

**U.S. Department of the Interior
Bureau of Land Management
Roseburg BLM District, Oregon**

**Johnson Cleghorn
Thinning**

Decision Document

SECTION 1 –THE DECISION

Decision

Johnson Cleghorn Thinning Project: It is my decision to authorize the Johnson Cleghorn Thinning project as described, generally, in the Johnson Cleghorn Thinning Environmental Assessment (EA) under Action Alternative 2 in Chapter 2 (NEPA#: DOI-BLM-OR-R040-2011-011-EA; pgs. 11-17, 20-22). In addition, some components of Action Alternative 3 (EA, pgs. 23-25) will be authorized in Johnson Cleghorn Thinning as described below. The project design features that will be implemented as part of Johnson Cleghorn Thinning are described on pages 11-17 of the EA under “*Design Features Common to Proposed Action Alternatives 1, 2, 3, and 4*” and additional project design features are included in “*Updated Information*” below. These project design features have been developed into contract stipulations and will be implemented as part of the timber sale contract.

Johnson Cleghorn Thinning will occur on six units (approximately 243 acres of harvest) of second-growth forest approximately 42-51 years old located in the Upper Smith River Watershed in Sections 4, 5, 7, 8, 9, and 18 of T. 21 S., R. 07 W. Willamette Meridian (Figures 1-4). In addition, approximately 0.8 acres will be removed for the development of spur roads and rights-of-ways. Approximately 184 acres of the 428 acres analyzed in the EA will not be treated at this time for the reasons described below under “*Unit Configurations & Treatments*”.

This project is within General Forest Management Area (GFMA) and Riparian Reserve lands (approximately 240 acres) administered by the Swiftwater Field Office, Roseburg District Office and Late Successional Reserve (LSR) lands (approximately 3 acres) administered by the Umpqua Field Office, Coos Bay District BLM (Table 1). Johnson Cleghorn will provide approximately 5.613 million board feet (5.613 MMBF) of timber available for auction.

Culvert Removal: This decision also authorizes removal of the failing culvert on the 21-7-8.1 road under a separate contract or by BLM road maintenance staff to correct ongoing sediment issues and avoid the potential impacts of complete culvert failure (EA, pgs. 79, 82). The culvert was analyzed for removal under all Action Alternatives however it will not be removed as part of the Johnson Cleghorn Thinning.

Updated Information

The final design and layout of the Johnson Cleghorn units has been updated as shown below, specifically the unit configurations and treatments and road activities. The proposed action described below is not substantially different from the original proposals in Action Alternatives 2 and 3 and does not alter the conclusions of the analysis.

1) Unit Configurations & Treatments:

Within Johnson Cleghorn there will be approximately 50 acres of ground-based yarding and approximately 193 acres that will be cable-yarded (formerly 78 acres were proposed as ground-based yarding and 274 acres were proposed as cable yarding under Action Alternative 2 in the EA, pgs. vii and 72). The cable yarding will include approximately 34 acres of downhill yarding (formerly 68 acres were proposed under Action Alternative 2 in the EA, pg. vii) in lieu of building 0.41 miles of new road (EA pg. 25, Spur 8A-1). In addition, there will be approximately 0.8 acres of timber removed for the development of spur roads and rights-of-ways through ground-based yarding.

Approximately 184 acres of the 428 acres considered in the EA (pgs. vii, 1, 6) will not be treated at this time and were excluded (net difference) from the final unit configuration of the Johnson Cleghorn Thinning units for the following reasons:

- Approximately 91 acres (i.e. Units 8B and 8C) will be excluded from treatment in Johnson Cleghorn because treatment will be deferred at this time in order to further evaluate the haul route and winter haul opportunities.
- Approximately 71 acres will be excluded from treatment because they are within “no treatment” areas specifically designed by the marking prescription to add structural and spatial diversity to the stands in the project area.
- Approximately 15 acres of the units proposed in the EA will be excluded because they are within existing road rights-of-ways and not timber stands.
- Approximately 10 acres will be excluded from treatment because they are part of adjacent stands or forest types where thinning is not appropriate at this time.
- Approximately 3 acres will be added to treatment units (net addition) as a result of refinements and adjustments in map accuracy from GPS locations of unit boundaries.

Table 1. Updated Treatment Prescription for Johnson Cleghorn Thinning.

| Unit | EA Unit | Treatment Intensity (acres) | | | | | | | | | | | | Harvest Unit Total (acres) | Roads & Spurs (acres) | |
|-----------------------|-----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|----------------------------|-----------------------|------------|
| | | Riparian Reserve | | | | | | LSR* & GFMA | | | | | | | | Unit Total |
| | | Gap | Heavy | Moderate | Light | Skip | Sub-Total | Gap | Heavy | Moderate | Light | Skip | Sub-Total | | | |
| 1* | 7A 7B 7C* 7D | 1.1 | 4.5 | 6.7 | 14.0 | 10.8 | 26.3 | 8.6 | 31.0 | 19.5 | 23.9 | 9.4 | 83.0 | 129.5 | 109.3 | 0.8 |
| 2 | 8A | 1.0 | 5.1 | 6.0 | 0 | 9.3 | 12.1 | 2.8 | 6.8 | 4.7 | 2.3 | 3.5 | 16.6 | 41.5 | 28.7 | 0 |
| 3 | 9B | 0 | 0 | 0.8 | 0.7 | 5.6 | 1.5 | 2.2 | 5.3 | 4.4 | 1.9 | 3.5 | 13.8 | 24.4 | 15.3 | 0 |
| 4 | 9A | 0.6 | 4.8 | 0 | 2.6 | 3.3 | 8.0 | 0 | 0 | 0 | 0.1 | 0 | 0.1 | 11.4 | 8.1 | 0 |
| 5 | 4A | 0.4 | 2.3 | 2.6 | 1.5 | 12.0 | 6.8 | 5.5 | 10.3 | 15.7 | 2.0 | 3.1 | 33.5 | 55.4 | 40.3 | 0 |
| 6 | 5A | 0.8 | 5.0 | 2.0 | 4.6 | 5.2 | 12.4 | 3.3 | 6.4 | 10.7 | 8.6 | 4.6 | 29 | 51.2 | 41.4 | 0 |
| Deferred | 8B | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Deferred | 8C | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Project Totals | | 3.9 | 21.7 | 18.1 | 23.4 | 46.2 | 67.1 | 22.4 | 59.8 | 55.0 | 38.8 | 24.1 | 176 | 313.4 | 243.1 | 0.8 |

* Approximately 3.4 acres of Unit 1 (in T. 21 S., R. 07 W., Section 18 W.M.) is within LSR in the Umpqua Field Office, Coos Bay District: 1.5 acres will be light thinning, 0.6 acres will be moderate thinning, and 1.3 acres will be included in a skip.

2) Roads & Spurs:

The spur roads in Johnson Cleghorn have been re-numbered as shown below in Table 2 *Road Activities in Johnson Cleghorn Thinning*. There will be approximately 0.22 miles of temporary spur roads constructed (Table 2). No spur roads were proposed under Action Alternative 2 in the EA (pgs. 21-22), but Spur 1 was considered for construction in the EA (pgs. 24-25) as Spur 7D-1 under Alternative 3 (Figure 1 and 2). Spur 1 will be rocked to allow for winter harvest operations and then decommissioned by waterbarring, removing the temporary culvert, and blocking with a trench barrier following harvest (Table 2).

Approximately 0.56 miles of existing road will be improved; formerly 0.58 miles were proposed in the EA (pg. 22). Improvement will include the upgrading of portions of the native-surfaced 21-7-9.0 road with rock surfacing.

Approximately 2.48 miles of existing road will be renovated; formerly 3.92 miles were proposed in the EA (pg. 22). There will be approximately 1.44 miles (net difference) less road renovation than in the EA because proposed renovation of the 21-7-17.0 road has been deferred with the deferral of treatment of Unit 8B and the remaining roads also require less renovation than anticipated in the EA. Renovation will include the placement of additional road rock where rock surfacing already exists, brushing of road shoulders, and blading of the driving surface.

