

**Late-Successional Reserve 261 Density Management  
Environmental Assessment**  
South River Field Office, Roseburg District  
EA# OR-105-05-08

**Sherlock's Denn Density Management  
Decision Document**

Prepared: September 25, 2006

**Decision:**

It is my decision to authorize the Sherlock's Denn Density Management project, partially implementing Alternative Two described in the Late-Successional Reserve 261 Density Management EA (pp. 5-15). Five units, totaling approximately 138 acres in area, will be treated. The unit numbers and the corresponding EA designation are as follows: 1 (A); 2 (B); 3 (C); 4 (D); and 5 (E). The units are located in Sections 23 and 27 of T. 29 S., R. 9 W., W.M., on lands allocated to Late-Successional Reserves (LSRs). The density management will result in an estimated 1,422 thousand board feet of timber in support of local and regional manufacturers and economies. This volume is not chargeable towards the annual allowable sale quantity (ASQ).

Harvesting will be accomplished utilizing a combination of ground-based and cable systems. The use of ground-based equipment will be limited to the dry season, generally between May 15 and the onset of regular autumn rains in mid-to-late October. Cable yarding equipment will be capable of maintaining a minimum of one-end log suspension

Variable density treatments designed to develop late-successional forest conditions will consist of light, moderate, and heavy thinning densities, gap openings no more than one-quarter acre in size, and unthinned areas. The heavy thinning and gaps meet the *South Coast-Northern Klamath Late-Successional Reserve* (LSRA, p. 82) recommended desired condition of three to ten percent of the stand in heavily thinned patches of less than 50 trees per acre, or in openings up to 0.25 acres in size to maximize individual tree development and initiate structural diversity by encouraging conditions that enhance the potential for understory initiation and growth. This also follows the Regional Ecosystem Office exemption criteria for silvicultural treatments in LSRs. Conifer seedlings would be planted in the heavy thinning areas and openings to establish an understory in the absence of natural vegetation. As noted in the EA (p. 6-7) trees will primarily be removed from the suppressed and intermediate canopy classes, although some co-dominant and dominant trees could be removed where necessary to meet specific density objectives. It is also anticipated that additional cutting of individual trees will be required to clear yarding corridors, provide tailhold trees and guyline anchors, and provide a safe working space at landings.

Felling and yarding of timber, other than clearing rights-of-way, is seasonally restricted from April 15 to July 15 during the bark slip period. This is the time of year when active cambial growth can result in the bark being less firmly attached to the boles of young trees making them susceptible to mechanical damage. Circumstances may exist, however, where it would be practical to waive this restriction, such as in the use of harvesters and forwarders that are capable of severing trees, setting them aside, and transporting them to landings without damaging nearby trees.

Access will be provided by existing roads, supplemented by the construction of six temporary spur roads totaling 4,280 feet (~ 0.81 miles) in length. Approximately 3,355 feet (~ 0.64 miles) of road will be renovated. Approximately 2,800 feet (~ 0.53 miles) of renovated road will be surfaced with aggregate and retained for future stand management. The other 555 feet (~ 0.11 miles) of renovated road will be decommissioned by removing culverts and blocking. Road renovation could include: grading; repairing; realigning; surfacing; or widening existing roadbeds, shoulders, and cut and fill slopes. It could also include: cleaning and reshaping drainage ditches; cleaning, repairing, or adding drainage structures; and clearing vegetation and trees from cut and fill slopes.

As discussed in the EA (p. 13) the intent is to construct, use, and decommission temporary roads within the same operating season. If temporary roads are constructed but cannot be utilized and decommissioned in the same operating season, because of events such as an extended summer fire closure, the roads will be winterized and held over for use the following year. Winterizing will employ erosion control measures, in conjunction with blocking the roads to vehicular use during the wet season. Winterizing will be implemented during the dry season, to the extent practicable. The roads would then be decommissioned by subsoiling, removing culverts, blocking, or any combination thereof after use the following operating season.

### **Rationale for the Decision:**

The Roseburg District *Record of Decision and Resource Management Plan* (ROD/RMP) directs silvicultural treatments that are beneficial to the creation of late-successional habitat be planned and implemented in LSRs (p. 29). The ROD/RMP (p.29) also specifies that thinning operations should be conducted in forest stands up to 80 years of age, if needed to create and maintain late-successional forest conditions. This would be accomplished by precommercial or commercial thinning of stands regardless of origin (e.g., planted after logging or naturally regenerated after fire or blowdown). Implementation of Alternative Two, the proposed action, is consistent with these ROD/RMP objectives and would meet the purpose and need identified in the Late-Successional Reserve 261 Density Management EA (pp. 1-3), whereas Alternative One, the no action alternative, would not.

