock would be very difficult to remove completely from landings, because it sinks into the soil profile. However, where pit rock can be removed tillage may be able to retrieve some of the soil productivity at landings. There would be an irretrievable loss of soil productivity on these two roads, constituting approximately 2 acres, and a reduction in soil productivity on the five landings, constituting approximately 2.8 acres.

Alternative 4- Winter Logging with Heavy Riparian Reserve Thinning

Effects on soil compaction would be the same as in Alternative 3.

4.4 Would thinning in Riparian Reserves speed the development of late-successional forest structural characteristics in the Riparian Reserves?

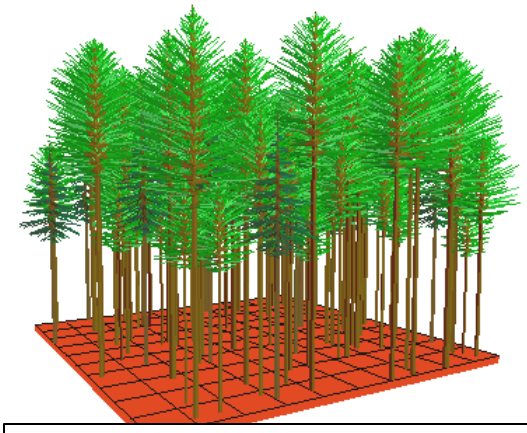
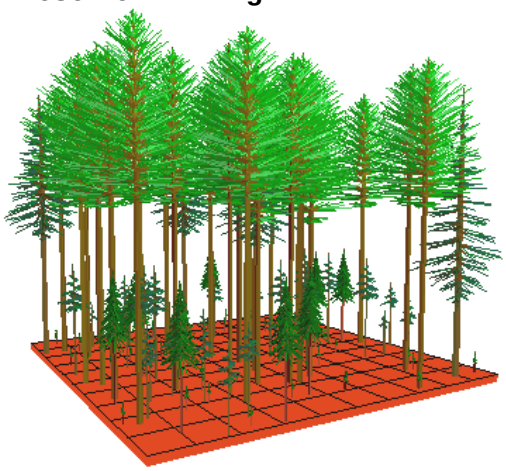


Figure 1 - Alternatives 1 and 2: Area 4 in year 2103.

Alternative 1 (No Action)
Under Alternative 1, stands in Riparian Reserves would continue to develop under high-density conditions with slow growth. Few, if any, new hemlock or red-cedar trees would become established under the high-density overstory in the Riparian Reserves. As a result, Alternative 1 would be the slowest to develop large Douglas-fir and would have the least range of tree diameters. The stands would experience a prolonged period during which they would be highly susceptible to windthrow, disease, and fire. If the stands do not experience catastrophic disturbance, eventual tree suppression mortality and localized windthrow and disease could provide gaps for establishment of new vegetation and increase stand structural complexity. Alternative 1 would be the slowest to develop late-successional structural characteristics in Riparian Reserve stands (see Figure1).

Alternative 2- Summer Logging with No Riparian Reserve Thinning

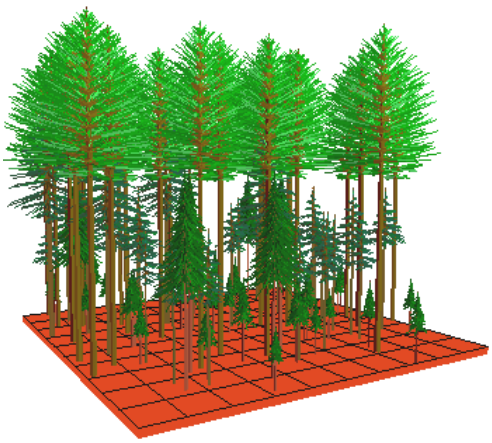


Riparian Reserve stands would develop the same as in Alternative 1.

Under Alternative 3, thinning would allow trees to maintain high vigor, which would speed the development of large Douglas-fir relative to Alternatives 1 and 2. This alternative is analyzed here with the expectation of a second thinning in 30 years to 40 TPA (See *Alternatives Considered but Not Analyzed in Detail).* Thinning these stands now would open the stands sufficiently to establish hemlock and red-cedar in the understory, but not enough for vigorous growth until a future second thinning. As a result, the development of a new cohort of hemlocks and red-cedar would not happen as soon as in Alternative 4 (see Figure 2). Nevertheless, the establishment of a new cohort in the understory would eventually spread the range of tree diameters to a greater extent than Alternatives 1 and 2.

ure 2 - Alternative 3: Area 4 in year 2103.

Alternative 3- Winter Logging with Moderate Riparian Reserve Thinning



Alternative 4- Winter Logging with Heavy Riparian Reserve Thinning
Under Alternative 4, thinning would allow trees to maintain high vigor, which would speed the development of large Douglas-fir, even more than Alternative 3. Thinning would open stands sufficiently for vigorous growth of a new cohort of hemlock and red-cedars, which would spread the range of tree diameters more than any other alternative (see Figure 3). Therefore, Alternative 4 would be the

Figure 3 - Alternative 4: Area 4 in year 2103.

fastest to develop late-successional structural characteristics in stands in the Riparian Reserves.

4.5 How would thinning in Riparian Reserves and road management actions affect stream temperature, sedimentation, and existing coarse woody debris?

Alternative 1 (No Action)

Stream Temperature
Current stream temperatures would be maintained.

Sedimentation
Taking no action might not maintain the sediment regime in some streams in the project area. There is no culvert where Road 20-1-10.3 crosses Stream 11 in Area 5, and the road could fail without corrective measures. Road failure could result in a debris torrent that would scour the channel to bedrock and degrade fish habitat 500 feet downstream or further. Sedimentation could continue for years until new vegetation stabilizes the scoured channel.

The log culvert has already failed where Road 20-1-26.3 crosses Stream 20 in Area 5 and would continue to erode into the stream or perhaps eventually block stream flow. However, this stream is not connected by surface flow to other streams downhill, and any sedimentation would be contained in this stream.

Under Alternative 1, no roads would be decommissioned, and four stream crossings of roads that are not needed would remain in place. If those culverts are not maintained, they could eventually plug and erode.

If all of these stream crossings were to fail, approximately 300-500 cubic yards of soil and rock could potentially enter the adjacent streams. Additional soil volume along the channel banks could also be disturbed due to the debris flows. (These estimates of sediment volume are only rough approximations because of the many variables that could influence debris flows and mass wasting from road failures). While it is difficult to predict exactly where the debris would be deposited in the channels, most of the coarse material would likely settle out in the project area streams. Some suspended sediment might be carried into Lost Creek and further downstream from the project area.

