Suicide Bar Thinning Decision Document
Camas Valley Harvest Plan Environmental Assessment
DOI-BLM-OR-R050-2011-0005-EA

Bureau of Land Management
South River Field Office, Roseburg District

Background

The Camas Valley 2011 Harvest Plan Environmental Assessment (EA) describes and analyzes a no action alternative and two sub-alternatives of the proposed action. Under Alternative Two, Sub-alternative A commercial and variable density thinning (1,775 acres) would be utilized whereas Alternative Two Sub-Alternative B utilizes commercial and variable density thinning (1,575 acres) and variable retention harvest (240 acres). The Suicide Bar Thinning project, a component of Camas Valley 2011 Harvest Plan EA, includes a portion of the thinning component of the selected alternative, Alternative Two Sub-Alternative B.

The analysis was conducted and the project designed to conform to management direction from the 1995 Roseburg District *Record of Decision and Resource Management Plan* (ROD/RMP) as amended prior to December 30, 2008.

Public Involvement & Response to Comment

Analysis for the Camas Valley Harvest Plan EA began in June of 2011. Informal scoping comments were received from two organizations in May and June of 2011. These comments were considered and addressed in the EA (pp. 5-13).

The EA was released for a 30-day period of public review and comment beginning on June 18, 2013, and running through July 17, 2011. Comments were received from four organizations. Responses to pertinent and substantive comments not already addressed in the EA are included in this document as Appendix A.

Decision

It is my decision to authorize the Suicide Bar Thinning project, which partially implements Alternative Two, Sub-Alternative B described in the Camas Valley 2011 Harvest Plan EA (pp. 28-30). Applicable project design features described in the EA (pp. 19-30) have been incorporated into timber sale contract stipulations. The activity areas total approximately 323 acres; 21 acres are in the General Forest Management Area, 6 acres of Riparian Reserves, and 296 acres are in the Late-Successional Reserves land use allocations. Variable density thinning will be applied in all harvest units. In addition to thinning, the following activities will occur (see Table 1, Table 2, and the attached maps):

- **Road Construction followed by Decommissioning (0.66 miles):** About 75 percent (0.49 miles) of the constructed road is located within unit boundaries. Three road segments (0.29 mile) will be constructed and used for harvest operations during the dry season, then decommissioned in the same respective operating season. Four road segments (0.37 miles) will be constructed, surfaced with rock, and then decommissioned after use. At a minimum, road decommissioning will consist of removing temporary drainage structures, constructing water bars, seeding and mulching disturbed areas, and blocking roads to vehicular use (EA, p. 26). If it is not possible to accomplish decommissioning at the end of an operating season, the purchaser shall be responsible for winterizing them by water-barring, obstructing motorized access, and mulching.

- **Road Renovation:** Ten road segments (1.24 miles) will be renovated and used for harvest operations during the dry season. Five of the renovated segments (0.7 miles) will be decommissioned in the same respective operating season and five (0.54 miles) will be retained for future use. One road segment (0.32 miles) will be renovated, surfaced with rock and then decommissioned after use. Renovation actions are those needed to restore the road to original design specifications and may include blading, brushing, removing obstructions or trees within the right-of-way, reshaping drainage dips and the road bed, replacing cross drains and live water culverts when needed, and spot aggregate placement where needed. Decommissioning will be as described previously.
- **Road Right-of-way Clearing:** Approximately 4 acres
- **Intermittent Stream Crossings:** Conventional ground-based yarding will require three intermittent, non-fish bearing stream crossings to be used during the dry season; two crossings are in Unit 13 and one crossing is in Unit 6.
- **Subsoiling:** Approximately 5.62 miles (8.2 acres) of skid trails, equipment areas and landings will be subsoiled. Subsoiling will treat compacted soils to a minimum of 18 inches in depth, or to the top of gravelly-cobbly soil layers if these layers are shallower than 18 inches.
- **Post-Harvest Fuels Treatment:** Fuel accumulations along roads and landings will be piled and burned.

Total harvest volume is estimated at 6,394 thousand board feet. Approximately 699 thousand board feet derived from variable density thinning in 21 acres of General Forest Management Area land use allocation is chargeable to the Roseburg District annual allowable sale quantity. The remaining 5,695 thousand board feet is derived from variable density thinning in 302 acres of Late-Successional Reserves and Riparian Reserves and is not chargeable to the annual allowable sale quantity.

Table 1: Suicide Bar Variable Density Thinning Unit Description

Sale Unit	EA Unit Designation	Age	Harvest Acres	Land Use Allocation	Harvest Method Percent Cable vs. Ground-Based
1	28-8-27A	60	31	LSR	100:0
2	28-8-27B	50	8	LSR	100:0
3	28-8-27C	48	24	LSR	80:20
4	28-8-27D	53	6	LSR	100:0
5	28-8-27E	55	9	LSR	100:0
6	29-8-9A	58	27	GFMA/Marbled Murrelet Site (21 acres) and Riparian Reserves (6 acres)	50:50
7	29-8-5A	55	27	LSR	10:90
8	29-8-5F	43	16	LSR	100:0
9	29-8-5F	43	37	LSR	5:95
10	29-8-5D	47	47	LSR	90:10
11	29-8-5C	42	44	LSR/Marbled Murrelet Site	80:20
12	29-8-5E	52	10	LSR	0:100
13	29-8-5B	55	24	LSR	0:100
14	29-8-15A	51	13	LSR	0:100
Total			323		

Prior to move-in, all equipment used in logging and road construction, excluding log trucks and crew transport, will be steam-cleaned or pressure washed to remove soil and materials that may be contaminated with weed seed or root fragments (EA, p. 27). Any equipment removed from the contract area during the life of the contract must be re-cleaned before being returned to the contract area.

Conventional ground-based yarding equipment will operate on designated skid trails, using pre-existing trails to the greatest extent practicable. Operations will be limited to the dry season, as previously described, when soils are at their driest and least susceptible to compaction. This season may be shortened or extended, dependent on weather conditions. Operations are generally restricted to slopes of 35 percent or less, but may be authorized on steeper inclusions and pitches between gentler benches where appropriate (EA, p. 29).

Conventional ground-based harvest systems, except feller bunchers, are acceptable for the ground-based harvest areas. Soils in the harvest units are subject to compaction because they contain high clay content. Field review[1] shows past feller buncher operations on these soil types have not yielded acceptable results.

For cable yarding, a skyline system capable of maintaining a minimum of one-end log suspension will be used. It shall be equipped with a mechanical slack pulling carriage having a minimum of 75 feet of lateral yarding capability (EA, p. 24). The system shall also have the capability to yard in multi-span configuration.

With the exception of the clearing of road rights-of-way, no timber falling, bucking or yarding shall be conducted in the thinning units during the bark-slip period from April 15 to July 15 of each calendar year, both days inclusive. This restriction may be waived or modified depending upon seasonal variations, logging systems, and operator skill.

Access will be primarily provided by existing roads, supplemented by the construction of seven spur roads. Road construction and renovation are restricted to the dry season, typically May 15 and October 15, but may be shortened or extended, dependent on weather conditions. Table 2 and the attached maps display details of necessary road treatments.