Approximately 0.5 miles of roads and spurs will be decommissioned in Johnson Cleghorn as indicated in Table 2; formerly 0.37 miles were proposed in the EA (pg. 22).

Table 2. Road Activities in Johnson Cleghorn Thinning.

| Road No. | EA Road No. | Construction (miles) | | Improvement (miles) | | Maintenance ¹ / Renovation (miles) | | Surfacing | | Season of Haul | Decommissioning | |
|-----------------------|------------------------|-------------------------|--------------|-------------------------|--------------|--|--------------|--------------|-------------------|------------------|-----------------|--|
| | | Within Riparian Reserve | Total Length | Within Riparian Reserve | Total Length | Within Riparian Reserve | Total Length | Existing | Proposed | | Length (miles) | Method |
| 21-7-5.5 | 21-7-5.5 | 0 | 0 | 0 | 0 | 0 | 0.60 | Rock | Rock ² | Dry ² | 0 | None |
| 21-7-7.0 | 21-7-7.0 | 0 | 0 | 0 | 0 | 0.28 | 0.89 | Rock | Rock ² | Dry ² | 0 | None |
| 21-7-7.1 | 21-7-7.1 | 0 | 0 | 0 | 0 | 0 | 0.46 | Rock | Rock | Wet or Dry | 0 | None |
| 21-7-7.3 ⁴ | 21-7-7.2 | 0 | 0 | 0 | 0 | 0.01 | 0.11 | Native | Native | Dry | 0.11 | Waterbar, mulch with slash, block with trench barrier. |
| 21-7-8.2 | 27-7-8.2 ³ | 0 | 0 | 0 | 0 | 0 | 0.04 | Rock | Rock | Wet or Dry | 0 | None |
| 21-7-9.0 | 21-7-9.0 | 0 | 0 | 0 | 0 | 0.16 | 0.38 | Rock | Rock | Wet or Dry | 0 | None |
| | | 0 | 0 | 0 | 0.18 | 0 | 0 | Native | Rock | Wet or Dry | 0 | None |
| 21-7-9.2 | 21-7-9.2 | 0 | 0 | 0 | 0 | 0.07 | 0.16 | Rock | Rock | Wet or Dry | 0 | None |
| 21-7-5.2 | Spur 5A-1 | 0 | 0 | 0 | 0 | 0.06 | 0.17 | Native | Native | Dry | 0.17 | Remove culvert, subsoil, waterbar, mulch with slash, use slash as block. |
| Spur 1 | Spur 7D-1 ⁵ | 0.02 | 0.22 | 0 | 0 | 0 | 0 | Non-existing | Rock | Wet or Dry | 0.22 | Waterbar, remove temporary culvert, block with trench barrier. |
| <i>Deferred</i> | 21-7-17.0 | 0 | - | - | - | - | - | Rock | - | - | - | - |
| <i>Deferred</i> | Spur 8C-1 | 0 | - | - | - | - | - | Native | - | - | - | - |
| <i>Deferred</i> | 21-7-8.1 | 0 | - | - | - | - | - | Rock | - | - | - | Remove culvert. |
| Total | | 0.02 | 0.22 | 0 | 0.18 | 0.58 | 2.86 | - | - | - | 0.50 | - |

¹ Approximately 8.18 miles of existing roads would be maintained for Johnson Cleghorn Thinning in addition to the roads and spurs described in the table.

² Existing rock surfacing is inadequate for winter haul; additional rock may be added to bring road up to winter haul standards.

³ The 21-7-8.2 was depicted in the EA (Appendix F, Figure 3) as an existing road although it was not noted in the description of Action Alternative 2 in the EA (pgs. 21-22).

⁴ The 21-7-7.3 road was depicted in the EA (Appendix F, Figure 3) as the 21-7-7.2 road.

⁵ Spur 7D-1 from Action Alternative 3 in the EA (pgs. 24-25) will be authorized as Spur 1 in the Johnson Cleghorn Thinning decision to facilitate uphill cable yarding in Unit 1.

3) Consultation with the U.S. Fish & Wildlife Service:

Consultation with the U.S. Fish & Wildlife Service (Service) has been completed for the northern spotted owl, the marbled murrelet, and their designated critical habitats. A Letter of Concurrence (LOC) was received from the USFWS (*Informal consultation on the proposed Roseburg District BLM fiscal year 2012 Johnson-Cleghorn and Holy Water timber sale projects which are Not Likely to Adversely Affect listed species or their designated critical habitats* [Reference Number 01EOFW00-2012-I-0041]) dated January 11, 2012.

The Service concurred with the District's determination (LOC, pg. 18) that implementation of the Johnson Cleghorn Thinning will be insignificant and *may affect, but is not likely to adversely affect* (NLAA) spotted owls, marbled murrelets or their designated critical habitats for the following reasons:

- No nest trees will be removed.
- All spotted owl nest patches will be avoided.
- All known, occupied marbled murrelet sites will be avoided.
- Implementation of mandatory PDC will avoid adverse disturbance to spotted owls and marbled murrelets.
- Impacts to critical habitat designated for spotted owls and for marbled murrelets will not be meaningfully measurable.
- No habitat meeting the intent of Recovery action 32 (USDI 2011) will be impacted.
- Northwest Forest Plan Standards and Guidelines will be applied.

The Service concurs with the NLAA determination because of the limited scope and spatial juxtaposition of the activities comprising the action and because of project design features which will effectively minimize impacts to affected species and critical habitats. Therefore, the Service anticipates continued current function of the affected known and predicted spotted owl activity centers (KPACs) by spotted owls and of marbled murrelet sites, and continued function of designated critical habitats (LOC, pg. 18).

4) Proposed Rule for Re-designating Critical Habitat for the Northern Spotted Owl:

On March 8, 2012 the Service published a Federal Register notice for the 2012 Proposed Rule to revise northern spotted owl critical habitat units (77 FR 14062-14165). Of the 313 treatment acres in Johnson Cleghorn Thinning (Table 1), 3.4 acres of Unit 1 (EA Unit 7C) are within proposed critical habitat for the spotted owl. Consultation will be re-initiated if the Service publishes a final rule on northern spotted owl critical habitat.

Compliance and Monitoring

Compliance with this decision will be ensured by frequent on-the-ground inspections by the Contracting Officer's Representative. Monitoring will be conducted as directed in the Roseburg District's 1995 *Record of Decision and Resource Management Plan* (ROD/RMP) (pgs. 84-86) and as modified, refined, and clarified through plan maintenance in FY2001, FY2002, and FY2003 as documented in the Roseburg District's *Annual Program Summary and Monitoring Report Fiscal Year 2011* (pgs. 56-63).

SECTION 2 – THE DECISION RATIONALE

I have reviewed the resource information contained in the EA and the updated information presented in this decision and have determined that there will not be significant impacts beyond those analyzed in the 1994 PRMP/EIS (Johnson Cleghorn FONSI, p. 1). I have considered the decision factors described in the EA (pg. 4) and determined that implementation of the project design features (EA, pgs. 11-17) will minimize impacts to resources including, but not limited to, wildlife and wildlife habitat, soil productivity, water quality, and the spread of noxious weeds. Implementation of this project will meet the objectives of retaining existing habitat features and creating future habitat components for listed species while providing a substantial timber volume in a cost efficient manner (EA, pgs. 1, 4).

Chapter 2 of the EA describes a "No Action Alternative" and four "Action Alternatives." The No Action Alternative was not selected because it did not meet the stated need and purpose (EA, pg. 1) to reduce stand stocking in a manner that enhances habitat for the spotted owl and marbled murrelet and improves vigor in the residual stand, while producing commercial timber in a cost-efficient manner. In addition, the No Action Alternative would not meet the following specific RMP objectives as described in the Johnson Cleghorn Thinning EA (pgs. 2-3):

Late Successional Reserve

- Plan and implement silvicultural treatments to be beneficial to the creation of late-seral habitat (1995 Coos Bay District ROD/RMP, pg. 19).
- Protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as the habitat for the northern spotted owl, marbled murrelet, and other late-successional and old growth species (1995 Coos Bay District ROD/RMP, pg. 18).