The *South Coast-Northern Klamath LSRA* provides guidance for determining what forest stand conditions warrant silvicultural treatment and the types of treatments that would be appropriate to achieve desired forest stand conditions. Although the *South Coast-Northern Klamath LSRA* identified stands less than 30 years old as high priority for treatment (pp.68 and 97), it also states on p. 66 that the guidelines are not intended to preclude a specific treatment where a management action would benefit late-successional species and their habitat and meet the

objectives for management in the LSRs. The *South Coast-Northern Klamath* LSRA listed LSR 261, which encompasses the analysis area, as a high priority for management actions based on its large size, key links to the LSR network, and its land ownership pattern. Management priorities identified in the *South Coast-Northern Klamath* LSRA for LSR 261 include enlarging existing interior late-successional habitat blocks, maintaining and improving habitat connections between LSRs and within the LSR, and creating late-successional habitat where absent (LSRA, pp. 63-66 and Map #6). Density management treatment of the Sherlock's Denn units would meet the *South Coast-Northern Klamath* LSRA objective to create late-successional habitat, enlarge existing interior late-successional habitat blocks, and maintain and improve habitat connections between LSRs and within the LSR.

## Public Comments

Comments on the Late-Successional Reserve 261 Density Management EA were received from two organizations. These comments were considered in the preparation of this decision. None of the comments identified issues or concerns that would constitute information not already considered and addressed in the EA, or that are not addressed in this decision. Following is a summary of some of the comments received and reference to how and where they are addressed in the Late-Successional Reserve 261 Density Management EA.

- The density management may remove older, remnant trees along road rights-of-way.

As discussed in the LSR 261 Density Management EA (p. 7) some older, remnant trees could be removed for roads, but only where no feasible alternative access routes are available. Thinning would not remove any older, remnant trees. Thinning is to be conducted from below, removing trees predominantly from the suppressed and intermediate canopy layers (EA, pp. 6 and 7). About 11 trees larger than 19 inches DBH will be removed during construction of six temporary spur roads providing access to landing areas in the Sherlock's Denn Density Management units. All of the trees are smaller than 28 inches DBH and are not older, remnant trees.

- Don't agree that it would be necessary to sell trees greater than 20 inches DBH cut for operational purposes. These trees should be left to help fill in the missing stand components in these wildlife reserves.

The LSR 261 Density Management EA (p. 7) acknowledged that trees larger than 20 inches may be cut to achieve stand density objectives. However, the marking prescriptions were to retain trees larger than 19 inches. Cruise data from Sherlock's Denn units show no trees larger than 19 inches DBH, outside of road rights-of-way, would be cut during density management operations.

- Before creating things like canopy gaps, new roads, or other project features, the BLM should consider the cumulative effects of a proposed natural gas pipeline.

The natural gas pipeline is in the initial planning stage and not enough information is available to permit a meaningful consideration of the pipeline in a cumulative effects discussion. Without a final route a discussion of cumulative effects of the natural gas pipeline would be speculative.

Also, the cumulative effects of earlier actions, including the Late-Successional Reserve 261 Density Management, would be analyzed during the NEPA process for the pipeline.

In a recent ruling, the Ninth Circuit Court of Appeals (EPIC v. U.S. Forest Service (Knob Case), No. 04-15931, 9<sup>th</sup> Cir., June 23, 2006) held that the government did not need to do the “impractical” because not enough information was available on another timber sale to permit meaningful consideration. Furthermore, once the future project becomes a formal proposal, it would also require a NEPA analysis that would take into account the effects of the earlier actions, including the one being challenged.

### *Wildlife*

#### Special Status Species

The Sherlock’s Denn Density Management project will thin approximately 138 acres of northern spotted owl dispersal habitat. It was determined that disturbance associated with the density management “may affect” but is not likely to adversely affect spotted owls because no known nest sites, no activity centers occur within the appropriate disruption threshold distances, and operations within 65 yards of unsurveyed suitable habitat (EA, Tables 9 and 10 on p. 25) will be subject to seasonal operating restrictions from March 1 through June 30, unless current calendar year surveys indicate spotted owls were not present, not attempting to nest, or nesting attempts failed (EA, p.54). Waiver of the seasonal restriction is valid until March 1 of the following year. Surveys conducted in 2006 did not detect any spotted owls nesting within 65 yards of the Sherlock’s Denn Density Management units.

The density management will be limited to northern spotted owl dispersal habitat, will maintain at least 40 percent canopy closure (EA, p. 53), and will not remove primary nesting and roosting habitat constituents. Within 10-15 years canopy closure will return to pre-thinning levels (EA, p. 46), and use by owls for dispersal and foraging is expected to rise as the greater structural and vegetative complexity will support more abundant prey. Although density management would change the physical attributes of these stands in the short term, individual trees considered suitable for nesting would remain and contribute to the long-term development of NRF for the spotted owl (EA, p. 54). As a consequence, the BLM has made a determination of “may affect, not likely to adversely affect” for habitat modification.