Existing Coarse Woody Debris
There would be no effects on existing coarse woody debris in the Riparian Reserves.

Alternative 2- Summer Logging with No Riparian Reserve Thinning

Stream Temperature
Current stream temperatures would be maintained. Riparian Reserves would remain unthinned, which would preserve the primary shade zone (the riparian stand that shades the stream at midday in summer) and the secondary shade zone (the riparian stand that shades the stream in the morning and afternoon). Thinning outside of the Riparian Reserves would not alter stream shading and therefore would have no effect on stream temperature.

Sedimentation
This alternative would include installation and removal of culverts, and decommissioning of existing and new roads, which would result in an overall decrease

in road-related sedimentation to streams. These road management actions, combined with other ongoing and planned road renovation and restoration work in the Lost Creek Watershed (both on BLM and private lands) would result in a long-term reduction of road-related sediment delivery to streams.

Installation of a culvert on Road 20-1-10.3 at Stream 11 would require removal and replacement of the existing fill, which appears to be mostly rock. Therefore, only small amounts of sediment would be mobilized, and no detectable changes in water quality would be expected.

Alternative 2 would also provide for the removal of a failed log culvert and three corregated metal pipe culverts on existing roads that are not needed. Restoration of the stream banks and channel bottoms following culvert removal would eliminate existing barriers to sediment transport, as well as reduce the risk of future road fill failures. Because work would be conducted during low-flow periods (usually July 1 to October 15), and exposed soils would be protected with straw mulch and seed, detectable amounts of sediment would not be delivered to the streams. At all culvert removal locations, a small amount of soil (approximately 1 cubic yard at each site) might accumulate at the straw bales/silt fences installed downstream from the excavation site. This sediment could mobilize during the first fall rains, but no detectable changes in water quality would be expected.

New road construction would not cause sedimentation to streams, because roads would be outside of the Riparian Reserves, predominately on ridge-tops or gentle slopes. On the roads to be closed, tilling where possible would minimize future sediment recruitment from the road prism. Tilling or storm-proofing roads by using waterbars, drain-dips, and pulling brush or slash onto the road would reduce future road-related sedimentation to streams.

Existing Coarse Woody Debris

The effects of Alternative 2 on existing coarse woody debris in the Riparian Reserves would be similar to Alternative 1. Although thinning in the adjacent Matrix would result in some minor microclimatic change in the Riparian Reserves, any resultant indirect effects on coarse woody debris would be negligible.

Alternative 3- Winter Logging with Moderate Riparian Reserve Thinning

Stream Temperature

Current stream temperatures would be maintained. "No-thin" buffers of 75 feet or more on either side of all streams would essentially encompass the entire primary shade zone, which would maintain shading on streams at midday in summer. Thinning the secondary shade zone to 70-90 TPA in Areas 1 and 4 and 100-120 TPA in Area 5 would increase solar radiation input and reduce relative humidity in the thinned areas. However, thinning to these densities in the secondary shade zone would not increase direct solar radiation penetrating into the primary shade zone and hitting streams early and late in the day. Although there is some uncertainty about the influence of riparian vegetation on stream temperatures (see Alternative 4), there is unlikely to be any increase in stream temperatures under Alternative 3.

Sedimentation

The effects of Alternative 3 on sedimentation would be the same as Alternative 2. New road construction would be outside of the Riparian Reserves, predominately on ridge-tops or gentle slopes, as in Alternative 2. Although roads would be gravel-surfaced in

Alternative 3, most new roads would be decommissioned following harvest activities, which would minimize future sediment recruitment from the road prism, as in Alternative 2. Although two new roads in Area 1 would not be decommissioned in Alternative 3, these roads would not be tilled in Alternative 2 because of rocky soil. Therefore, although these two roads would remain open in Alternative 3, they would have the same overall effect on sedimentation as in Alternative 2 (see section 4.3).

Existing Coarse Woody Debris

Most down logs would not be physically disturbed under Alternative 3, because most large logs in the project area are within 75-100 feet of streams, which would not be thinned.

However, thinning in the outer portion of Riparian Reserves would increase solar radiation input, which could alter local environmental microclimate variables, such as soil temperature, air temperature, and relative humidity. These microclimatic changes could decrease the moisture content and increase the decay rate of down logs.

The intensity and duration of microclimate changes caused by thinning is largely uncertain, but is greatly influenced by small-scale, local conditions. The intensity of microclimate changes would decrease from the edge of the thinned area to the stream. Microclimate variables would likely return to pre-harvest conditions within 10-20 years, as canopy closure levels in the adjacent thinned stands recover.

Amphibians that use down logs as habitat may experience some temporary reduction in habitat quality as down logs become drier. Local variables such as elevation, aspect, topography, annual weather patterns, understory growth, and growth rate of the thinned stand would strongly influence many of these effects. Changes to down logs would be sufficiently minor and temporary that amphibians that use logs as habitat would continue to persist in the area and continue life history functions that depend on down logs and moist riparian conditions. In addition, snag and down log creation in the treated portion of the Riparian Reserves would increase coarse woody debris quantities, which would mitigate reductions in habitat quality of existing logs.

Alternative 4- Winter Logging with Heavy Riparian Reserve Thinning

Stream Temperature

Current stream temperatures would be maintained. As in Alternative 3, “no-thin” buffers of 75 feet or more on either side of all streams would essentially encompass the entire primary shade zone. Although thinning to 40 TPA in the secondary shade zone may increase direct solar radiation penetrating into the primary shade zone, the primary shade zone would provide sufficient shading to maintain stream temperatures.

As noted in Alternative 3, there is some uncertainty about the effect of thinning on stream temperature. There is inadequate scientific information on the influence of riparian vegetation on stream temperatures to determine conclusively the effect of thinning to different densities at different distances from the stream. In general, thinning in the secondary shade zone would be most likely to affect stream temperature on larger streams that are north-south in orientation and have relatively open stands in the primary shade zone. In the project area, Stream 15 in Area 5 appears to be the most susceptible to temperature change from thinning in the secondary shade zone because of its orientation and the dominance of deciduous trees in the primary shade zone. However, retention of 100-120 TPA in the thinned portions of the Riparian

Reserve around Stream 15 would provide adequate shade to maintain stream temperatures.

Sedimentation
The effects on sedimentation would be the same as in Alternative 3.