Table 2: Suicide Bar Road Construction, Renovation and Decommissioning

Sale Road Number	Camas Valley EA Road Number	Road Treatment	Final Length (miles)
Spur 1	SS2	Road Construction, Surface with Rock, Decommission	0.11
Spur 2	SS3	Road Construction, Surface with Rock, Decommission	0.07
Spur 3	BN1	Road Construction, Decommission	0.12
Spur 4	BN3	Road Renovation, Decommission	0.19
Spur 5	BN4	Road Renovation, Decommission	0.05
Spur 6	BN6	Road Renovation, Decommission	0.13
Spur 7	BN6A	Road Construction, Decommission	0.11
Spur 8	BN5	Road Renovation, Decommission	0.17
28-8-27.1	28-8-27.1	Road Renovation, Surface with Rock, Decommission	0.32
28-8-32.2	BN7	Road Construction, Surface with Rock, Decommission	0.10
29-8-2.0	29-8-2.0	Road Renovation, Surface with Rock	0.03
29-8-4.0	BN8	Road Construction, Surface with Rock, Decommission	0.09
29-8-5.0	29-8-5.0	Road Renovation, Surface with Rock	0.23
29-8-9.1	29-8-9.1	Road Renovation	0.04
29-8-9.5	29-8-9.5	Road Renovation, Decommission	0.16
29-8-9.8	BN2	Road Renovation	0.21
29-8-10.0	29-8-10.0	Road Renovation	0.03
29-8-10.1	SS4	Road Construction, Decommission	0.06

[1] USDI BLM 2013. Sir Galahad Commercial Thinning and Density Management Soil Impacts Field Review. Roseburg District, Roseburg, Oregon.

Rationale for the Decision

Alternative Two, Sub-Alternative B will meet the objectives of providing sustainable timber production; reducing stand densities to promote tree survival and growth; enhancing species and structural diversity in Riparian Reserves to attain Aquatic Restoration Strategy objectives; and creating and maintaining late-successional forest conditions consistent with the Late-Successional Reserve Assessment (EA, pp. 2-3, 43, 46, 50, 51-54). Alternative One will not accomplish these objectives (EA, pp. 40-42). Alternative Two, Sub-Alternative A will not accomplish these objectives to the extent that Alternative Two, Sub-Alternative B will. Specifically, Alternative Two, Sub-Alternative A will not alter seral stage of stands, change the seral stage distribution of BLM-managed lands, or restore species composition to produce stands that are resilient to insects, disease, and fire in areas currently dominated by grand fir (EA, p. 43).

Wildlife

Consultation with the U.S. Fish and Wildlife Service (Service) has been completed and the project complies with the Endangered Species Act.

Northern Spotted Owl

No effect to northern spotted owls (*Strix occidentalis* var. *caurina*) from noise disruption or disturbance is expected (EA, p. 26, 75). Any operations with the potential for disruption of nesting northern spotted owls would be subject to seasonal restrictions. Operations within applicable disruptions threshold distances of known northern spotted owl sites or unsurveyed suitable habitat will be prohibited from March 1st to July 15th, both dates inclusive (EA, p. 26).

Spot check surveys concurrent with operations are necessary for Units 1, 4, and 6-13. If northern spotted owls are detected in the spot check areas, all ongoing operations that have a likelihood of direct harm to a northern spotted owl and/or creating above-ambient noise shall be postponed (USFWS 2012, p. 20)[2] and any operations with the potential to disrupt nesting northern spotted owls will be subject to seasonal restrictions.

The Suicide Bar Thinning project includes application of variable density thinning (VDT) in dispersal habitat within two (2747O and 4508O) unoccupied northern spotted owl sites (USDI-BLM 2013, p. 192 and 193). Thinning will modify 125 acres within the core areas of the sites and seven acres within the nest patch of site 2747O. Modified dispersal habitat will continue to function as dispersal habitat (EA, p. 75) because at least 50 percent canopy cover will be maintained. The environmental effects of project implementation on northern spotted owls are described in the Camas Valley Harvest Plan EA (pp.74-77, 82-83).

Northern spotted owls are expected to continue to use thinned areas after operations are complete because post-treatment canopy closure will remain above 40 percent and the quadratic mean diameter of trees in the stands will exceed 11 inches, figures widely used as thresholds for dispersal function (EA, p. 21-22, 75). It is acknowledged, however, that northern spotted owls will likely utilize the thinned stands less than unthinned stands until canopy closure returns to pre-thinning levels in a projected 10 to 20 years (EA, p. 75).

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[2] USFWS. 2012. Protocol for surveying proposed management activities that may impact northern spotted owls. February 2, 2011 revised January 9, 2012. Pp. 42.

In a Biological Opinion (TAILS #: 01EOFW00-2013-F-0200, dated September 30, 2013), the Service found that the Roseburg District proposed actions, of which Suicide Bar Thinning project is a component, will not jeopardize the continued existence of the northern spotted owl and will not adversely modify northern spotted owl critical habitat (p. 1). None of the Suicide Bar Thinning project is within the 2012 designated northern spotted owl critical habitat (EA, p. 59 and Appendix C). The Suicide Bar Thinning project was modified and does not enter the core area or nest patch of northern spotted owl sites 0540B or EST 39 which were listed in the BO (USDI-FWS 2013) as being adversely affected by proposed actions (USDI-FWS 2013, p. 152).

Marbled Murrelet

As described in the EA (p. 78), there will be no effect to the marbled murrelet (*Brachyramphus marmoratus*) from disturbance. The Suicide Bar Thinning project will treat unsuitable habitat (units 6 and 11) located within two occupied murrelet sites. Thinning will accelerate development of additional suitable nesting habitat (EA, p. 77). Although no harvest units are located within occupied stands or unsurveyed suitable marbled murrelet habitat (USDI-FWS 2013, p. 118), all activities except those associated with Unit 6 and approximately 0.01 miles of road construction and renovation, are located in 2011 marbled murrelet critical habitat (EA, Table C-4).

Renovation of Spur 6 and BLM Road 29-8-9.5; construction of Spur 7 and BLM Road 28-8-32.2; and thinning in units 6, 10 and 11 adjacent to suitable marbled murrelet nesting habitat will be subject to seasonal and daily operating restrictions (EA, p. 27). A feathered thinning treatment will be applied along unit edges (units 6, 10, and 11) adjacent to suitable marbled murrelet nesting habitat (EA, p. 20).

In a Biological Opinion (TAILS #: 01EOFW00-2013-F-0200, dated September 30, 2013), the Service found that the Roseburg District proposed actions, of which Suicide Bar Thinning project is a component, will not jeopardize the continued existence of the marbled murrelet and will not adversely modify marbled murrelet critical habitat (pp. 1 and 118). The Service does not anticipate the incidental take of any murrelets due to the activities addressed in the Biological Opinion (USDI-FWS 2013, p. 121).

Botany Special Status Species

The project is within the range of Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), a Federally-threatened herbaceous perennial plant. There will be no direct effect to Kincaid's lupine, as no populations have been identified in any of the units comprising this project (EA, p. 33, EA Appendix D)

There will be no effects on the Federally-Endangered rough popcorn flower (*Plagiobothrys hirtus*). The project is not within in the geographic range of the species and habitat provided by vernally wet meadows is not present (EA, Appendix D).

No Bureau sensitive plant species were located during surveys in Suicide Bar units, therefore no affect to Bureau sensitive species is anticipated (EA, p. 33, EA Appendix D).

Aquatic Habitat, Fish, and Essential Fish Habitat

Oregon Coast coho salmon (*Oncorhynchus kisutch*), a federally threatened species, is present in the Middle Fork Coquille River and Olalla Creek-Lookingglass Creek 10th Field Watersheds, which are designated as critical habitat for the Oregon Coast coho salmon, and Essential Fish Habitat for both the Oregon Coast coho salmon and Oregon Coast Chinook salmon (*O. tshawytscha*).