Riparian Reserve

- 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 (1995 ROD/RMP, pg.25).

General Forest Management Area

- Provide a sustainable supply of timber and other forest commodities (from the Matrix) (1995 ROD/RMP, pg.33).
- Provide habitat for a variety of organisms associated with both late-successional and younger forests (1995 ROD/RMP, pg.33).
- Provide for important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees (1995 ROD/RMP, pg.33).
- Select logging systems based on the suitability and economic efficiency of each system for the successful implementation of the silvicultural prescription, for the protection of soil and water quality, and for meeting other land use objectives (1995 ROD/RMP, pg. 61). Also, provide a harvest plan flexible enough to facilitate harvesting within a three year timber sale contract.

Action Alternative 1 was not selected because it would not provide substantial timber volume in a cost-efficient manner as compared to the other action alternatives (EA, pgs. ix, 90-91). Action Alternative 1 was the least economically viable action alternative given estimated logging expenses and projected volume harvested (EA, pg. 91). Even though Action Alternative 1 would have reduced stand stocking in approximately 148 acres of forest stands in a manner that enhances habitat for the northern spotted owl

and marbled murrelet and would have improved vigor in the residual stands treated; the other action alternatives afforded more opportunity to do so (EA, pgs. ix, 18, 20, 23, 26). Treatment under Action Alternative 1 would have yielded single-storied stands without size differentiation between trees and stratification of canopy layers (EA, pg. 54). These forest conditions would have continued to delay the development of structural diversity and complexity important for northern spotted owls and flying squirrels and also would have hindered establishment and growth of a robust understory (EA, pg. 54).

Action Alternative 2 was selected in favor of Action Alternatives 3 and 4 because it entailed a lesser amount of road construction and soil compaction from spurs and landings while still providing substantial timber volume in a relatively cost-efficient manner (EA, pg. ix). Action Alternative 2, as described in this decision, includes 0.22 miles of road construction as opposed to 1.40 miles of road construction as proposed under Action Alternatives 3 and 4 (EA, pgs. ix, 25, 74-75) and will therefore have less impact to soil productivity. Action Alternative 2 will provide 5.613 MMBF of timber as authorized under this Decision with an estimated logging cost of \$182.35 as compared to \$176.88 – \$236.14 under Action Alternatives 3 and 4, respectively (EA, pg. ix, 91). Even though Action Alternatives 3 and 4 would have produced more timber volume (i.e. 10.949 MMBF and 7.538 MMBF respectively; EA, pgs. ix, 90), there are 91 acres of Johnson Cleghorn that are deferred from timber harvest in this decision (EA Units 8B, 8C) that may be harvested in the future, under a separate decision, so that the projected volume of timber harvest (EA pgs. ix, 90) could still be realized.

Survey & Manage

The Johnson Cleghorn Thinning project is consistent with Court Orders relating to the Survey and Manage mitigation measure of the Northwest Forest Plan, as incorporated into the Roseburg District's 1995 ROD/RMP.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an Order in *Conservation Northwest, et al. v. Rey, et al.*, No. 08-1067 (W.D. Wash.) (Judge Coughenour), granting Plaintiffs' motion for partial summary judgment and finding a variety of NEPA violations in the *Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (USDA and USDI, June 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement.

The Johnson Cleghorn Thinning is consistent with the Roseburg District Resource Management Plan as amended by the 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (2001 ROD), as modified by the 2011 Settlement Agreement.

The 2011 Settlement Agreement states:

“For projects with signed Records of Decision, Decision Notices, or Decision Memoranda from December 17, 2009, through September 30, 2012, the Agencies will use either of the following Survey and Manage species lists:

- a. *The list of Survey and Manage species in the 2001 ROD (Table 1-1, Standards and Guidelines, pages 41-51).*
- b. *The list of Survey and Manage species and associated species mitigation, Attachment 1 to the Settlement Agreement.”*

The Johnson Cleghorn Thinning applies a 2006 Exemption from a stipulation entered by the court in litigation regarding Survey and Manage species and the 2004 Record of Decision related to Survey and Manage Mitigation Measure in *Northwest Ecosystem Alliance v. Rey*, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006). Previously, in 2006, the District Court (Judge Pechman) invalidated the Agencies' 2004 RODs eliminating Survey and Manage due to NEPA violations. Following the District Court's 2006 ruling, parties to the litigation entered into a stipulation exempting certain categories of activities from the Survey and Manage standards and guidelines, including both pre-disturbance surveys and known site management. Also known as the Pechman Exemptions, the Court's Order from October 11, 2006 directs:

“Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

- a. Thinning projects in stands younger than 80 years old;*
- b. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;*
- c. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and*
- d. The portions of project involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph.”*

Per the 2011 Settlement Agreement, the 2006 Pechman Exemptions remain in force:

“The provisions stipulated to by the parties and ordered by the court in Northwest Ecosystem Alliance v. Rey, No. 04-844-MJP (W.D. Wash. Oct. 10, 2006), shall remain in force. None of the following terms or conditions in this Settlement Agreement modifies in any way the October 2006 provisions stipulated to by the parties and ordered by the court in Northwest Ecosystem Alliance v. Rey, No. 04-844-MJP (W.D. Wash. Oct. 10, 2006).”

Johnson Cleghorn Thinning meets Exemption A because it entails no regeneration harvest and entails thinning only in stands less than 80 years old. The stands in Johnson Cleghorn Thinning are 42-51 years old as determined from stand specific inventories (stand exams) (EA, pg. 28). The stands originated from harvest in the 1950's or 1960's (EA, pg. 28).

I have made the determination that Johnson Cleghorn Thinning meets Exemption A of the Pechman Exemptions (October 11, 2006 Order) and therefore may proceed to be offered for sale. The first notice for sale will appear in *The News-Review*, Roseburg, Oregon on September 25, 2012.

SECTION 3 – PUBLIC INVOLVEMENT

The Johnson Cleghorn Thinning is the result of a collaborative effort that developed alternatives for treatments and harvest methods in young forest stands to accelerate the development of habitat components for the northern spotted owl and marbled murrelet while at the same time providing a reliable and substantial timber volume in support of local communities.

Numerous public meetings and field trips were held with representatives from environmental groups, timber industry, local, county, state and tribal governments as well as the general public providing comments and suggestions for the project. Comments gathered during the extensive collaborative process were used in the development of the design features of the alternatives and comments to the EA were incorporated in development of this Decision.

The BLM solicited comments from affected tribal governments, adjacent landowners, affected State and local government agencies, and the general public on Johnson Cleghorn Thinning EA during a 30-day public comment period (September 13, 2011 – October 13, 2011). Comments were received as a result of the public comment period.

Upon reviewing the comments, the following topics warrant additional clarification specific to the Johnson Cleghorn project: 1) Carbon Storage, 2) Gaps, 3) Heavy Thinning, 4) Marbled Murrelets, 5) Northern Spotted Owls, 6) Riparian Reserves, 7) Roads, 8) Snags, 9) Stand Structural Diversity, and 10) “Sustainable or Green Certification”.

1) Carbon Storage

Comments were received regarding (a) perceived discrepancies between the carbon storage analysis in the EA and a published study by Clark et al. (2011) and (b) whether or not underplanting in the treated stands would lead to additional carbon sequestration when compared to other thinning projects.