Existing Coarse Woody Debris
The effects of Alternative 4 on existing coarse woody debris would be the similar to Alternative 3, but canopy closure in the adjacent thinned stand would take longer to recover (15-25 years), which might result in a longer change in microclimatic conditions in the unthinned stand and more drying of existing down logs. However, as noted in Alternative 3, there is uncertainty about the indirect effect of thinning on the microclimate of an adjacent stand and the effect of microclimate changes on logs, which makes it difficult to assess any difference in effects between Alternatives 3 and 4.

5.0 LIST OF AGENCIES AND PERSONS CONSULTED

This Environmental Analysis is being mailed to the following members of the public or organizations that have requested to be on the mailing list:

John Bianco
Robert P Davison
Jim Goodpasture
Pam Hewitt
John Muir Project
James Johnston
Charles & Reida Kimmel
Lane County Land Management
Carol Logan, Kalapooya Sacred Circle Alliance
Neal Miller
Oregon DEQ
Oregon Dept of Fish and Wildlife
Oregon Dept of Forestry
Oregon Natural Resources Council
The Pacific Rivers Council
John Poynter
Bart Pratt
Leroy Pruitt
Roseburg Forest Products Co.
Peter Saraceno
Sierra Club - Many Rivers Group
David Simone
Tom Stave, U of O Library
Swanson Superior Forest Products Inc.
Craig Tupper
Kris and John Ward
Molly Widmer
Jan Wroncy

A summary of the proposed action was sent to those receiving the "Eugene BLM Planning and Project Focus," December 2002 (approximately 250 mailings; a complete listing is available at the Eugene District Office).

Maps of the proposed action were sent to the Confederated Tribes of the Grand Ronde and Confederated Tribes of Siletz. No comments were received.

BLM will consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries on the effect of the proposed action on listed fish species. The proposed action may affect, but is not likely to adversely affect listed fish species.

BLM will consult with the U.S. Fish and Wildlife Service on the effect of the proposed action on northern spotted owls as part of the programmatic consultation in the *Willamette Province FY 2003-2004 Habitat Modification Biological Assessment for Effects to Northern Spotted Owls and Northern Bald Eagles* and would conform to the guidance in that document, including application of biological opinion Reasonable and Prudent Measures to minimize disturbance to spotted owls and their progency. The proposed action is likely to adversely affect northern spotted owls and would have no effect on other listed species.

6.0 LIST OF PREPARERS

THE INTERDISCIPLINARY TEAM

NAME	TITLE	RESOURCE/ DISCIPLINE
Mike Blow	Wildlife Biologist	Wildlife
Mark D'Aversa	Fisheries Biologist	Fisheries
Christie Hardenbrook	Planning SCEP	Facilitator
Richard Hardt	Forest Ecologist	Team Leader/ NEPA Coordinator
John Hegg	Forester	Logging Systems
David Mattson	Engineering	Roads/Transportation
Cheshire Mayrsohn	Botanist	Botany
Dave Reed	Fuels Specialist	Fuels
Michael Southard	Archaeologist	Cultural Resources
Kris Ward	Hydrologist	Water Resources
Rudy Wiedenbeck	Soil Scientist	Soils
Jill Williams	Forester	Silviculture

DESIGN FEATURES COMMON TO ALL ACTION ALTERNATIVES

Design Features for Harvesting

1. Log lengths would be limited to 40 feet in length where necessary to protect residual trees, snags and coarse woody debris during yarding.

2. Directional falling and yarding would be utilized for the protection of retention trees, existing coarse woody debris, snags, and reserve areas.

3. One-end suspension of logs would be required wherever topography permits to reduce the potential for erosion and run-off during yarding. Intermediate supports may be required to accomplish this objective. Full suspension of logs would be required where logs are yarded across Stream 11 in Area 5 to reduce the potential for erosion and run-off during yarding.

    • If gouging were to occur with the potential to deliver sediment to streams, hand waterbar and/or pull slash and logging debris into cable yarding corridors.

4. Place cable corridors on the landscape to avoid disturbance to snags and down logs >30 inch diameter where feasible. Snags, existing root wads, down logs and stumps >15 inch diameter (all decay classes) and large remnant trees would be retained undamaged where feasible and would not be cut, except those in temporary road construction right-of-ways, landings and yarding corridors, and those posing a safety hazard. If these are felled for the above reasons, they would be retained on site as coarse woody debris. Rootwads should be left on site and not burned.

5. Retain all western red-cedar, Pacific yew, and hardwood trees, except where necessary to accommodate safety and logging systems.

6. Consistent with IM No. OR-99-036 ("E-4 Special Provisions"), apply seasonal restrictions or suspension of all harvest and road activities that would occur within 1/4 mile of: known nesting peregrine falcons, bald eagles, spotted owls, great grey owls, accipiter hawks, and other owls, hawks, or raptors that may be located at any time during project activities.

7. The *Sparassis crispa* site in Area 1 would receive a 60-foot no-entry buffer around it to protect coarse woody debris.

8. The *Ramalina thrausta* site in Area 4 would receive a 180-foot buffer.

9. To prevent the spread of weed seed, the operator would be required to clean all logging and construction equipment prior to entry on BLM lands.

Design Features for Road Construction, Road Improvements, and Road Decommissioning

10. For roads that would be closed after timber harvest activities:
    a. Remove all stream crossings and recycle corregated metal pipes.
    b. Waste or fill material would be disposed of along the closed road at a distance at least 50 feet from streams and tilled into the road prism where appropriate.

c. Silt fences or straw bales would be used to contain sediment within the excavation area at these crossings. Recontour the channel side slopes and seed or plant exposed soils with native plant species in conjunction with erosion control blankets or mulch.
d. Where sub-grade conditions warrant, till the compacted road surface. If closed roads are not tilled, construct drainage dips, water bars or lead-off ditches to direct surface water to the forest floor and otherwise leave the road in an erosion-resistant condition. To block the roads and reduce erosion, pull slash, logging debris, and brush onto the road surface. This addition of woody material should be conducted along as much of the length of the road as possible.
e. Construct earthen barricades with brush or slash additions to adequately restrict access to all vehicles.

11. At Road 20-1-23, a temporary barricade would be installed to provide for periodic vehicle access until noxious weed control is completed, after which the road would to be closed in the same manner as described above.

12. ODFW in-water guidelines would apply to all stream-crossing and culvert work activities. Work times for the Lost Creek drainage are usually July 1 to October 15.

Design Features for Fuels Treatment

13. Tracked equipment for slash treatment (e.g. hydraulic excavator) would be restricted to travel on gravel-surfaced roads so that piling and subsequent burning could occur during wet winter months without causing soil displacement.