A portion (253 acres) of the Suicide Bar Thinning units are within the Middle Fork Coquille River watershed with the remainder (70 acres) of the units in Olalla Creek-Lookingglass Creek watershed. In the Middle Fork Coquille River, upstream migration by Oregon Coast coho salmon is blocked by Bradford Falls, near the mouth of Bear Creek, over 10 stream miles downstream from the nearest Suicide Bar Thinning unit and 1.5 miles from the nearest haul road crossing over the Middle Fork Coquille River (EA, p. 88). In Olalla Creek-Lookingglass Creek, Oregon Coast coho salmon are present about one mile downstream of the nearest proposed units and just downstream from a haul route crossing (EA, p. 88). No direct effects from harvest activities are expected to Oregon Coast coho salmon, critical habitat for the species, or Essential Fish Habitat (EA, pp. 96-99, 102, 103). Riparian Reserves have been established on all streams located within or adjacent to the units, and "no treatment" areas that will filter sediment and provide effective shade for maintenance of water temperatures (60 feet on fish bearing and perennial streams; 35 feet on intermittent streams) have been established adjacent to the stream channels.

Potential effects on aquatic systems come primarily from road related activities, which can contribute sediment to streams that can affect substrate for spawning (EA, p. 96). All road construction and renovation is seasonally restricted to the dry season. Absent seasonal precipitation, which could mobilize sediments, road construction and renovation will not contribute sediment to streams that could affect spawning substrates (EA, p. 96). Dry-season hauling will neither generate nor deliver sediment to live stream channels (EA, p. 97). Application of project design features and Best Management Practices (EA, pp. 28-31, 97, 101) will effectively eliminate delivery of road derived sediment to live stream channels (EA, p. 98). Some sediment may enter streams, however, resulting in elevated levels of turbidity, but not at levels that exceed typical background levels during winter high flows (EA, p. 101).

Gravel-surfaced haul routes could contribute small amounts of fine sediment to stream channels at stream crossings at a time of year that sediment is being transported downstream by high winter flows (EA, p. 97). Under such circumstances small amounts of sediment could become entrained in substrates in fish-bearing reaches, reducing spawning habitat quality (EA, p. 97). Implementing project design features will reduce the potential for these effects (EA, p. 97). Active haul during the wet season will be suspended during or prior to forecasts of substantial rain or if the haul route becomes adversely impacted (EA, p. 97). Where haul routes are paved, there is no mechanism for sediment to be generated or carried to adjacent stream channels (EA, p. 97).

Water Quality and Quantity

Riparian Reserves have been established on all streams located within or adjacent to the harvest units, and "no treatment" areas have been established adjacent to the stream channels that will filter sediment and provide effective shade for maintenance of water temperatures (EA, pp. 20, 99, 100, Appendix E).

As discussed in the EA (p. 102), large openings in a forest canopy greater than two tree heights across can affect precipitation, snow melt and peak flows. Variable density thinning will maintain an average canopy cover of at least 50 percent (EA, p. 21 and 22). Small (less than two tree heights) gaps or openings created by the variable density thinning in Riparian Reserves will have little effect on forest hydrology (EA, p. 102). Consequently, the Suicide Bar Thinning project does not present a risk to peak flow enhancement.

As discussed in the EA (p. 92), the average road density, an index of the relative amount of road in the analysis area, is 5.65 miles per square mile. Based on rights-of-way widths, assumed to be 40-feet on average, roads cover approximately 3,616 acres and represent 4.28 percent of the analysis area (EA, p. 92). Increases in peak flow can be found when the roads and other impermeable areas occupy more than 12 percent of a catchment scale watershed (Harr *et al*. 1975) (EA, p. 92). Road decommissioning will reduce road density, which will remain well below the 12 percent threshold for risk of peak flow enhancement identified by Harr et al. (1975) (EA, p. 104).

Aquatic Conservation Strategy

Riparian Reserves were established consistent with the 1995 ROD/RMP specification that Riparian Reserve widths will be equal to the height of two site potential trees on each side of fish-bearing streams and one site-potential tree on each side of perennial or intermittent non-fish bearing streams, wetlands greater than an acre, and constructed ponds and reservoirs (EA, p. 20, Appendix E). The site-potential tree heights for the Upper Middle Fork Coquille River watershed analysis unit and Olalla Creek-Lookingglass Creek watershed are 180 feet and 160 feet, respectively (EA, p. 20). In Unit 6, approximately 3 acres of variable density thinning will be conducted in Riparian Reserves on the Suicide Bar Thinning project. A principal objective for these treatments is to accelerate the development of late-seral characteristics (EA, p. 50).

Key Watersheds were established "as refugia...for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species (ROD/RMP, p. 20)." The Middle Fork Coquille River and Olalla Creek-Lookingglass Creek watersheds, in which the Suicide Bar Thinning project is located, are not designated as a Tier 1 or Tier 2 Key Watershed (ROD/RMP, p. 20).

In developing the project, the Upper Middle Fork Coquille Watershed Analysis (USDI BLM 1999[3]) and Olalla Creek-Lookingglass Watershed Analysis (USDI BLM 1998[4]) were used to evaluate existing conditions, establish desired future conditions, and assist in the formulation of appropriate alternatives (EA, p. 35, 54, Appendix E).

One of the primary purposes of this project is to accelerate tree growth in Riparian Reserves and speed attainment of late-seral stand conditions with high vegetative diversity and complexity (EA, p. 4 and Appendix E). Variable density thinning is considered to be a watershed restoration project and is therefore consistent with the Watershed Restoration component of the Aquatic Conservation Strategy (EA, Appendix E).

Cultural/Historical Resources

The Suicide Bar Thinning project was surveyed for cultural resources, and one previously documented site was located within the project area. The site was evaluated and determined to be ineligible for listing on the National Register of Historic Places. Consequently, the project will have "No Effect" on cultural resources. The results of the surveys are documented in CRS No. SR1209. The BLM has completed its National Historic Preservation Act Section 106 responsibilities under the 2012 National Programmatic Agreement and the 1998 Oregon Protocol (EA, p. 31 and 32). In compliance with the Act, ground-disturbing activities will be halted if cultural resources are discovered until an Archaeologist can properly evaluate and document the resources.

Noxious Weeds

As discussed in the EA (p. 34), in the absence of this project, weed control measures will still be undertaken. These actions include inventory of infestations, assessment of risk for spread, and application of control measures in areas where other management actions are proposed or planned (EA, p. 34). Control measures may include mowing, hand-pulling, and limited use of approved herbicides (EA, p. 34).

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[3] USDI BLM. 1999. Upper Middle Fork Coquille Watershed Analysis. Roseburg, OR.
[4] USDI BLM. 1998. Olalla Creek-Lookingglass Creek Watershed Analysis. Roseburg, OR.

As previously described in this document, equipment washing is required 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 new infestations would be treated and periodically monitored to determine further treatment needs. Given that regular weed treatments would continue, there would be no perceptible difference between alternatives in the risk of weed establishment and spread (EA, p. 34).

Survey and Manage

In ruling on Conservation Northwest *et al.* v. Mark E. Rey *et al.* on December 12, 2009, Judge Coughenour in the U.S. District Court for Western Washington set aside the 2007 Record of Decision eliminating the Survey and Manage mitigation measures, but deferred issuing a remedy until further proceedings. Judge Coughenour did not issue a remedy or injunction at that time.