- a) The results of the carbon analysis in the EA and the findings in the study by Clark et al. (2011) are consistent. Clark et al. (2011, pg. 50), reported that carbon levels in forest stands that have been thinned with a silvicultural prescription do not attain the carbon levels of comparable, unthinned forest stands within the 50 year timeframe that was modeled. That finding is consistent with the analysis presented for Johnson Cleghorn Thinning where the treated stands under Action Alternative 2 have a smaller net carbon balance at 50 years (i.e. 150,525 tonnes; EA, pg. 96, Table 46) than under the No Action Alternative (i.e. 171,696 tonnes; EA, pg. 94, Table 44).
- b) As stated in the EA (pg. 95), the analysis of carbon storage in Johnson Cleghorn yielded results different from similar, previous analyses conducted in the Swiftwater Field Office (i.e. Mud Den, Third Elk, and Clever Beaver commercial thinning projects). The Johnson Cleghorn analysis indicates that Action Alternative 2 (i.e. 219,005 tonnes; EA, pg. 96, Table 46) has a net carbon balance slightly greater than that of the No Action Alternative after 100 years (i.e. 215,565 tonnes; EA, pg. 94, Table 44; whereas previous analyses indicated that active forest management resulted in a net carbon balance that was 60-82 percent of the carbon balance of the No Action Alternative (EA, pg. 95).

The reason that active forest management in Johnson Cleghorn would have a greater carbon balance when compared to the *No Action Alternative* is because this project includes underplanting of trees after thinning operations (EA, pg. 95). The

underplanting of trees would result in additional sequestration of carbon through “ingrowth” (EA, pg. 95). Previously analyzed thinnings did not include underplanting and therefore the carbon analyses for those thinnings did not show additional sequestration of carbon through “ingrowth”.

2) Gaps

Comments were received that the (a) “gaps” included in the thinning prescription fail to meet the need or purpose of the project and (b) that some published literature (by York *et al.*, 2007) was inappropriately applied in the analysis of Johnson Cleghorn Thinning.

- a) The prescribed gaps meet the stated need and purpose. The “Need and Purpose” outline the broad objectives to be met by the action. The individual treatments and the effects of implementing those treatments in the context of the entire action are defined and described elsewhere in the EA. Available evidence suggests that the future effects of gaps and heavy thinning are more likely to produce diversity and stand inhomogeneity than prescriptions not employing those treatments (EA, pgs. 32-34).

The EA states the need for the action is to accelerate development of habitat components for the spotted owl and a purpose of the action is to reduce stand stocking to enhance habitat for the spotted owl (EA p. 1). The project is a variable-density thinning (VDT) which is defined in the EA (p7) as “*a thinning method where at least two densities of retained trees are used to promote stand heterogeneity. Provision of conditions conducive to the initiation and growth of tree regeneration is an objective of VDT to encourage understory development for the development of two-storied or multi-layered stands. In addition, VDT includes skips and gaps in the prescription.*”

The EA (p. 52) further states “*Variably-density thinning can have rapid, positive effects for many forest-floor prey species (e.g., mice, voles, chipmunks) especially due to increased understory development (Carey 2001, Carey and Wilson 2001, Haveri and Carey 2000)*” and that “*Spotted owl prey species would also be affected by the proposed thinning. Species such as brush rabbits, woodrats, and other rodents are primarily associated with early- and mid-seral forest habitat (stands < 80 years of age) (Maser et al., 1981; Sakai and Noon, 1993; Carey et al., 1999), and could benefit from increased understory and shrub development (Carey, 2001; Carey and Wilson, 2001; Haveri and Carey, 2000). This could indirectly benefit spotted owls by providing more prey available for capture.*”

- b) The study by York *et al.* (2007) is relevant to the Johnson Cleghorn project because the study quantifies the height growth response of different tree species to various gap sizes ranging from one-quarter acre to two and one-half acres (EA, pages 33-34). The study provides relevant information for Johnson Cleghorn which has planned gaps of approximately one-quarter to two acres in size with an average size of about one acre (EA, pg. 7). The resolution of the effects of the York *et al.* study is at the stand-level, not the landscape-level and makes no inference as to the suitability of various gap sizes for wildlife use or movement.

3) Heavy Thinning

Comments were received that the heavy thinning prescription described in the EA was (a) “more like a regeneration harvest” and (b) it would therefore not be allowed under the 1995 ROD/RMP because it would reduce future timber production.

- a) Characteristics of the prescribed treatment in Johnson Cleghorn Thinning are specified in the EA (pgs. 7-8). The heavy thinning treatment, retaining an average 25 trees per acre, is a component of a variable-density thinning (VDT) approach in Action Alternative 2 which was also defined in the EA (pg. 7) as “*a thinning method where at least two densities of retained trees are used to promote stand heterogeneity. Provision of conditions conducive to the initiation and growth of tree regeneration is an objective of VDT to encourage understory development for the development of two-storied or multi-layered stands. In addition, VDT includes skips and gaps in the prescription.*”
- b) VDT is a harvesting approach intermediate between commercial thinning and regeneration harvest (*sensu* Carey 2003; Harrington et al. 2005). VDT is consistent with the definition of “density management” as described in the 1995 ROD/RMP (pg. 103). Provision of conditions conducive to the initiation and growth of tree regeneration is an objective of VDT to encourage understory development for the development of two-storied or multi-layered stands (EA, pg. 7). However, it is not a “regeneration harvest” as characterized by the 1995 ROD/RMP, due to the variable mixture of treatment types (varying densities) at the stand level. In contrast to VDT, a regeneration harvest in GFMA consists of only a single residual density of six to eight trees per acre (1995 ROD/RMP, pg. 150).

Timber production does not constitute the sole management objective or direction for thinning prescriptions. As directed in the 1995 ROD/RMP (pg. 149) “[c]ommercial thinnings will be designed to control stand density, maintain stand vigor, and place or maintain stands on developmental paths so that desired stand characteristics result in the future.” The application of heavy thinning specifically contributes to meeting the need and purpose of the project by providing conditions conducive to the initiation and growth of tree regeneration to encourage understory development for the development of two-storied or multi-layered stands (EA, pg. 33). “The *need* for action is to accelerate development of habitat components for the spotted owl and marbled murrelet, and provide substantial timber volume in support of the local economy.”

4) Marbled Murrelets

Comments were received that questioned if the micro-site conditions associated with trees that have the potential to serve as marbled murrelet nest trees were adequately protected.

Conditions associated with the potential marbled murrelet nest trees in Johnson Cleghorn Thinning will be maintained such that no loss of marbled murrelet nesting habitat is anticipated. Six potential nest trees were located within Units 1 and 5 (EA, pgs. 65 and Appendix F, Figure 15). Two trees in Unit 1 (EA Unit 7A) and all three trees in 5 (EA Unit 4A) are considered suitable habitat and are associated with adjacent suitable habitat (EA, pg. 65). In order to maintain microclimate conditions and avoid significant edge effects, light thinning was prescribed for those portions of units within 100 feet of stands of adjacent

suitable habitat (EA, pg. 66). Unit boundaries were adjusted so five of the six suitable nest trees located within Units 1 and 5, are located within ‘skips’ outside of unit treatment boundaries and light thinning is prescribed within 100 feet of the ‘skips’ (Figs. 1-4).

There is one potential nest tree in Unit 1 located within the proposed unit boundary and would be protected from modification under the *Residual Habitat Guidelines* (USDI USFWS & BLM, 2004). This potential nest tree and those trees immediately adjacent with interlocking canopies would be retained to maintain micro-site conditions around the potential nest tree (EA, pg. 66). The prescription around the potential nest tree and adjacent trees includes light to moderate thinning and riparian skips, with no heavy thinning or gaps, to further reduce impacts. Since the *Residual Habitat Guidelines* will be applied, no loss of marbled murrelet nesting habitat is anticipated (LOC, pg. 17).

Variable treatments will create and promote diversity within the stands, including the development of a multi-species and multi-layer canopy, as well as large overstory trees with complex canopy and large limbs (EA, pg. 67). Thus, VDT will establish a growth trajectory that would produce larger trees with abundant platforms that would provide additional nesting opportunities (EA, pg. 67).