14. Slash cleanup and disposal would be restricted to within 25 feet of the roadway edge (approximately the maximum boom length) to insure no tracked entry into the area. Slash to be piled would be comprised of dead and downed woody material, both natural and activity-created. Large coarse woody debris (sound and rotten logs >20". diameter) and root wads will generally be excluded from piling.

15. On primary gravel roadways only, root wads and sound large logs created by harvest activities would be lifted and placed in the area at maximum boom length to eliminate roadside high-intensity heat sources. Rotten large logs near the road would be left in place where feasible.

16. Piles and fuel concentrations along temporary roads and landings that are not designated for excavator cleanup would be covered during the summer months and burned in the late fall (usually November and December), when soil and duff moistures are high, but before conditions become too wet for adequate fuel consumption. Roadside slash piles would not be left unburned, because they would compromise the objective of securing safer access and egress for the public and firefighting resources should a fire occur within the project area.

ADDITIONAL DESIGN FEATURES FOR ALTERNATIVE 2

1. Consistent with consultation with the U.S. Fish and Wildlife Service, apply Reasonable and Prudent Measures to minimize disturbance to spotted owl pairs and their progeny, including: Apply seasonal restrictions on harvest, hauling, and road activities within 1/4 mile of suitable nesting habitat (the proposed harvest units) during the critical nest period from March 1st – July 15th for every year project activities occur. These restrictions may be waived or extended by the Area wildlife biologist based on survey information regarding occupation or nesting activity. If operators wish to survey the area and potentially modify these restrictions, arrangements should be made with the BLM to ensure surveys adequately address these restrictions.

Design Features for Harvesting

2. Ground-based yarding operations would only occur where designated (see Appendix B for map). Adherence to all of the following requirements for ground-based yarding systems would keep soil impacts/compaction within RMP standards:

    - Existing skid trails would be used wherever possible.
    - Designated skid trails would be preplanned to occupy less than 10% of the harvest area.
    - Trees would be felled to lead to skid trails and winching distances would be up to 100 feet. Distances between trails would be up to 200 feet where feasible.
    - Yarding would be restricted to seasonally dry periods when soil moisture content provides the most resistance to compaction, typically less than 32% (usually July 1st - October 15th).
    - Till all compacted skid trails with an excavator to a depth of 24", when soil moisture is appropriate. Minimize damage to residual tree roots adjacent to trails. To reduce erosion and restore soil productivity, pull slash, logging debris, and brush from the adjacent forest floor.
    - If tillage cannot be accomplished the same operating season, all skid trails and temporary native surface roads would be left in an erosion-resistant condition and blocked prior to the onset of wet weather. This would include construction of drainage dips, water bars, lead-off ditches, and barriers (rootwads or brush piles) to prevent vehicle access until final blockage and/or tilling.

3. Other methods of ground-based cutting (feller buncher, harvester processor, cut-to-length systems) may be used where slopes are generally less than 45%.

    - Activity would be restricted to seasonally dry periods, same as for ground-based yarding.
    - Limit movement off of primary trails to a single pass.
    - Harvester processors would be kept moving on top of slash whenever possible.

Design Features for Road Construction, Road Improvements, and Road Decommissioning

4. All new road construction would be temporary, with a surface of native sub-grade material. Road width would be 14 feet wide with drain dips or outsloped for drainage control. Longer

roads would have some turnouts and parking areas created as needed. New roads would be closed and/or tilled the same year as harvest and hauling.

5. Use of native-surfaced roads would be limited to seasonally dry periods (usually July 1st - October 15th, subject to soil moisture restrictions). Water bars, drainage dips and/or lead off ditches may be required to create an erosion-resistant condition on roads used for harvesting during seasonal shut-down periods

ADDITIONAL DESIGN FEATURES FOR ALTERNATIVES 3 AND 4

1. Consistent with consultation with the U.S. Fish and Wildlife Service, apply Reasonable and Prudent Measures to minimize disturbance to spotted owl pairs and their progeny, including:
   Apply seasonal restrictions on felling, yarding, hauling and related harvest activities within 1/4 mile of suitable nesting habitat (the proposed harvest units) during the entire nest period from March 1 – September 30 for every year project activities occur. Road construction and related activities (including culvert replacement) would be allowed during the July 15 – September 30 portion of the nesting season. These restrictions may be waived or extended by the Area wildlife biologist based on survey information regarding occupation or nesting activity. If operators wish to survey the area and potentially modify these restrictions, arrangements should be made with the BLM to ensure surveys adequately address these restrictions.

Design Features for Riparian Reserves

2. To protect red-legged frog habitat and other aquatic resources, no timber harvest would occur within 75 feet of ponds and pump chances.

Design Features for Road Construction, Road Improvements, and Road Decommissioning