The plaintiffs and Federal Agencies entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. The Defendant-Intervener subsequently appealed the 2011 Settlement Agreement. On April 25, 2013, the Ninth Circuit Court of Appeals invalidated the 2011 Survey and Manage Settlement Agreement and remanded the case back to the District Court. On February 18, 2014, the District Court vacated the 2007 RODs which returned the BLM to the status quo in existence prior to the 2007 RODs, which includes the use of the Pechman exemptions.

The Pechman Order dated 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 of 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."

Variable density thinning in the Suicide Bar project will be applied to forest stands that are 42 to 60 years old (EA, p. 37 and 38). All new road construction, whether located within or outside of unit boundaries, is sited in stands less than 80 years old. Consequently, this project complies with Pechman exemption "a."

Carbon Release and Sequestration

In May of 2011, a study on the effects of thinning and biomass utilization on carbon release and storage was published by Oregon State University[5]. The conclusions of the Camas Valley 2011 Harvest Plan EA, with respect to the effects of thinning on carbon storage, were reviewed against findings of the study. Among the study findings were:

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[5] Clark, J., J. Sessions, O. Krankina, T. Maness. 2011. Impacts of Thinning on Carbon Stores in the PNW: A Plot Level Analysis. College of Forestry, Oregon State University. Corvallis, OR.

- Forest carbon pools always immediately decreased as a result of thinning, with reductions increasing as a function of heavier thinning.
- After thinning, carbon pools remain lower throughout a 50-year period.
- Carbon pool estimates for thinned stands remained lower even after accounting for carbon transferred to wood products.

The findings of the Camas Valley 2011 Harvest Plan EA with respect to thinning are consistent with published findings (Sessions et al. 2011[1]) that carbon pools immediately decline following thinning, and remain lower 50 years after thinning (EA, p. 117). This conclusion applies to thinning units in the Suicide Bar Thinning project.

The EA (Appendix F p. 3) also notes that Smith et al. (2006)[6] calculated that 13.5 percent of gross saw log carbon and 14.8 percent of gross pulpwood carbon will be immediately released into the atmosphere at harvest. This is consistent with the finding that not all carbon from harvested timber is transferred into wood and paper products.

Monitoring

Monitoring of the effects of the Suicide Bar Thinning project will be done in accordance with provisions contained in the 1995 ROD/RMP, Appendix I (p. 84-86, 190-191, 193-199, and 201), focusing on the effects of thinning on: Riparian Reserves, Matrix, Air Quality, Water and Soils, Wildlife Habitat, Fish Habitat, Special Status Species Habitat, and Cultural Resources.

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, Steven Lydick within 15 days of the publication of the notice of decision/timber sale advertisement on August 19, 2014, in *The News-Review*, Roseburg, Oregon.

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.

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[6] Smith, J.E., L.S. Heath, K.E. Skog, and R.A. Birdsey. 2006. Methods for calculating forest ecosystem and harvested carbon with standard estimates for forest types of the United States. Gen. Tech. Rep. NE-343. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 216 p

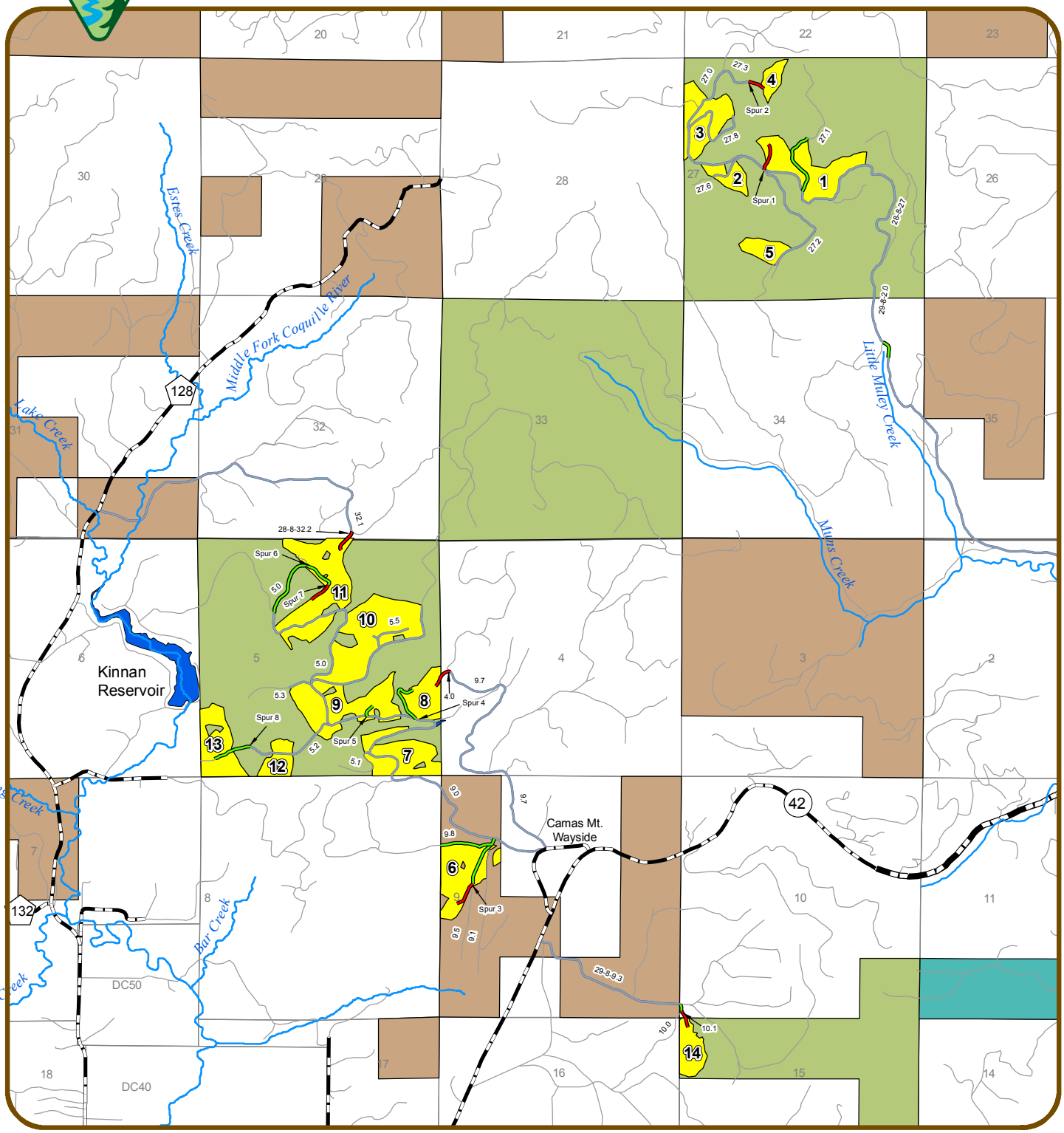
The authorized officer shall, at the conclusion of the review, serve the protest decision in writing to the party or parties. Upon denial of protest, the authorized officer may proceed with the implementation of the decision as permitted by regulations at 43 CFR § 5003.3 subsection (f).

If no protest is received by close of business September 3, 2014 (4:30 P.M., PDT), 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 South River Field Office will issue a protest decision.