The potential marbled murrelet nest trees are not located within designated critical habitat for the marbled murrelet. Only 3.4 acres of Unit 1 (Table 1) in the Johnson Cleghorn project are within marbled murrelet designated critical habitat and those acres will be treated with light to moderate thinning and skips (Fig. 1). The Service concurred with the District’s NLAA determination because of the limited scope and spatial juxtaposition of the activities comprising the proposed action and because of project design features which will effectively minimize impacts to critical habitats (LOC, pg. 18). Therefore, the Service anticipates continued function of designated critical habitat (LOC, pg. 18).

5) Northern Spotted Owls

Comments were received that encouraged BLM to avoid thinning near northern spotted owl nest sites.

None of the Johnson Cleghorn Thinning units fall within a nest patch of a known northern spotted owl activity center (i.e. within 300 meters of a known nest site; EA, pgs. 44, 48). This decision will thin 47 acres of dispersal habitat within the core areas (i.e. within 0.5 mile radius of a known nest site; EA pgs. 47-48) of two spotted owl activity centers that have not been occupied in the last 8 or more years (EA pg. 54). Up to 71 acres of dispersal habitat were proposed for treatment within the core areas of two spotted owl activity centers in the EA (pg. 48 [Table 28] and pg. 57 [Table 31]). Fewer acres within the core areas will have gap and heavy thinning prescriptions applied (Figs. 1-4) than proposed in the EA (EA Fig. 11). Variable density treatment would improve habitat conditions by promoting the development of habitat diversity and structure within the core areas, improving foraging and roosting opportunities in the long term (EA, pg. 57).

As mentioned previously (q.v., pg. 5), the District has completed consultation with the Service regarding the northern spotted owl and an LOC was received dated January 11, 2012 (Reference Number 01E0FW00-2012-I-0041). The project design features of Johnson Cleghorn assure that no known occupied spotted owl nest trees will be felled and that it will not impact stands meeting the intent of Recovery Action 32 (LOC, pg. 16). Implementation of the proposed action within spotted owl dispersal habitat is not anticipated to diminish the

ability of spotted owls to move through treated stands or negatively affect their ability to disperse at the landscape scale (LOC, pg. 16). The District anticipated these treatments will cause an indirect beneficial effect for spotted owls in the long term by creating diversity in stand age, structure and species composition (LOC, pg. 16).

Some harvest activities with the potential to cause disturbance will occur during the March 1 through September 30 northern spotted owl breeding season (LOC, pg. 17). Activities occurring after the critical breeding period (March 1 through July 15) may disturb the northern spotted owl, but are not likely to disrupt spotted owl reproductive success (LOC, pg. 17). However, thinning operations (e.g. chainsaw and heavy equipment use) will not occur during the early portion of the northern spotted owl nesting season unless those activities occur beyond the respective distances identified in Table 10 (LOC, pgs. 17-18). Therefore, the District determined that the proposed action is not likely to adversely affect spotted owls or marbled murrelets due to disturbance (LOC, pgs. 17-18).

The Service concurred with the NLAA determination on this project because of the limited scope and spatial juxtaposition of the activities comprising the action and because of project design features which will effectively minimize impacts to affected species and critical habitats. Therefore, the Service anticipates continued current function of the affected KPACs by spotted owls and marbled murrelet sites and continued function of designated critical habitats (LOC, pg. 18).

6) Riparian Reserves

Comments were received on a variety of topics pertaining to Riparian Reserves including: (a) comments that some activities are not needed (i.e. stream crossings with ground-based yarding equipment) or not allowed (i.e. heavy thinning, gap creation) within Riparian Reserves since they would retard attainment of Aquatic Conservation Strategy (ACS) objectives; (b) comments inquired if unstable headwalls and other areas of instability in Units 4 and 5 were incorporated into Riparian Reserves; and (c) comments questioned the sufficiency of the 35 foot “no-harvest” buffer on intermittent streams.

- a) Johnson Cleghorn Thinning will meet ACS objectives at the site and watershed scale and in the short- and long-term. Based upon the restorative nature of the action, this project will not retard or prevent but will speed attainment of ACS objectives by creating structural and vegetative diversity. Therefore, this action is consistent with the ACS and its objectives at both the site and watershed scales (EA, pgs. 88 and 129 [Appendix B]).

In the final design and layout of the thinning units there is no need to cross Riparian Reserves with ground-based logging equipment (EA, pg. 83) and this restriction for harvest operations is reflected in the contract stipulations.

Gaps within the Riparian Reserve, outside of the no-treatment areas, are an effort to mimic natural succession while promoting necessary components of structural diversity in riparian ecosystems (EA, pg. 127 [Appendix B]). Gaps smaller than two acres as implemented in Riparian Reserves will enhance biological, physical and chemical structural components by promoting late-successional characteristics (EA, pg. 128 [Appendix B]). Within Riparian Reserves, the largest single gap is 0.73 acres and the average size of Riparian Reserve gaps is 0.29 acres based upon final unit prescription and configuration (Figs. 1-4).

Implementation of riparian thinning, including heavy thinning, prescriptions in previously harvested stands will help restore adequate habitat to support riparian-dependent species at the site and watershed scales (EA, pg. 129 [Appendix B]). Riparian thinning such as that in Johnson Cleghorn will improve riparian vegetative and structural diversity from the existing conditions where the stand is dominated by dense, single age stands of Douglas fir (EA, pg. 87). Thinning treatments will gradually result in riparian areas that are more resilient to disturbance from wind, flood, and fire. In addition, as discussed in the EA, as tree growth rates and structural and species diversity increase, these areas would be expected to attain late seral characteristics in a shorter period of time than if left untreated in their current state (EA, pgs. 32-34, 87).

The cumulative increase in vegetative diversity in Riparian Reserves, coupled with the increase in availability of large wood to enter streams, will contribute positively to the trend of gradually improving habitat in the Upper Smith River Watershed (EA, pg. 87). When compared to the alternatives that do not include riparian thinning, Action Alternative 2 will hasten the attainment of healthy aquatic habitat capable of supporting the natural fish species mix and population variability typical of healthy coastal ecosystems (EA, pg. 87). These changes will rarely be measurable at the site scale (EA, pg. 87).

- b) Unstable headwalls and other areas of instability in Units 4 and 5 were incorporated into Riparian Reserves. Units 4 and 5 contain several headwall areas or unstable areas just above the stream inception points or adjacent to the stream course (EA, pg. 69). All areas deemed unstable by the project Soil Scientist were included in the Riparian Reserve Land Use Allocation (EA, pg. 83). Thinning harvest prescriptions in these areas were modified or eliminated as necessary to maintain slope stability and in conjunction with no-harvest riparian buffers adjacent to all stream channels, will result in a low risk of increasing landslide activity as a result of thinning harvest (EA, pg. 83).
- c) The no-harvest buffer of 35 feet is sufficient for intermittent streams. In Johnson Cleghorn Thinning, the thinning prescription will not be applied within a “no-harvest” buffer that would extend 35 feet (slope distance) on either side of the edge of the stream channel, as measured from the ordinary high water line for intermittent streams (EA, pgs. 21, 24). As stated in the EA (pg. 84), Rashin et al., 2006, found that sediment delivery is unlikely when potential erosion features (skid trails, yarding corridors, etc) are sited more than 10 meters (33 feet) from stream channels. As such, these buffers reduce ground disturbance in the near-stream region and maintain an intact duff layer that would be effective at intercepting and filtering any sediment from upslope sites, as long as it was not concentrated in gullies or yarding/skidding trails (Rashin et al., 2006).

7) Roads

Comments were received that inquired about the number of remnant trees that would be felled in association with road construction.

There are no remnant trees that will be felled in association with road construction in Johnson Cleghorn Thinning based on the cruise data available (Joe Keady, Timber Cruiser, pers.

comm., August 2012). For the purposes of addressing this comment, a “remnant tree” was considered any conifer greater than or equal to 32 inches diameter at breast height. Cruise reports indicate that trees to be removed for road construction are representative of the stand and are less than 25 inches diameter at breast height.

8) Snags

Comments were received that the BLM did not (a) analyze the negative effects that thinning may have on future snag recruitment from the forest stands proposed for treatment and (b) did not provide adequate protection for existing snags.