The U.S. Fish and Wildlife Service (Service) concluded in a Letter of Concurrence (File No. 1-15-05-F-0511, p. 19), dated June 24, 2005, that the density management activities are not likely to adversely affect spotted owls because canopy cover will not fall below 40 percent, a value accepted as a dispersal function threshold (Thomas et al. 1990), the units will continue to provide sufficient primary constituent elements for spotted owl dispersal, there will be adequate dispersal habitat available in the project area pre-harvest and post-harvest, and projects will not occur within 65 yards of unsurveyed suitable habitat from March 1 through June 30, unless current calendar year surveys indicate: 1) spotted owls not detected, 2) spotted owls present, but not attempting to nest, or 3) spotted owls present, but nesting attempt has failed. Waiver of the seasonal restriction is valid until March 1 of the following year.

The Sherlock's Denn Density Management units are not within any Critical Habitat Units designated by the U.S. Fish and Wildlife Service for the survival and recovery of the spotted owl (EA, p. 24), so the action will have no effect on the intended function of Critical Habitat Units.

The Sherlock's Denn Density Management project area is located within the Marbled Murrelet Inland Management Zone 2, but is outside of the Roseburg BLM District seasonal restriction corridors. This project will not adversely affect marbled murrelets because these units do not contain suitable habitat and activities within 100 yards of unsurveyed suitable habitat will be subject to daily operating restrictions from April 1 to August 5. These daily operating restrictions prohibit commencement of operations until two hours after sunrise and require cessation of operations two hours before sunset. Density management will develop late-successional characteristics by promoting growth of the retained trees and their canopies and the development of large branches approximately 10 to 30 years before untreated stands and contribute to the recovery of the marbled murrelet (EA, p. 55). As a consequence, the BLM determined that the project would not adversely affect marbled murrelets.

The U.S. Fish and Wildlife Service (Service) concluded in a Letter of Concurrence (File No. 1-15-05-I-0596, p. 6), dated July 20, 2005, that the density management activities are not likely to adversely affect the murrelet as a result of disturbance because daily operating restrictions will be applied within 100 yards of unsurveyed suitable habitat during the critical breeding season (April 1 to August 5). Therefore, density management activities will avoid disturbing nesting murrelets and will not cause nest abandonment, premature fledging, interruption of feeding attempts, or increased chick vulnerability to predation due to adult flushes during the critical nesting season.

The units are within Critical Habitat Unit OR-06-d designated for the survival and recovery of the marbled murrelet. The Service concurs that density management activities are not likely to adversely affect marbled murrelet critical habitat (File No. 1-15-05-I-0511, p. 16) because primary constituent elements will be maintained and protected. In the long term, the development of additional nesting structure and stand characteristics preferred by nesting murrelets will benefit this species.

Surveys were conducted for the spotted tailed dropper, and Oregon shoulderband, Chace sideband, and green sideband snails. None of these mollusk species were located in the Sherlock's Denn Density Management units.

#### Survey and Manage Species

As described in Appendix C of the EA, the Sherlock's Denn Density Management units are outside the range of the Crater Lake tightcoil snail.

The project area was evaluated for the presence of suitable habitat for great gray owls. Suitable nesting habitat for the great gray owl is characterized by: (1) large diameter nest trees, (2) forest canopy providing roosting cover, and (3) proximity [within 200 meters] to natural openings ten acres or larger in size that could be used as foraging areas. No habitat fitting this description is present in the Sherlock's Denn Density Management units.

The BLM has fulfilled survey requirements consistent with the direction of the 2001 *Record of Decision for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines*, as amended or modified through March 21, 2004.

#### *Fish and Essential Fish Habitat*

There are no fish species in the Sherlock's Denn Density Management project area listed as threatened or endangered or currently proposed for listing under the Endangered Species Act. The closest stream reaches designated as Essential Fish Habitat are more than four miles from any of the Sherlock's Denn Density Management units (EA, p. 37). There will be no effect on large woody debris, pool habitat, sediment, substrate, and streambank stability because vegetated, unthinned buffers will be maintained on all streams adjacent to or within the Sherlock's Denn Density Management units (EA, pp. 67-69). As a consequence, the density management is not likely to adversely affect Special Status Fish Species or Essential Fish Habitat.