Steven Lydick
Field Manager
South River Field Office
(541) 464-3211

8/11/2014
Date

Suicide Bar Units and Roads



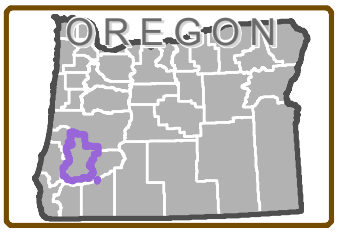
Legend

- Existing Road
- Haul Route
- Major Highways
- Road to Construct
- Road to Renovate
- Stream
- Variable Density Thinning Units
- Water Body
- Connectivity
- General Forest Management Area
- Late Successional Reserve

0 0.15 0.3 0.6 0.9
Miles

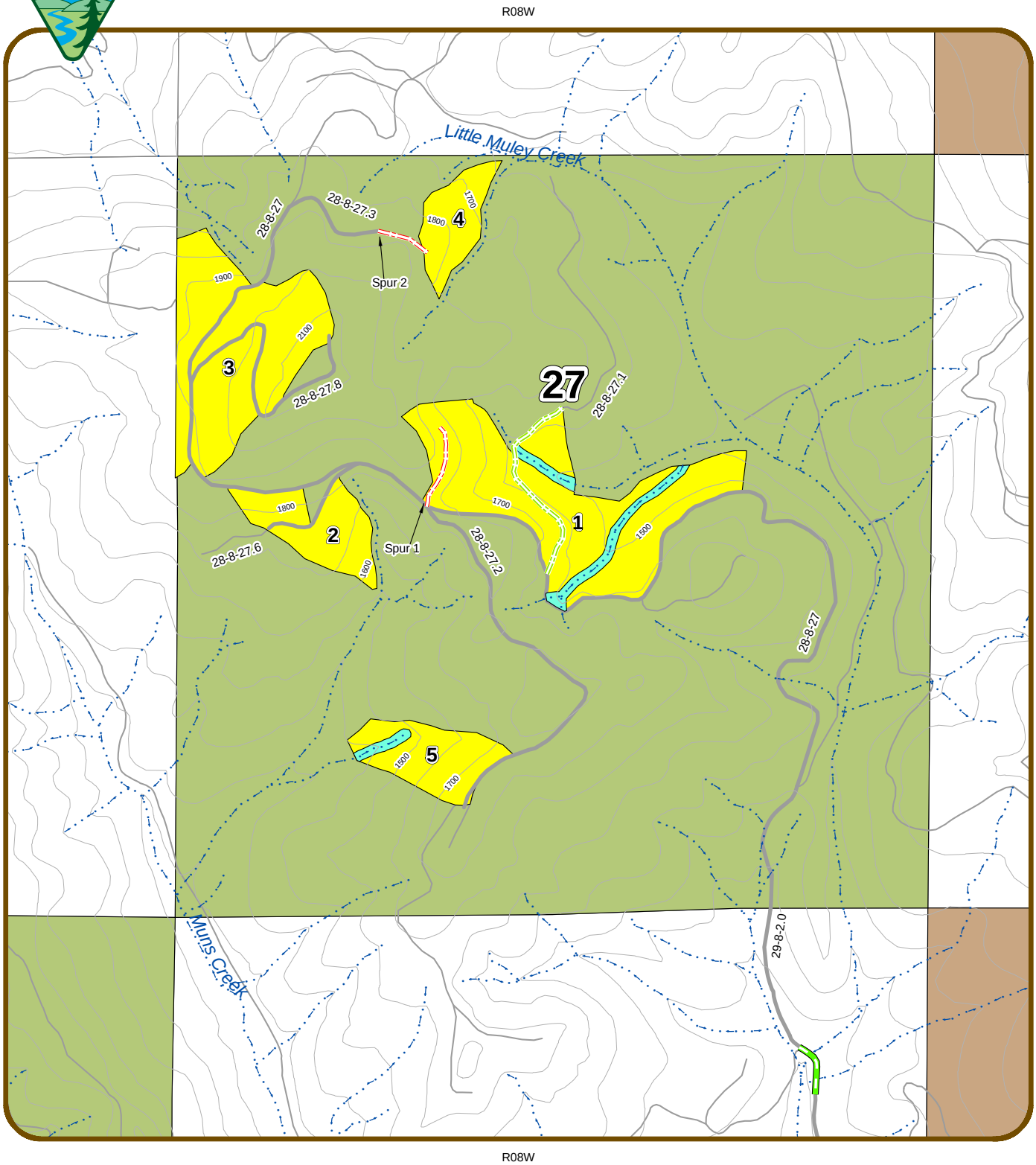
N W E S

Date: 7/25/2014



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.

Suicide Bar Section 27 Units and Roads



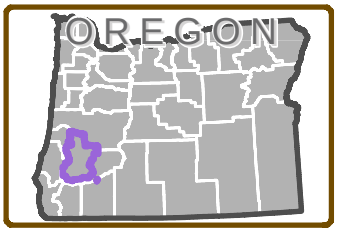
Legend

- Existing Road
- Haul Route
- Road to Construct, Rock, Decommission
- Road to Renovate, Rock, Decommission
- Road to Renovate, Native, Maintain
- Streams
- 100' Contours
- Variable Density Thinning Unit
- No Harvest Stream Buffer
- General Forest Management Area
- Late Successional Reserve

0 0.05 0.1 0.2 0.3
Miles

N
W E
S

Date: 8/5/2014



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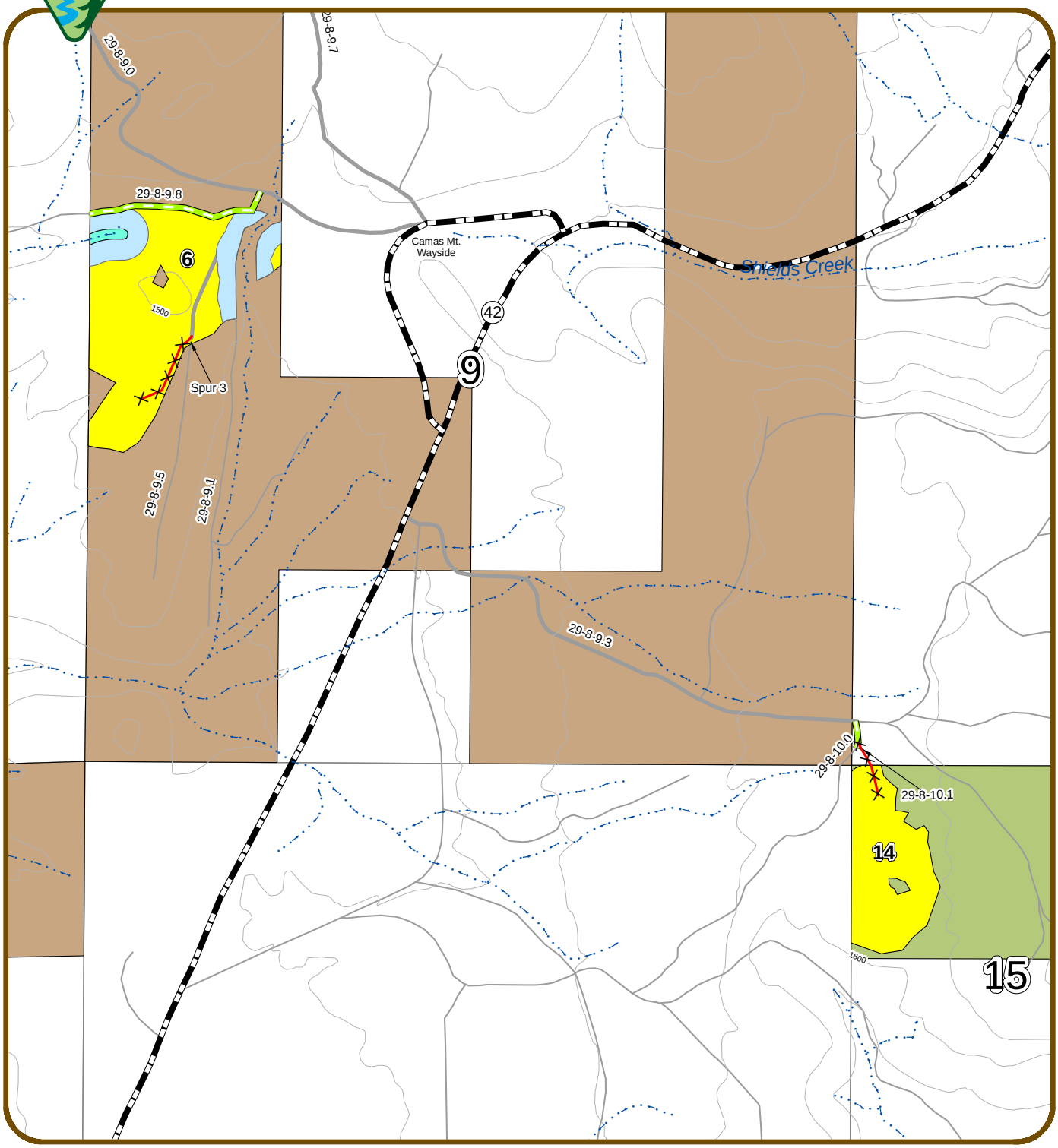
Suicide Bar Sections 9 & 15 Units and Roads