- a) The EA did analyze the effects and present the differences in predicted snag recruitment amongst the alternatives. The EA (pgs. viii) described that the No Action Alternative would produce the greatest amount of snag recruitment over the action alternatives in 100 years. Since trees would not be removed under the No Action Alternative it would produce the highest amount of snags (i.e. 137 snags per acre) through passive recruitment, compared to other alternatives or treatments (EA, pgs. 30 and pg. 32 [Table 13]). In contrast, Action Alternative 2 was predicted to produce roughly 40 percent as many snags (i.e. 33 snags per acre) as would the No Action Alternative after 100 years (EA, pgs. viii, 37, and 38 [Table 19]). The amount of snags will be within the range observed by Spies et al. (1988) in natural mature and old-growth Coast Range stands (EA, pg. 37).
- b) As stated in the EA (pg. 11), conifer and hardwood snags in all land use allocations will be reserved from cutting unless they are a safety concern. This reservation, with the exception for safety, is the greatest protection available for existing snags that also complies with worker safety requirements.

Snags felled for safety reasons in the LSR or Riparian Reserve would be retained on site as coarse woody debris. Existing coarse woody debris in decay classes 3, 4, and 5 would be retained in GFMA lands, and all coarse woody debris would be retained in the LSR and Riparian Reserve.

The residual stands following harvest would provide a pool of candidate trees for future snag and coarse woody debris recruitment. Additional coarse woody debris and snags may be created incidentally through the harvest operations (e.g. damage leading to broken-out tops or individual tree mortality) or through weather damage (e.g. wind and snow break).

9) Stand Structural Diversity

Comments were received that the heavy thinning prescription in particular would limit the opportunities for the development of structural complexity within the treated stands and would actually retard attainment of late-successional characteristics.

As stated in the EA (pgs. 32-33), variable-density thinning with skips and gaps will likely promote greater stand inhomogeneity than prescriptions that simply vary thinning intensity (Harrington et al., 2005). It is anticipated that [with heavy thinning] the overstory canopy would remain open enough without additional thinnings to maintain light levels that provide an environment conducive to the long-term survival and growth of understory vegetation that

would produce a layered structure. In addition, a single light thinning treatment offers minimal opportunity to create diverse, multi-storied (i.e. layered structure) stands. The vigor and survival of understory conifer and hardwood species would diminish as the overstory canopy closes (Chan et al., 2006; Newton and Cole, 2009).

To maintain and enhance stand diversity, minor conifer and hardwood species would be favored in the marking prescriptions (EA pgs. xi, 20). It is infeasible to include every detail of project implementation in the EA. Specific details relative to retention marking are addressed in a separate marking guidelines plan which prescribes selection of character trees including remnants, wolf-trees and facing trees (i.e. trees that are within six feet of another at ground level). There is no provision for “single-stemming” of hardwoods in the marking guidelines. Retained hardwoods will be maintained in their current configuration.

10) “Sustainable or Green Certification”

Comments were received that the BLM should have explored offering the Johnson Cleghorn timber volume under “sustainable or green certification” programs so that the value of the timber would fetch a “premium price” at auction.

The BLM does not have a “sustainable or green certification” that it can use to embellish offered timber volume and thus far, there has been no local market demand to seek such a certification.

The remaining comments did not raise substantive issues that would influence my selection of Action Alternative 2, as modified and described above (q.v., pgs. 1-5) of the Johnson Cleghorn Thinning EA.

References:

Clark, Joshua, John Sessions, Olga Krakina, and Thomas Maness. 2011. *Impacts of Thinning on Carbon Stores in the PNW: A Plot Level Analysis*. Oregon State University. 72 pgs.

SECTION 4 – PROTEST PROCEDURES

The decision described in this document is a forest management decision and is subject to protest by the public. In accordance with Forest Management Regulations at 43 CFR Subpart 5003 Administrative Remedies, protests of this decision may be filed with the authorized officer (Max Yager) within 15 days of the first publication date of the notice of decision notice/timber sale advertisement in *The News-Review*, Roseburg, Oregon on September 25, 2012.

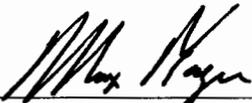
43 CFR § 5003.3 subsection (b) states: “Protests shall be filed with the authorized officer and shall contain a written statement of reasons for protesting the decision.” This precludes the acceptance of electronic mail (email) or facsimile (fax) protests. Only written and signed hard copies of protests that are delivered to the Roseburg District office will be accepted. The protest must clearly and concisely state which portion or element of the decision is being protested and the reasons why the decision is believed to be in error.

43 CFR § 5003.3 subsection (c) states: “Protests received more than 15 days after the publication of the notice of decision or the notice of sale are not timely filed and shall not be considered.” Upon timely filing of a protest, the authorized officer shall reconsider the project decision to be implemented in light of

the statement of reasons for the protest and other pertinent information available to him. The authorized officer shall, at the conclusion of the review, serve the protest decision in writing to the protesting party(ies). Upon denial of a protest, the authorized officer may proceed with the implementation of the decision as permitted by regulations at 5003.3(f).

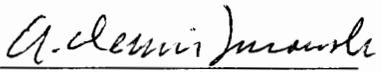
If no protest is received by the close of business (4:30 P.M.; Pacific Standard Time) within 15 days after first publication of the decision notice on September 25, 2012, this decision will become final. If a timely protest is received, the project decision will be reconsidered in light of the statement of reasons for the protest and other pertinent information available, and the Swiftwater Field Office will issue a protest decision.

For further information, contact Max Yager, Field Manager, Swiftwater Field Office, Roseburg District, Bureau of Land Management, 777 NW Garden Valley Blvd; Roseburg, OR 97471; (541) 440-4930.