#### *Botany*

##### Special Status and Survey and Manage Species

Clearances and surveys were conducted for all Special Status and Survey and Manage botanical species with a reasonable likelihood of being present in the Sherlock's Denn Density Management project area. The surveys found no Special Status Plant Species (EA, p. 14) that could be affected. The surveys included those Category B species designated for equivalent-effort surveys in BLM Instructional Memorandum 2006-038 as documented in Attachment A of this decision. The BLM has fulfilled survey requirements consistent with the direction of the 2001 *Record of Decision for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines*, as amended or modified as of March 21, 2004.

As described in the EA (p. 40), surveys for most Survey and Manage fungi species are not considered practical, so their presence cannot be substantiated. If any of these species are present in the Sherlock's Denn Density Management units, a loss of sites would likely result as a consequence of the removal of substrate and modification of microclimate, as described in the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (pp. 150-154). Thinning will retain a large number of potential host trees, however, so loss of all sites would be unlikely. The remaining host trees can serve as refugia allowing fungi to persist until stand conditions such as canopy closure, soil moisture, and relative humidity return to pre-thinning levels. Even though a temporary reduction in fruiting would be expected, as stand conditions return to pre-thinning levels over the next 10 to 15 years, mycorrhizal fungi populations will also recover.

## Noxious Weeds

All equipment will be pressure washed or steam cleaned prior to mobilization in and out of the project area to minimize the risk of introducing soil from outside the project area that may be contaminated with noxious weed seed or other propagative materials. Any equipment removed during the life of the contract must be cleaned before being returned to the project area.

## Port-Orford-Cedar

The project area is located within the natural range of Port-Orford-cedar (POC) and was evaluated for the presence of healthy and diseased POC. Sherlock's Denn Density Management Units 1 (A) and 3 (C) contain POC in the upland areas (where the risk of infection is lower) and riparian areas in similar concentrations. The POC ranges in size from saplings to large diameter trees. There are a few POC larger than 20 inches in diameter. There is diseased POC in the main draw upslope from these two units and along the road to the top of Unit 3 (C). Unit 2 (B) contains healthy POC east of the road. The proposed haul route from the top of Unit 2 (B) goes through diseased areas. Unit 4 (D) contains healthy POC in the north half. No POC has been observed in Unit 5 (E) or along the haul route from Unit 5 (E) to Unit 4 (D).

The risk of spreading POC root disease was determined to be low, using the Port-Orford-cedar Risk Key described in the *Record of Decision for Management of Port-Orford-Cedar in Southwest Oregon, Coos Bay, Medford, and Roseburg Districts* (POC ROD). Regardless, measures described in the EA (p. 14) will be implemented to further reduce the risk of spreading the disease. These include: equipment washing as previously described; sanitizing water drawn from sources in the sale area to be used for fire suppression, road construction, and dust abatement with a solution containing Clorox bleach (with the Clorox bleach being added after leaving the water source); restricting ground-based harvesting, road construction, and hauling on unsurfaced roads to the dry season (May 15 to October 15); and decommissioning and blocking unsurfaced roads upon completion of density management operations.

### **Monitoring:**

Monitoring will be conducted in accordance with provisions contained in the ROD/RMP, Appendix I (pp. 84-86, 190-193, and 195-199). Monitoring efforts will focus on consideration of the following resources: Late-Successional Reserves; Water and Soils; Wildlife Habitat; Fish Habitat; and Special Status and SEIS Special Species Habitat.

### **Protest Procedures:**

As outlined in 43 CFR § 5003 – Administrative Remedies at § 5003.3 (a) and (b), protests may be filed within 15 days of the publication date of the timber sale notice. Publication of such notice on September 26, 2006, in *The News-Review*, Roseburg, Oregon, constitutes the decision date from which such protests may be filed. Protests shall be filed with the authorized officer and contain a written statement of reasons for protesting the decision.

43 CFR 5003.3 subsection (b) states that: “Protests shall be filed with the authorized officer and shall contain a written statement of reasons for protesting the decision.” This precludes the acceptance of electronic mail or facsimile protests. Only written and signed hard copies of protests that are delivered to the Roseburg District Office will be accepted.

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Ralph D. Klein  
Acting Field Manager  
South River Field Office