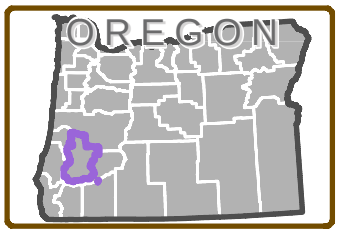
Legend

- Existing Road
- Haul Route
- Road to Construct, Native, Decommission
- Road to Renovate, Native, Maintain
- Streams
- 100' Contours
- Variable Density Thinning Unit
- No Harvest Stream Buffer
- Riparian Treatment
- General Forest Management Area
- Late Successional Reserve

0 0.05 0.1 0.2 0.3
Miles

N W E S

Date: 8/5/2014



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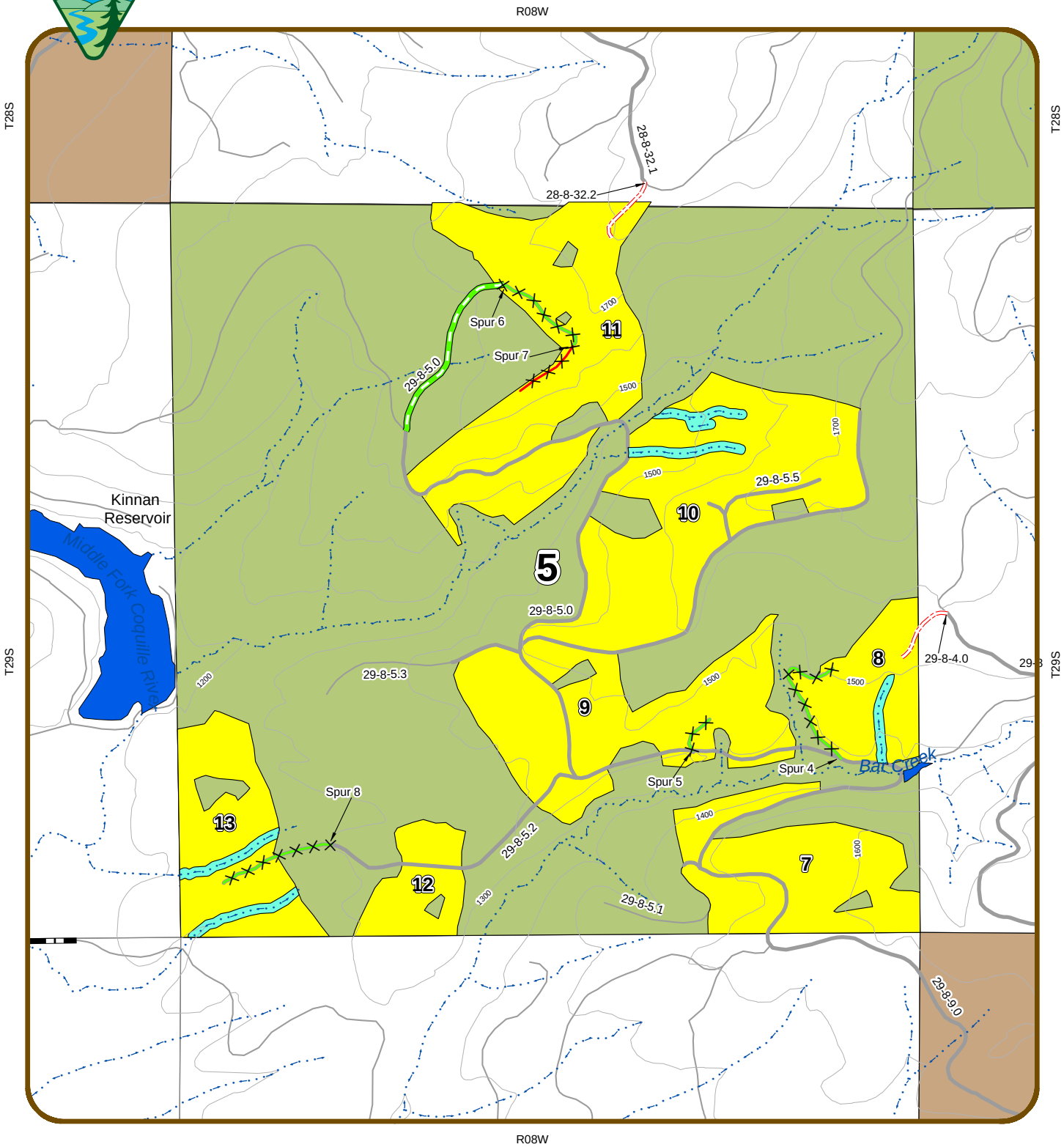
Suicide Bar Section 5 Units and Roads



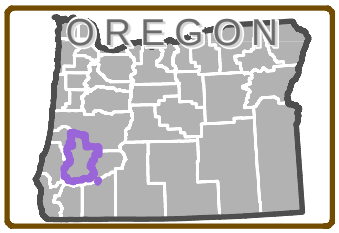
Legend

- Existing Road
- Haul Route
- Road to Construct, Rock, Decommission
- Road to Construct, Native, Decommission
- Road to Renovate, Native, Decommission
- Road to Renovate, Native, Maintain
- Streams
- 100' Contours
- Variable Density Thinning Unit
- No Harvest Stream Buffer
- Water Body
- General Forest Management Area
- Late Successional Reserve

0 0.05 0.1 0.2 0.3
Miles

N W E S

Date: 8/5/2014



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.