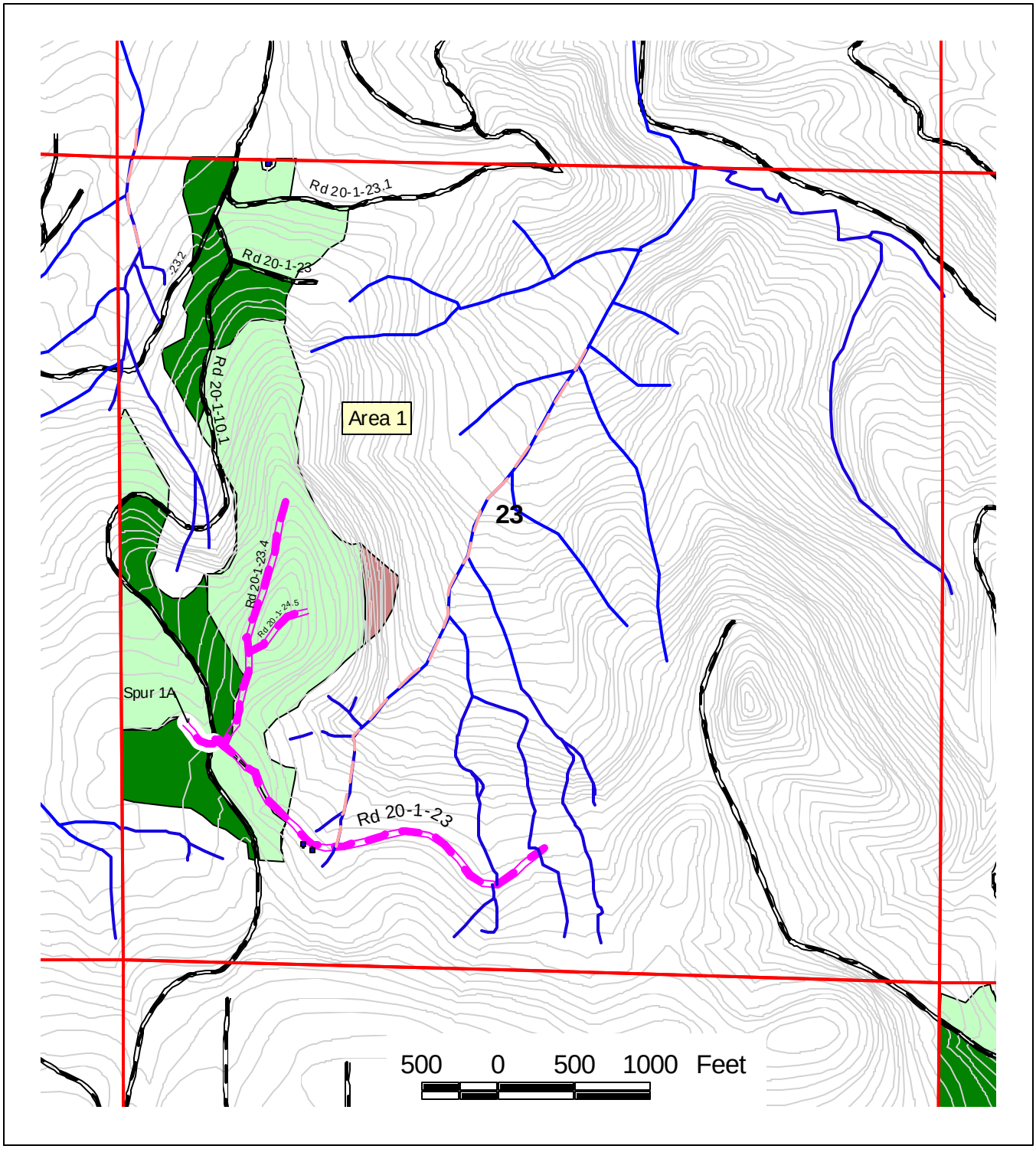
3. All new road construction would be temporary, with a surface of crushed rock to a depth of 6 - 9 inches, as needed to support winter hauling. Road widths would be 14 feet wide with a 3-foot ditch on spurs up 300 feet in length. Spurs longer than 300 feet would be 16 feet wide with a 3-foot ditch. Surfaced turn-outs would be located as needed for safety and anticipated parking needs. Culverts would be installed as needed to control ditch flow and minimize sedimentation delivery to streams.

4. Following timber harvest operations, roads that would be closed would have surfacing removed. The removed crushed rock could be hauled to a stockpile site or placed and spread on other spur roads that would remain open.

5. Use of gravel roads in wet weather showing signs of sheet or surface flow would receive maintenance targeted to remove water from road surface in order to reach cross-drain locations and not streams.

APPENDIX B

MAPS OF STREAMS AND ROAD CONSTRUCTION AND HARVESTING IN ALL ACTION ALTERNATIVES



Snowy Wolf
Alternative 2
T.20S., R.01W., Sec. 23
Harvest Area 1

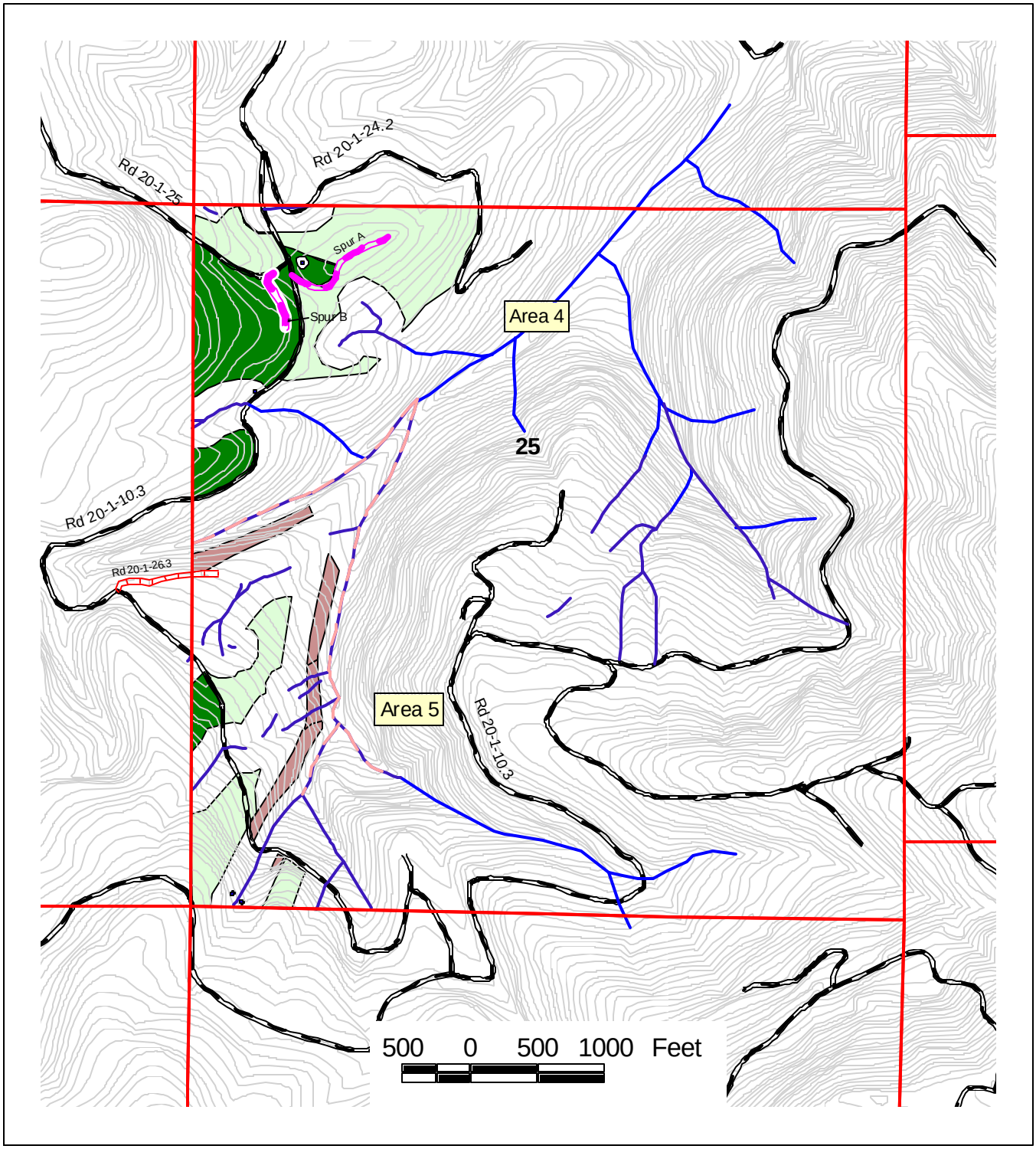
LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, etc)
- Fish Bearing Streams
- Streams (GPS & Hyd Corrected)
- Existing Road Decomission (Rd 20-1-23)
- New Roads (Decommission)
- Existing Rocked Road
- Contour
- TPCC Areas
- Cable Yarding
- Ground Based Yarding