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Date



## Attachment A

### 2001 ROD Compliance Review: Survey & Manage Botany Species (vers. 04-11-2006)

**Project Name:** Sherlock's Denn  
**Project Type:** Density Management  
**Location:** T29S, R9W, Sections 23 and 27

**Prepared By:** Gary Basham  
**Date:** September 7, 2006  
**S&M List Date:** December 29, 2003

**Table A. Survey & Manage Species Known or Suspected on the Roseburg District Bureau of Land Management.**

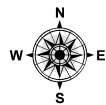
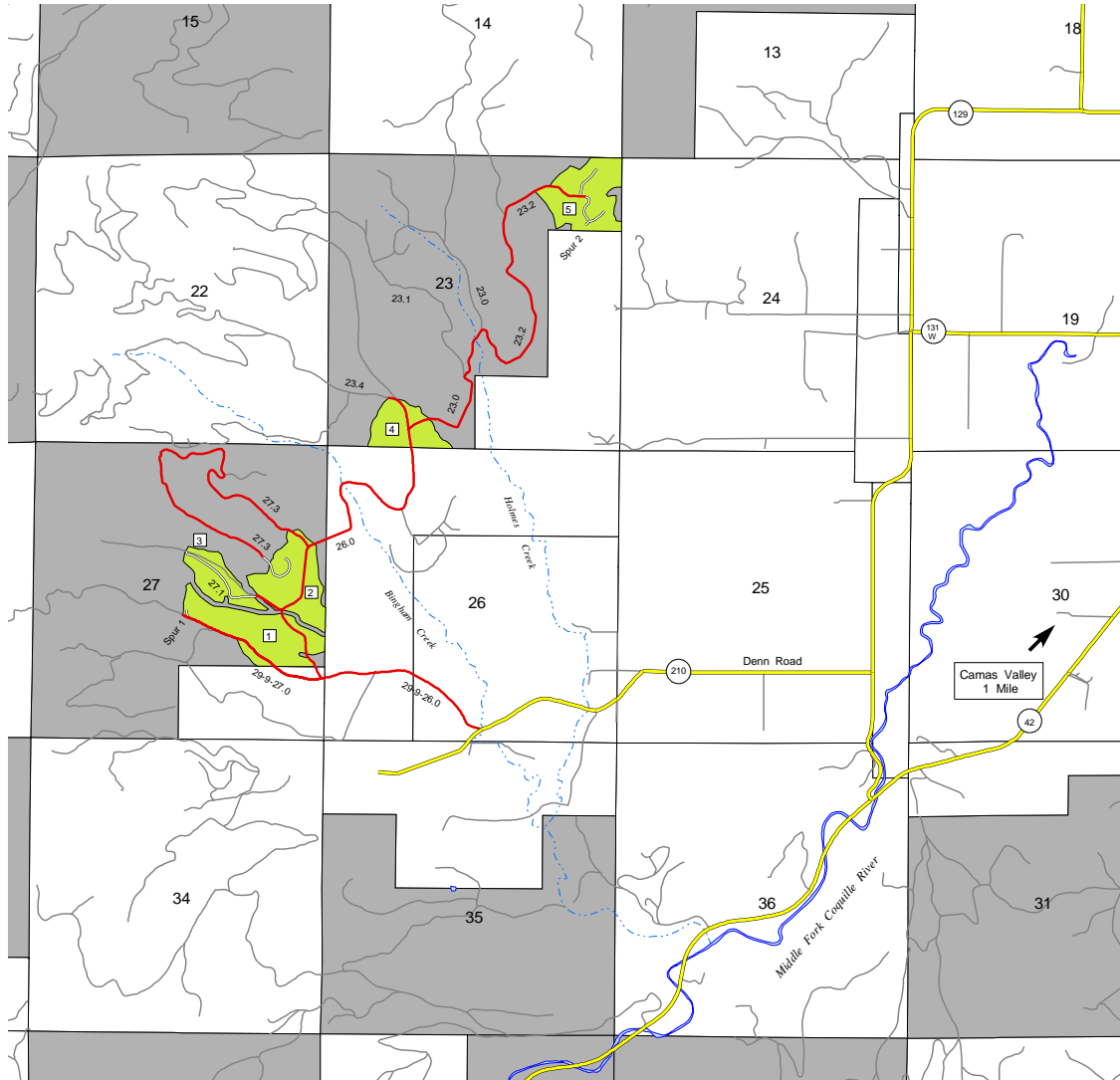
Species listed below were compiled from the 2003 Annual Species Review (IM-OR-2004-034) and includes those botanical species whose known or suspected range includes the Roseburg District according to: *Protection Buffer Bryophytes* v2.0 (1999), *Survey and Manage Survey Protocol-Lichens* v2.1 Amendment (2003), *Survey Protocols for Survey & Manage Strategy 2 Vascular Plants* v2.0 (1998), *Survey Protocols for Bridgeoporus nobilissimus* v2.0 (1998), and *Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines* (2006).