Appendix A

Response to Comments on Camas Valley 2011 Harvest Plan Environmental Assessment Pertaining to the Suicide Bar Thinning Project

A 30-day period for public review was provided with release of the EA on April 3, 2012. Comments were received from four organizations. Comments specific to this timber sale are noted in italics and addressed below.

The BLM should eliminate any proposed thinning in spotted owl nest patches. Thinning within the nest patch is "considered likely to affect the reproductive success of nesting northern spotted owls" (EA 48). About 24 acres of thinning would be done in nest patches of two northern owl sites known to be occupied 2010 through 2012, and in the core area of five sites, all below the minimum viability thresholds.

The page cited illustrates typical stand conditions immediately following variable density thinning and a simulation of stand conditions in 20 years. The discussion regarding thinning in northern spotted owl nest patches is found at page 76 of the EA.

The sentence cited was a misstatement. As illustrated in Table 3-10 (p. 58), sites 2747O and 0540A, in which approximately 24 acres of thinning would be conducted, are known to have been unoccupied since 1992 and 2008, respectively. With respect to 500-acre core areas, only four of the five sites noted (0540A, 0540B, 4508O, and 2747O) are below viability thresholds (Tables 3-9 and Table C-3)."

Suicide Bar Thinning Units 10 and 11 will modify dispersal habitat in one nest patch (2747O), unoccupied since 1992. Because owls are absent from the site, there would be no effects to the reproductive success of nesting northern spotted owls.

This project fails to comply with the 2011 recovery plan, which requires protection of existing owl sites. BLM should prioritize vegetation management to enhance, not degrade habitat.

The recovery plan is an advisory document and does not represent any statutory or regulatory requirement with which BLM must comply. Nonetheless, the EA (p. 3) clearly explains treatments in Late-Successional Reserves are intended to protect and enhance late-successional and old-growth forest. Variable density thinning will be beneficial to the creation of late-successional forest conditions.

The Suicide Bar Thinning project includes application of variable density thinning in dispersal habitat within two (2747O and 4508O) unoccupied northern spotted owl sites (USDI-BLM 2013, p. 192 and 193). Thinning will modify 125 acres of dispersal habitat within the core areas of the two sites and seven acres within the nest patch of site 2747O. Modified dispersal habitat will continue to function as dispersal habitat (EA, p. 75) because at least 50 percent canopy cover will be maintained. The EA (p. 83) states, "The project and its effects would be consistent with recommendations of the 2011 Northern Spotted Owl Recovery Plan because it would implement disturbance-based management within the range of the northern spotted owl with the goal of maintaining or restoring forest ecosystem structure, composition, and processes so they are sustainable under current and future climate conditions (USDI-FWS 2011, p. III-13)."

The Biological Opinion (USFWS 2013, Tails # 01EOFW00-2013-F-0200, p. 1) found the proposed action will not jeopardize the continued existence of the northern spotted owl and will not adversely modify critical habitat for the northern spotted owl. As indicated on page 119 of the Biological Opinion, there is no incidental take of northern spotted owls associated with Suicide Bar Thinning project.

Improving an LSR [Late-Successional Reserves] for spotted owls that are already successfully using the area, and who will be harmed by the thinning, does not make sense. Temporarily harming them could be irreversible.

The Suicide Bar Thinning project will thin dispersal habitat within two (2747O and 4508O) unoccupied northern spotted owl sites (EA, p. 58 and Table C-3; USDI-BLM 2013, p. 192 and 193). Site 2747O has been unoccupied since 1992 and site 4508O has been unoccupied since 2011 indicating that northern spotted owls are not successfully using these areas (EA, Table 3-10, p. 58, Table C-3).

Both sites are below the nesting, roosting, and foraging (NRF) habitat threshold at the home range and core area scales (EA, Table 3-9, p. 57). Northern spotted owls are expected to continue to use thinned areas after operations are complete because post-treatment canopy closure will remain above 40 percent and the quadratic mean diameter of trees in the stands will exceed 11 inches, figures widely used as thresholds for dispersal function (EA, p. 21-22, 75). It is acknowledged, however, that northern spotted owls will likely utilize the thinned stands less than unthinned stands until canopy closure returns to pre-thinning levels in a projected 10 to 20 years (EA, p. 75).

Thinning would help develop more NRF habitat in these deficient home ranges (EA, pp. 74, 75) whereas NRF conditions would not develop as quickly under the No Action Alternative. Figures 3-13 and 3-14 of the EA (p. 49) show anticipated habitat conditions in stands where variable density thinning is applied. Contrasting thinned stand conditions with untreated stand conditions, as depicted in Figures 3-1 through 3-4 (EA, pp. 39, 41 and 42), one can see the benefits of variable density thinning. Most notably, variable density thinning would promote tree regeneration, shrub growth and development of multistoried stands; allow regeneration of conifers and hardwood species; allow growth of larger trees with full crowns and large limbs; aid in differentiation of tree sizes and crown characteristics associated with mature and late-successional forest; and generate larger snags and larger down wood (EA, pp. 46, 47 and 49). As noted on page 119 of a Biological Opinion (Tails #: 01EOFW00-2013-F-0200), the U.S. Fish and Wildlife Service indicates that no incidental taking of known northern spotted owls is anticipated due to implementation of Camas Valley 2011 Harvest Plan Alternative Two Sub-alternative B which is consistent with the 2011 Northern Spotted Owl Recovery Plan (EA, p. 83).

The EA failed disclose not only where owl activity centers are, but also the actual foraging locations.

The known northern spotted owl sites relative to the harvest units are listed in Appendix C, Table C-3 of the EA. Habitat conditions of those sites is summarized in Table 3-9 of the EA (p. 57) and occupancy of the northern spotted owl sites is summarized in Table 3-10 of the EA (p. 58). A map of owl activity centers is in the project record and available for review. Foraging occurs in NRF and dispersal habitats. Data on the actual foraging locations is not collected because it is prohibitively expensive and time consuming. It would be impractical to identify actual foraging locations as the presence of prey at a given site and time would be impossible to predict given the various species of prey, the mobility of prey, and their changes in distribution given seasonal availability of cover and forage.

The BLM failed to consider which new roads could be eliminated by doing a non-commercial treatment instead of putting logs on a log truck, especially in the riparian or late successional reserves.

Road construction is a cost that must be borne by any given timber sale, and a longer term cost to the BLM for maintenance. Consequently, the BLM does not seek to build any more than the absolute minimum of roads necessary for environmentally responsible timber harvest and forest management. As described on page 1 of the EA, some stands were eliminated as candidates for thinning because they lacked suitable access and did not have sufficient volume to off-set road construction costs. Performing non-commercial treatments would not meet the purpose and need of the proposal (EA, p. 2-4).

Even so-called temporary roads are damaging. For instance, right-of-ways will cut down trees not included in the EA's described prescriptions, and could cut down some of the largest trees in a unit.

Again, for reasons previously described and given that road construction diminishes the forest landbase, roads are only constructed where necessary to achieve necessary forest management actions. Roads are located in areas that are stable, where the environmental consequences are minimized, and where the construction and long-term maintenance costs are minimized. Roads are not located with an objective of removal of the largest trees in a stand. As noted in the description of the alternatives (p. 19), stand exam data reported the presence of older remnant trees, primarily Douglas-fir, in some of the proposed units, at densities of generally less than one per acre. These trees are not the focus of thinning and would be retained to the greatest degree practicable with cutting limited to clearing road rights-of-way and landings, and providing for operational safety. All but about 0.2 miles of road construction in the Suicide Bar Thinning project is within harvest units. All of the road construction in the Suicide Bar Thinning project is in stands less than 80 years old.