AREA 1
Cable Yarding Area ..... 66.6 Acres
Ground_based Yarding Area ..... 25.3 Acres

N

Revision Date 6/24/2003



Snowy Wolf
Alternative 2
T.20S., R.01W., Sec. 25
Harvest Area 4 & 5

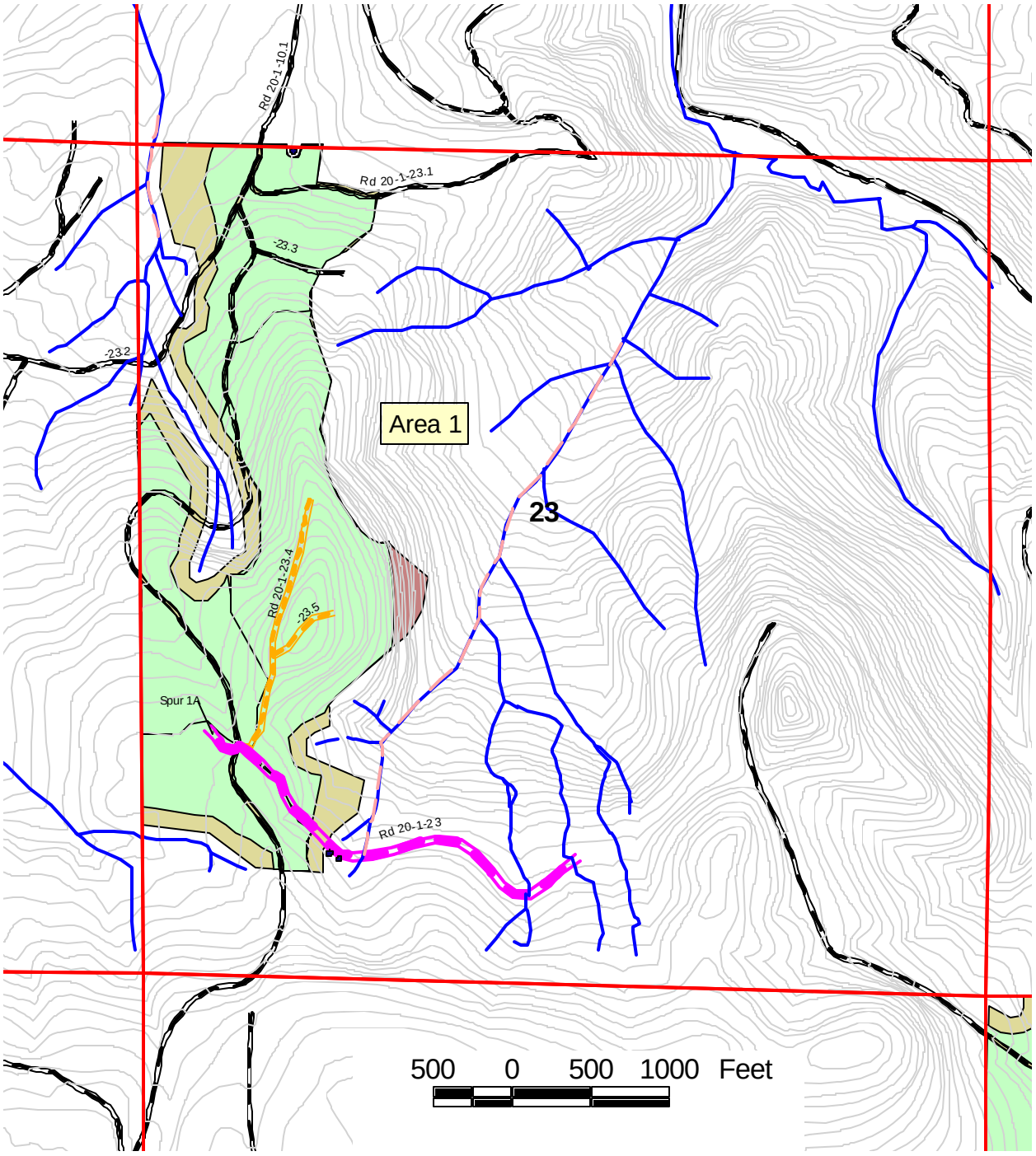
LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, Etc.)
- Fish Bearing Streams
- Streams (GPS & Hyd Corrected)
- New Roads (Decommission)
- Existing Road (Decommission)
- Existing Rocked Roads
- Contour
- TPCC Areas
- Cable Yarding
- Ground Based Yarding

AREA 4
Cable Yarding Area ..... 25.0 Acres
Ground-base Yarding Area .....18.9 Acres
AREA 5
Cable Yarding Area .....13.0 Acres
Ground-base Yarding Area ..... 2.5 Acres