Species	S&M Category	Survey Triggers			Survey Results			Site Management
		Within Range of the Species?	Project Contains Suitable habitat?	Project May Negatively Affect Species/Habitat?	Surveys Required?	Survey Date (month and year)	Sites Known or Found?	
Fungi								
Bridgeoporus nobilissimus	A	Yes	No <sup>1</sup>	No	No	N/A	No	No
Lichens								
Bryoria pseudocapillaris	A	No <sup>2</sup>	No	No	No	N/A	No	No
Bryoria spiralifera	A	No <sup>2</sup>	No	No	No	N/A	No	No
Bryoria subcana	B	Yes	No <sup>3</sup>	No	No	No	No	No
Hypogymnia duplicata	C	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Leptogium cyanescens	A	Yes	Yes	Unknown	Yes	March 2005 and August 2005	No	No
Lobaria linita	A	Yes	No <sup>4</sup>	No	No	No	No	No
Nephroma occultum	A	Yes	No <sup>4</sup>	No	No	No	No	No
Niebla cephalota	A	No <sup>2</sup>	No	No	No	N/A	No	No
Pseudocyphellaria perpetua	A	No <sup>2</sup>	No	No	No	N/A	No	No
Pseudocyphellaria rainierensis	A	Yes	No <sup>4</sup>	No	No	No	No	No
Teloschistes flavicans	A	No <sup>2</sup>	No	No	No	N/A	No	No
Tholurna dissimilis	B	No <sup>5</sup>	No	No	No	N/A	No	No
Bryophytes								
Kurzia makinoana	B	No <sup>6</sup>	No	No	No	N/A	No	No
Marsupella emarginata var. aquatica	B	No <sup>7</sup>	No	No	No	N/A	No	No
Orthodontium gracile	B	No <sup>8</sup>	No	No	No	N/A	No	No
Schistostega pennata	A	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Tetraphis geniculata	A	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Tritomaria exsectiformis	B	Yes	No <sup>9</sup>	No	No	No	No	No
Vascular Plants								
Botrychium minganense	A	Yes	No <sup>10</sup>	No	No	N/A	No	No
Botrychium montanum	A	No <sup>10</sup>	No	No	No	N/A	No	No
Coptis aspleniifolia	A	No <sup>10</sup>	No	No	No	N/A	No	No
Coptis trifolia	A	No <sup>10</sup>	No	No	No	N/A	No	No
Corydalis aquae-gelidae	A	No <sup>10</sup>	No	No	No	N/A	No	No
Cypripedium fasciculatum	C	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Cypripedium montanum	C	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Eucephalis vialis	A	Yes	Yes	Yes	Yes	March 2005 and August 2005	No	No
Galium kamtschaticum	A	No <sup>11</sup>	No	No	No	N/A	No	No
Plantanthera orbiculata var. orbiculata	C	No <sup>11</sup>	No	No	No	N/A	No	No

- <sup>1</sup> This species is associated with a host species which is absent from the project area (Survey Protocols, Version 2.0, T.E. O'Dell *et al.*, May 1998).
- <sup>2</sup> Known sites of the species only occur in coastal habitat (Survey Protocols for Category A and C Lichens, Version 2.0, C. Derr *et al.*, Sept. 2002).
- <sup>3</sup> This species occurs within 80 miles of the coast in the 200 cm precipitation zone with greater than 170 days of measurable precipitation (Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>4</sup> This species is associated with old growth forests (Macrolichens of the Pacific Northwest, B. McCune, L. Geiser, OSU Press, 1997; Management Recommendations for Survey and Manage Lichens, Version 2.0, C. Derr *et al.*, March 2000).
- <sup>5</sup> Species is mostly known from north of Oregon with only three sites in Oregon. The southern-most sites are at Iron Mtn. and Carpenter Mtn. (both with elevations greater than 5000 feet) on the Willamette National Forest. These sites are noted for their stunted condition which suggests they are near the southern-most extent of the species' range (Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>6</sup> Known sites of the species only occur in coastal habitat within 25 miles of the coast (Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>7</sup> Species known from only two sites in the western U.S. on submerged rocks in cold, perennial streams: on Willamette National Forest and on the Mt. Baker-Snoqualmie National Forest (Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>8</sup> Known in the Pacific Northwest only from the coast redwood area of northern California and southwestern Oregon (Koch 1951, 1952; Lawton 1971, as cited in Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>9</sup> This species occurs in direct contact with water in low-volume, very cold, perennial streams within an elevational range of 3,200-5,200 feet. It is usually associated with lodgepole pine and other high elevation tree species (Survey Protocol Guidance for Conducting Equivalent Effort Surveys Under the Northwest Forest Plan Survey and Manage Standard and Guidelines, USDA Forest Service regions 5 and 6, USDI Bureau of Land Management, Oregon and California, March 2006).
- <sup>10</sup> This species is associated with perennially moist areas along streams, and wet shaded meadow edges in mature to old growth forests (Survey Protocols for Survey and Manage Strategy 2 Vascular Plants, Version 2.0, L. Whiteaker *et al.*, December 1998).
- <sup>11</sup> Douglas County is outside of the known range for this species (Survey Protocols for Survey and Manage Strategy 2 Vascular Plants, Version 2.0, L. Whiteaker *et al.*, December 1998; [www.oregonflora.org/oregonplantatlas.html](http://www.oregonflora.org/oregonplantatlas.html)).