Max Yager, Field Manager
Swiftwater Field Office

SEPT 20th, 2012
Date

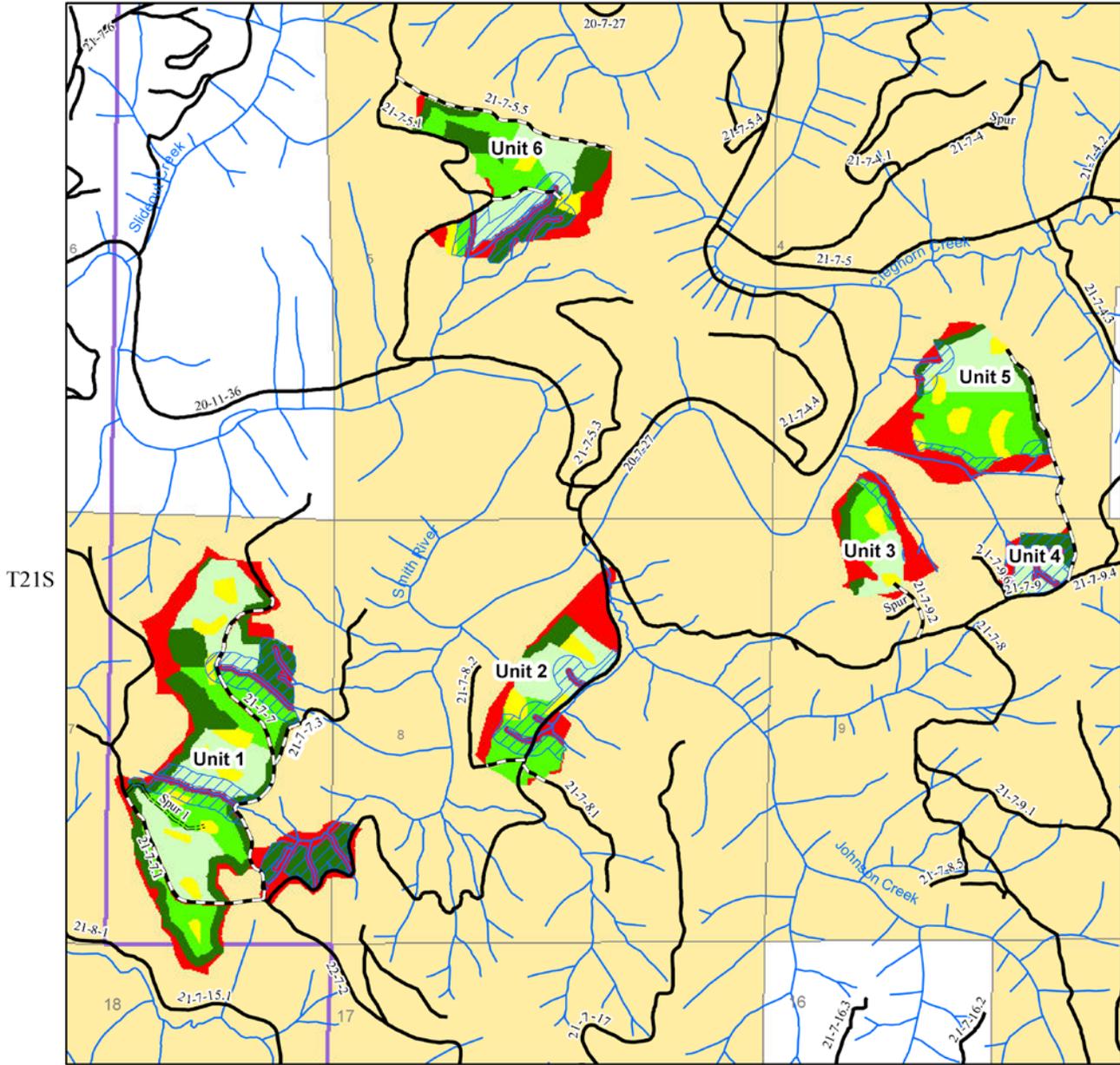


A. Dennis Turowski, Field Manager
Umpqua Field Office

Sept. 19, 2012
Date

Figure 1. Johnson Cleghorn Thinning: All Units

R07W



0 1,000 2,000 3,000 Feet



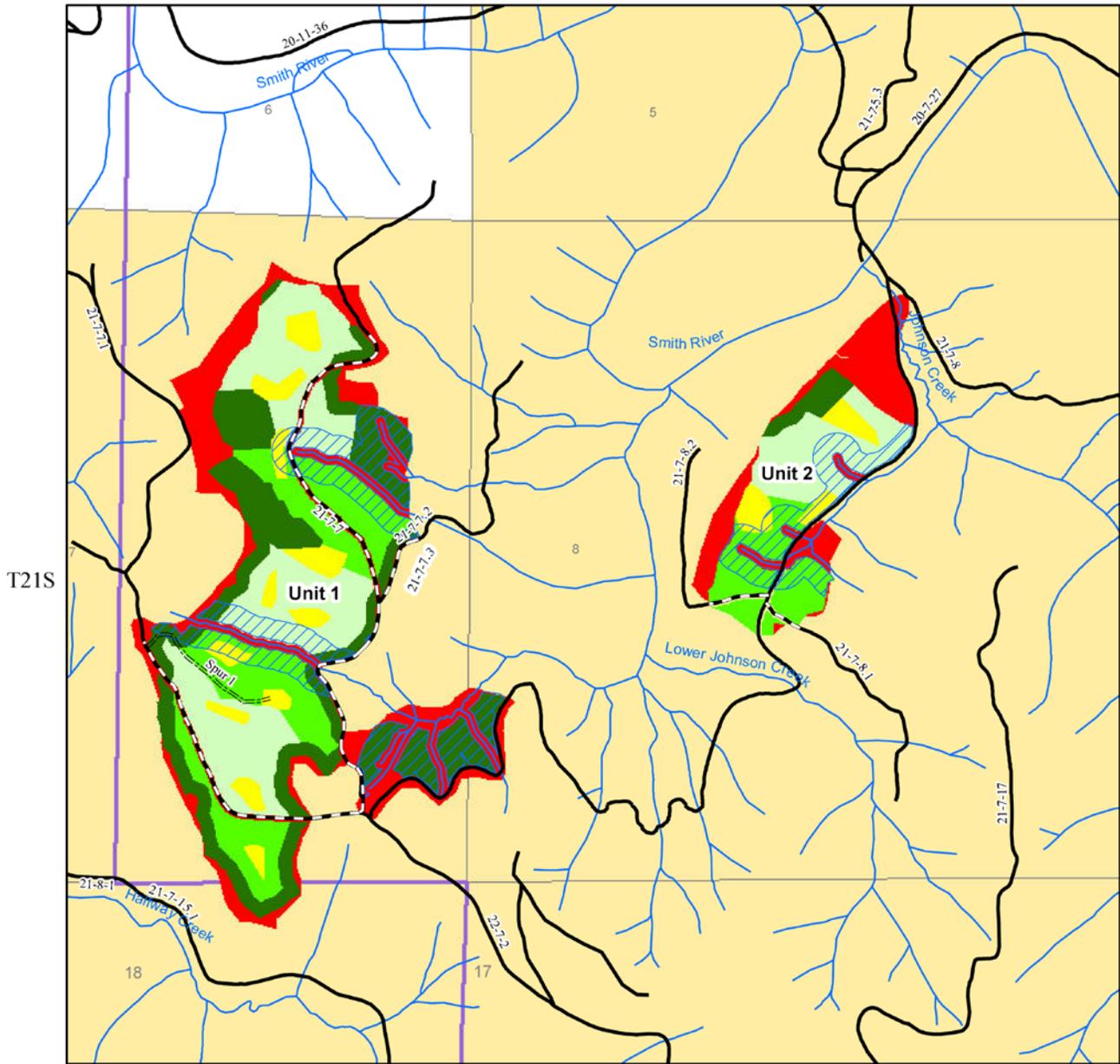
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.
Map Date: 08-21-2012

| Johnson Cleghorn Thinning Map Legend | | Prescription |
|--------------------------------------|-----------------------|---------------------|
| Existing Road | Ground-Based Yarding | Gap |
| Road Construction | Riparian Reserve | Heavy Thinning |
| Road Renovation | BLM Administered Land | Moderate Thinning |
| Stream | District Boundary | Light Thinning |
| | | No Treatment (Skip) |



Figure 2. Johnson Cleghorn Thinning: Units 1 and 2

R07W



0 1,000 2,000 Feet



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Map Date: 08-21-2012

| Johnson Cleghorn Thinning Map Legend | | | Prescription |
|--------------------------------------|-------------------|--|-----------------------|
| | Existing Road | | Ground-Based Yarding |
| | Road Construction | | Riparian Reserve |
| | Road Renovation | | BLM Administered Land |
| | Stream | | District Boundary |
| | | | Gap |
| | | | Heavy Thinning |
| | | | Moderate Thinning |
| | | | Light Thinning |
| | | | No Treatment (Skip) |