N

Revision Date 6/24/2003



Snowy Wolf
Alternative 3 & 4
T.20S., R.01W., Sec. 23
Harvest Area 1

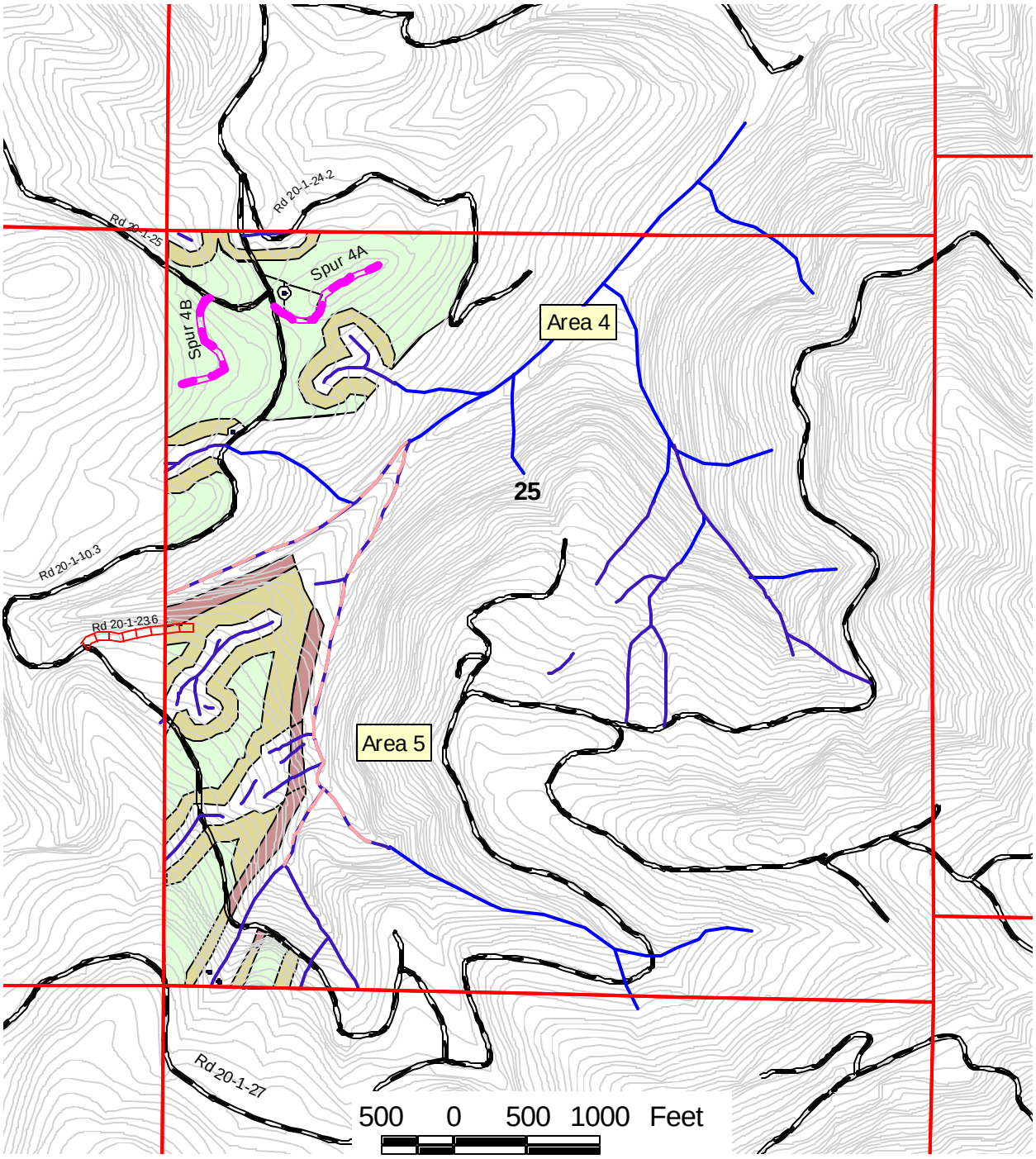
LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, etc.)
- Fishbearing Streams
- Streams (GPS and Hyd Corrected)
- Existing Road Decomission (Rd 20-1-23)
- New Road (Decommission)
- New Roads (Permanent)
- Contour
- Existing Rocked Roads
- TPCC Areas
- Cable Yarding
- Riparian Treatment

AREA 1
Cable Yarding Area ..... 91.9 Acres
Riparian Treatment Area ..... 25.1 Acres

N

Revision Date: 6/24/2003



Snowy Wolf
Alternative 3 & 4
T.20S., R.01W., Sec. 25
Harvest Area 4 & 5

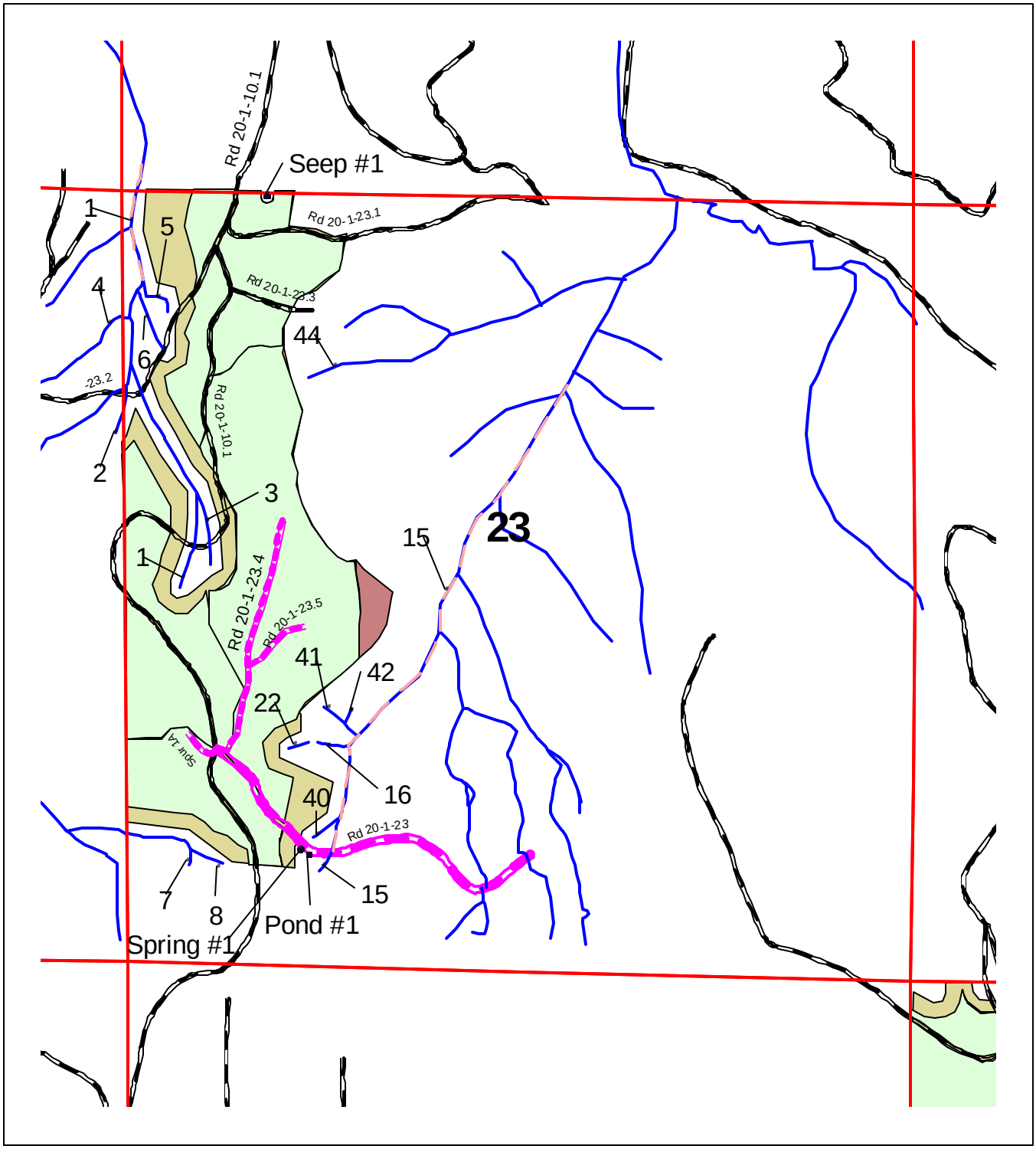
LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, etc.)
- Fish Bearing Streams
- New Roads (Decommission)
- Streams (GPS & Hyd Corrected)
- Existing Road (Decommission)
- Existing Rocked Roads
- Contour
- TPCC Areas
- Cable Yarding
- Riparian Treatment