# SHERLOCK'S DENN

LSR Density Management



T29S, R9W

Willamette Meridian, Douglas Co., OR

0 1 Miles

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

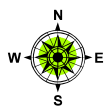
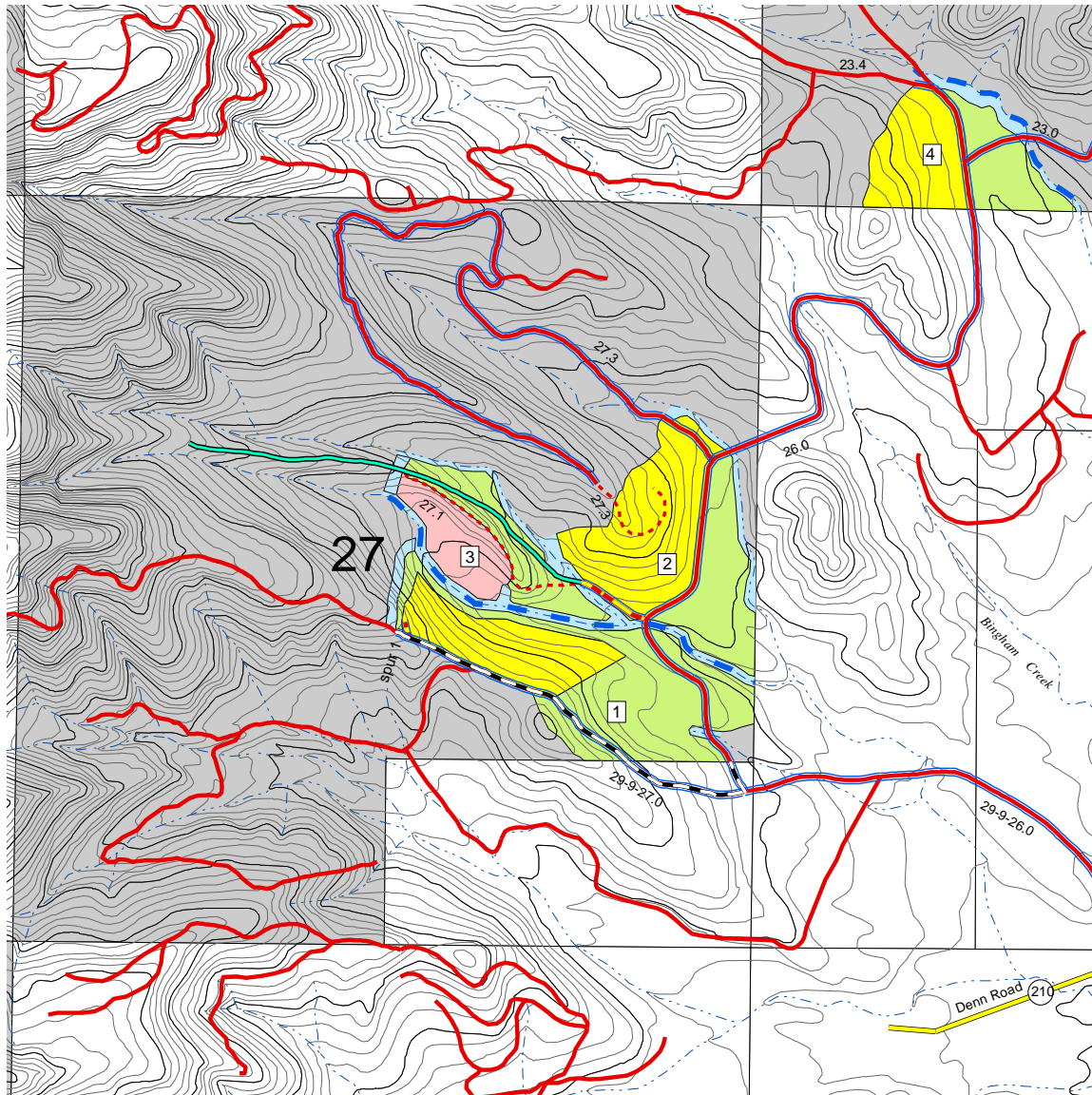