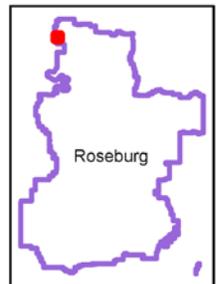
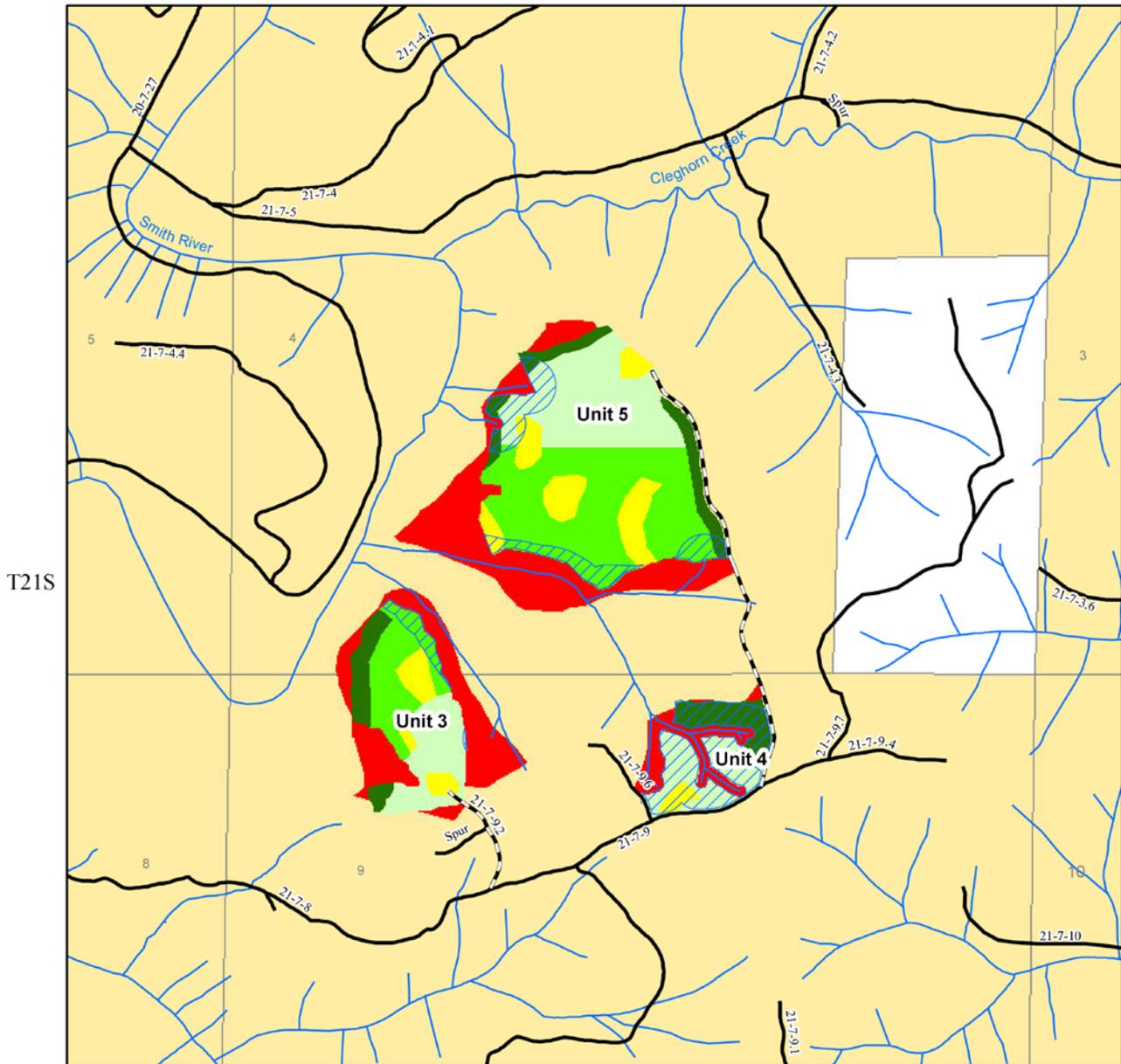


Figure 3. Johnson Cleghorn Thinning: Units 3, 4 and 5

R07W



0 1,000 2,000 Feet



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Map Date: 08-21-2012

Johnson Cleghorn Thinning Map Legend

| | | |
|-------------------|-----------------------|---------------------|
| Existing Road | Ground-Based Yarding | Gap |
| Road Construction | Riparian Reserve | Heavy Thinning |
| Road Renovation | BLM Administered Land | Moderate Thinning |
| Stream | District Boundary | Light Thinning |
| | | No Treatment (Skip) |

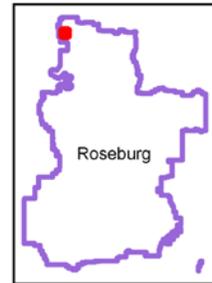
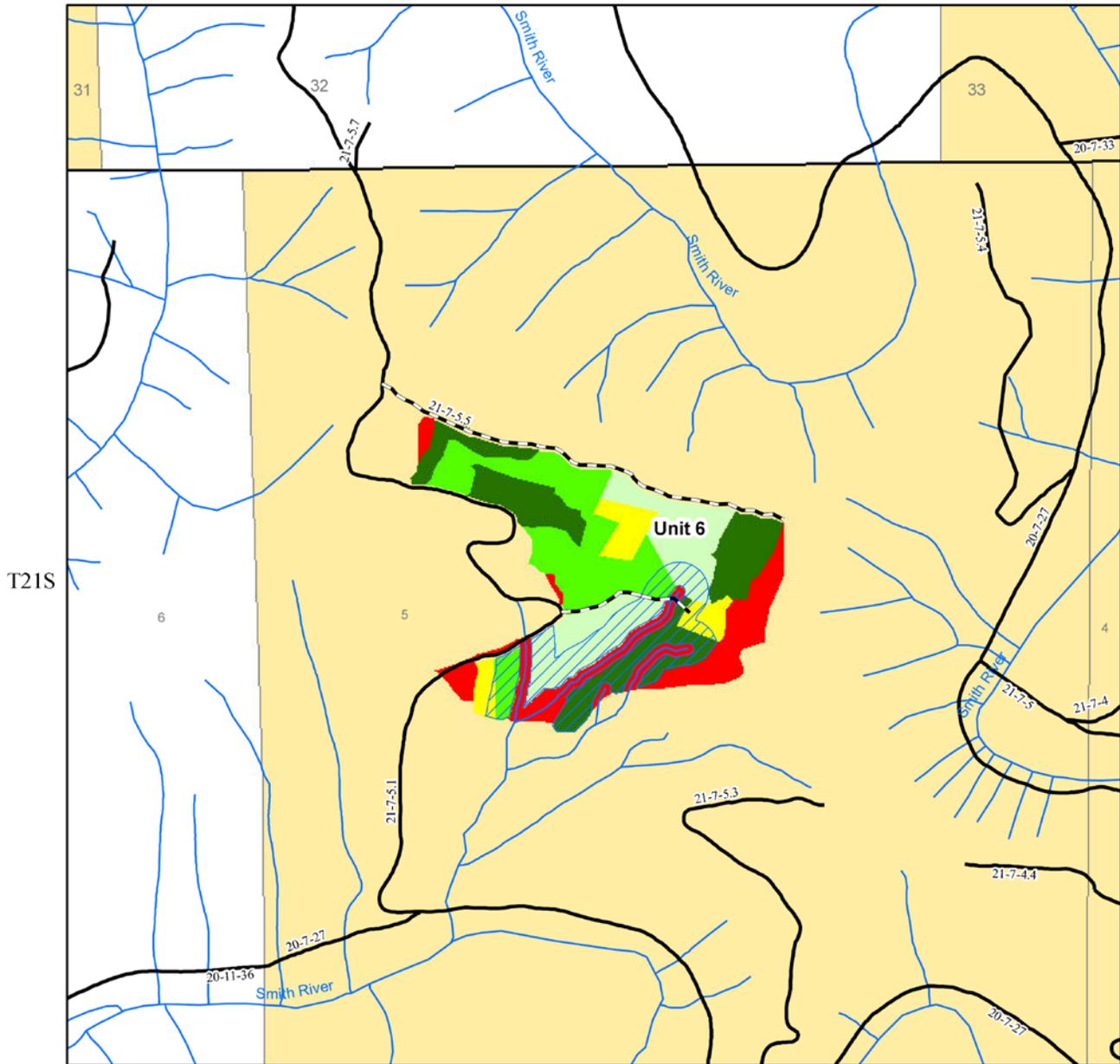


Figure 4. Johnson Cleghorn Thinning: Unit 6

R07W



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Map Date: 08-21-2012

| Johnson Cleghorn Thinning Map Legend | | Prescription | |
|--------------------------------------|-----------------------|--------------|---------------------|
| | Existing Road | | Gap |
| | Road Construction | | Heavy Thinning |
| | Road Renovation | | Moderate Thinning |
| | Stream | | Light Thinning |
| | Ground-Based Yarding | | No Treatment (Skip) |
| | Riparian Reserve | | |
| | BLM Administered Land | | |
| | District Boundary | | |