AREA 4	
Cable Yarding Area	43.9 Acres
Riparian Treatment Area	9.1 Acres
Area 5	
Cable Yarding Area	15.5 Acres
Riparian Treatment Area	20.5 Acres

N

Revision Date 6/24/2003



Snowy Wolf
Hydrology Map
T.20S., R.01W., Sec. 23
Harvest Area 1

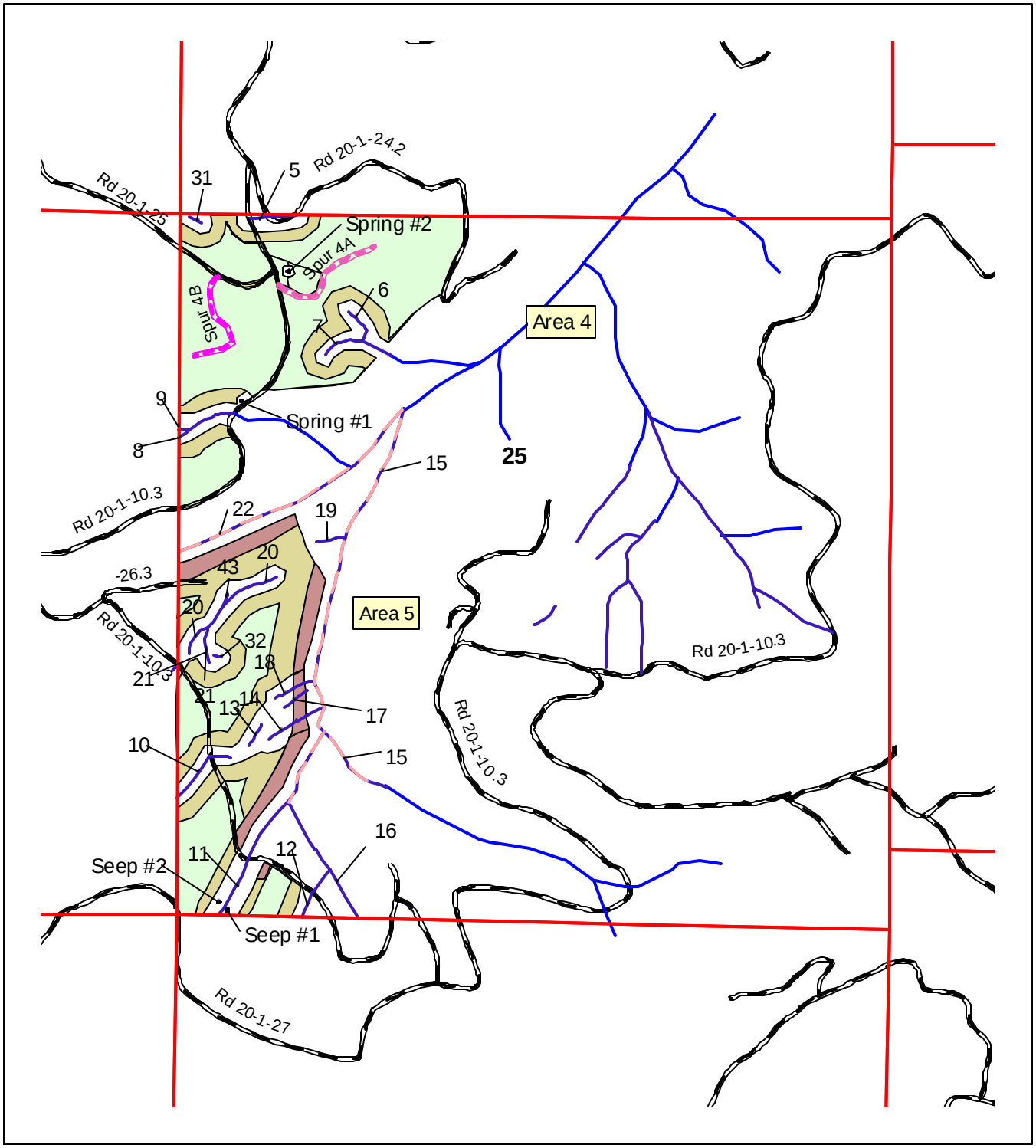
LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, etc.)
- Fishbearing Streams
- Streams (GPS and Hyd Corrected)
- New Roads
- 20_1_23_decommission_b.shp
- Existing Rocked Roads
- TPCC Areas
- Cable Yarding
- Riparian treatment

N

500 0 500 1000 Feet

Revision Date: 6/24/2003



Snowy Wolf
Hydrology Map
T.20S., R.01W., Sec. 25
Harvest Area 4 & 5

LEGEND

- Property Lines
- Hyd Features (Ponds, Springs, etc.)
- Fish Bearing Streams
- Streams (GPS & Hyd Corrected)
- New Roads
- Existing Rocked Roads
- TPCC Areas
- Cable Yarding
- Riparian Treatment

500 0 500 1000 Feet

N

Revision Date 6/24/2003

UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

Finding of No Significant Impact
for
Snowy Wolf Timber Sale
Environmental Assessment No. 090 EA 03-15

Determination:

On the basis of the information contained in the Environmental Assessment, and all other information available to me, it is my determination that implementation of the proposed action or alternatives will not have significant environmental impacts not already addressed 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 (April 1994) and the Eugene District Record of Decision and Resource Management Plan (June 1995), as amended by the Record of Decision for Amendments to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, January 2001, with which this EA is in conformance, and does not, in and of itself, constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

_____ _____

Field Manager, Upper Willamette Resource Area Date