- Paved Highway
- Haul/Access Road
- Existing Road
- New Construction

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

# SHERLOCK'S DENN

LSR Density Management



T29S, R9W

Willamette Meridian, Douglas Co., OR

0 1,000 Feet

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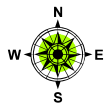
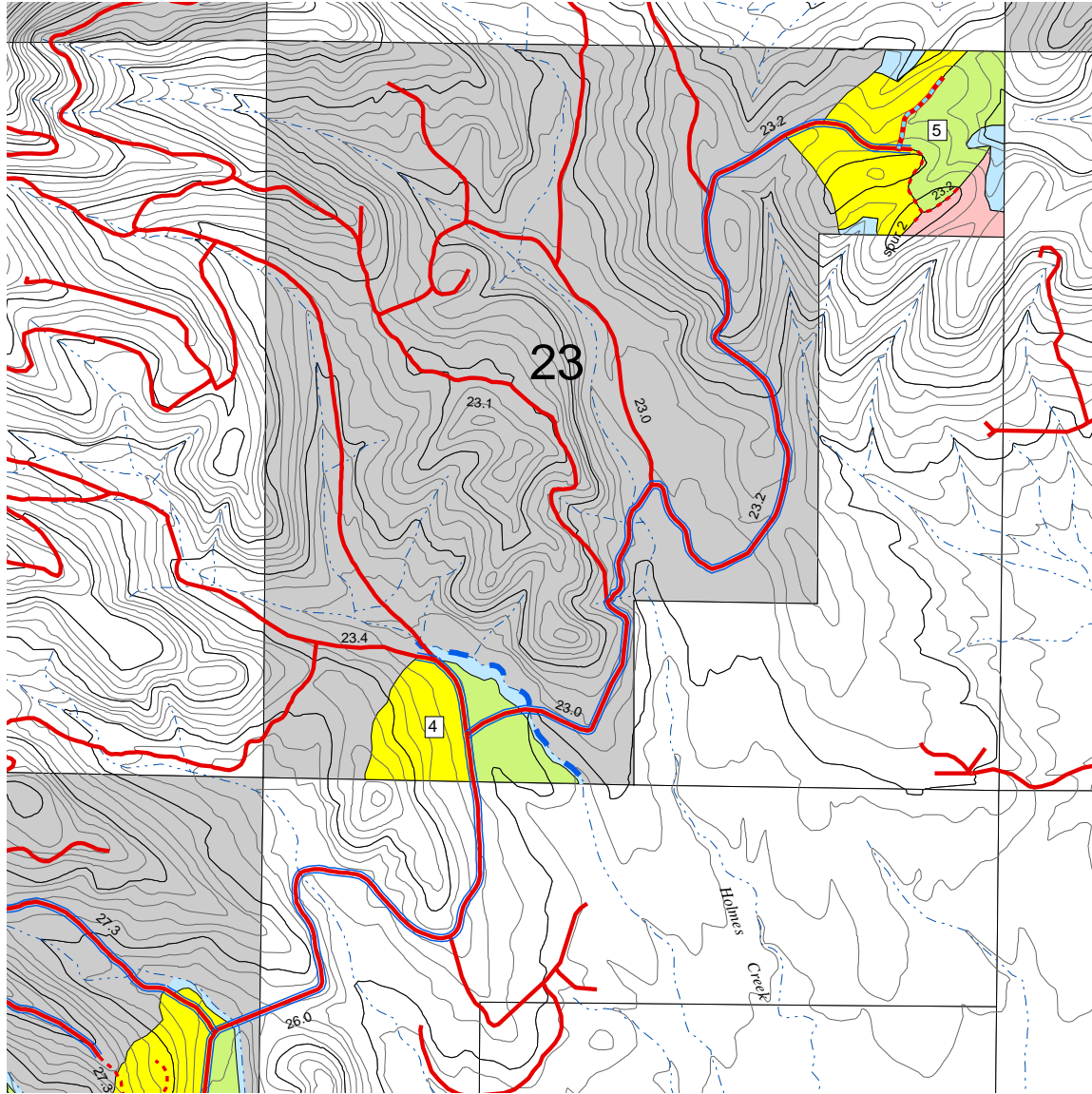


- Existing Road
- Access/Haul Route
- Renovate, Rock
- Renovate, Decommission
- Construct, Decommission
- Construct, Permanent Rock
- No Use, Decommission
- 100' Contour
- 20' Contour
- Stream
- Perennial/Fish-Bearing Stream

- Heavy Thinning Area
- Moderate Thinning Area
- Light Thinning Area
- No Treatment Area
- BLM (O&C) Land
- Non-BLM Land

# SHERLOCK'S DENN

LSR Density Management



T29S, R9W

Willamette Meridian, Douglas Co., OR

0 1,000 Feet

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- Existing Road
- Access/Haul Route
- Construct, Decommission
- Construct Optional Operator Spur
- 100' Contour
- 20' Contour
- Stream
- Perennial/Fish-Bearing Stream

- Heavy Thinning Area
- Moderate Thinning Area
- Light Thinning Area
- No Treatment Area
- BLM (O&C) Land
- Non-BLM Land