The EA failed to document under the no-action alternative which of the riparian reserves would attain desired vegetation characteristics on their own or with just a non-commercial treatment.

There is no need to disprove the negative. As described on page 1 the EA, units were dropped from consideration where stand development is on the desired trajectory for the given land use allocation and would not benefit from treatment. The same holds true for portions of units, which would include Riparian Reserves, not carried forward for treatment.

Removing as many trees as the BLM is removing is also not needed to attain ACS objectives, leaving as few as 60 trees per acre in the reserves. Leaving more green trees would allow more snags in the future.

Table 3-6 (EA, p. 50) indicates Riparian Reserve reference Unit 29-8-9A would have 80 trees per acre (TPA) post treatment, 75 TPA 20 years later, and 69 TPA after 50 years. This gradual reduction in the number of trees over time is a consequence of mortality suppression caused by inter-tree competition, not the silvicultural prescription.

Snag habitat was addressed throughout the EA (pp. 3, 4, 19, 21, 22, 28, 29, 46, 49, 69, 70, 72, 73, 76, 79, 84, 85, 104, 115, 116, and Appendix E). Appendix E describes consistency of the proposed action with objectives of the Aquatic Conservation Strategy which does not establish any objectives or absolutes for snag density within Riparian Reserves..

Sub-Alternative B will release 87 tonnes more carbon into the atmosphere than doing nothing. It will also release more tonnes of carbon than sub-alternative A, but we don't know how much more, because sub-alternative A was not included in Table 3-16. For sub-alternative B, with a large regeneration harvest, the carbon emitted will be reabsorbed within 12 years, also a suspect calculation with fuzzy, non peer-reviewed documentation.

There is nothing in the EA that describes the release of 87 tonnes of carbon under Alternative Two, Sub-Alternative B compared to no action. The EA (p. 117) clearly states that thinning under Sub-Alternative A would result in the direct release of between 5,325 and 7,100 tonnes of carbon, on the order of three to four tonnes per acre. Under Sub-Alternative B, thinning of 1,575 acres would result in direct release of between 5,037 and 6,453 tonnes (EA, p. 118), a figure still approximating three to four tonnes per acre. When the 52 tonnes per acre of carbon directly released by the variable retention harvest are added to this, direct carbon release under Sub-Alternative B is 55 to 56 tonnes per acre.

The methodology used in the carbon calculations for the Camas Valley 2011 Harvest Plan EA is the same that has been used by the BLM for the past four to five years. The assumptions and analytical methodology are all documented in Appendix F of the EA.

The EA failed to consider that the BLM manages an especially valuable carbon resource. Because private forestlands cannot be forced to help protect the earth's climate, public forests in the coast range are even more important for sequestering carbon.

The EA did not fail to consider the value of forests in carbon sequestration. As noted in the EA (p. 116), land use, land use change and forestry nationally resulted in a net sequestration of 940 million tons of CO_2 in 2008 (EPA, 2010; Table 2-3). Forest management in the U.S., alone, resulted in net CO_2 sequestration of 792 million tonnes (EPA, 2010; Table 2-9), an offset of approximately 11 percent of total U.S. CO_2 emissions

Northwest Forest Plan standards for dead wood are based on an outdated "potential population" methodology which greatly underestimates the amount of snags and down logs needed to meet the needs of a variety of species associated with dead wood. The agencies should follow NEPA procedures to amend their management plans, consider alternatives, and adopt new standards that assure objectives are met over time and across the landscape.

The project was designed to meet 1995 RMP requirements for snags and large down wood (ROD/RMP, pp. 38, and 65-66). This topic was addressed on page 8 of the EA and in the marking prescriptions on pages 22, 28 and 29. Down wood was discussed in Chapter 3 of the EA on pages 46, 49, 51, 64, 67, 68, 70 and 115. With respect to amendments to the Western Oregon Resource Management Plans, the effort is currently underway and will consider the most recent science regarding the appropriate distribution of snags and down wood for proper ecological functions.

When conducting commercial thinning projects take the opportunity to implement other critical aspects of watershed restoration especially pre-commercial thinning, restoring fish passage, reducing the impacts of the road system, and treating invasive weeds.

This would require augmentation of funds which is contrary to established BLM policy. The Roseburg District addresses other management programs such as pre-commercial thinning, fish passage restoration, and invasive weed treatments in separate environmental analyses available at http://www.blm.gov/or/districts/roseburg/plans/index.php .

Use projects as an opportunity to learn by conducting monitoring and research on the effects of thinning.

Monitoring will be conducted in accordance with provisions contained in the ROD/RMP, Appendix I (pp. 84-86, 190-199). Monitoring efforts will focus on consideration of the following resources; Riparian Reserves, Late-Successional Reserves, Matrix, Air Quality, Water and Soils, Wildlife Habitat, Fish Habitat, and Special Status Species Habitat (EA, p. 120). Conducting research is beyond the scope of this analysis.

Consider the effects of thinning on adjacent mature & old-growth habitat which may provide habitat for spotted owls, marbled murrelets, and other species.

The effects of thinning habitat for species associated with mature and older forests were analyzed in the EA (pp. 74-86).

Focus on treating the youngest stands that are most "plastic" and amenable to restoration.

The pool of candidate harvest stands that would be most amenable and responsive to thinning treatments was established and refined based on stand age, stand development, site conditions, and logistical considerations (EA p. 1). The need for treatment was discussed on pages 3 and 4 of the EA.

Generally retain all the largest trees, then "thin from below." Some of the smaller trees in all age-size classes should be represented in untreated "skips" embedded within the stand.

The marking prescriptions are described in Chapter 2 of the EA (pp. 19-23, 28-29), consisting of thinning from below in the suppressed and intermediate canopy classes. Harvest in all land use allocations would retain larger and older remnant trees (EA, p. 19) and to the greatest degree practicable would reserve the co-dominant and dominant trees within stands, as constrained by specific density and spacing objectives (EA, p. 20). Harvest in Riparian Reserves, Connectivity/Diversity Blocks and Late-Successional Reserves include "skips" and "gaps" (EA p. 12, 21 and 22).

Retain and protect under-represented conifer and non-conifer trees. Protect shrubs as much as possible, especially deciduous and tall shrubs, and those that produce berries and mast.

Harvest in all land use allocations would retain where available western hemlock, western redcedar, Port-Orford-cedar, and incense cedar (EA, p. 11, 20) and reforestation would include minor species (EA, p. 31). Hardwood trees would be retained where practicable (EA, pp. 21, 22, and 28). It would be impossible to protect deciduous shrubs while at the same time conducting thinning. As described in the EA (p. 37), ground cover and understory vegetation, which would include deciduous shrubs, is patchy and sparse as a consequence of the closed canopy conditions. Thinning will promote conditions that are favorable to the establishment and maintenance of the understory.

Strive for a variable density outcome. Ideally variability should be implemented at numerous scales.

Prescriptions for variable density treatments, including gaps, skips, aggregate retention and dispersed retention, are described in the EA (pp. 19-22, 28-29). The Suicide Bar Thinning project only includes a variable density thinning harvest prescription. Increased structural heterogeneity and introduction of fine scale variation into treated stands would be achieved by varying the spacing of reserve trees and creating gaps and skips (EA, p. 21).

Retain abundant snags and coarse wood both distributed and in clumps. Retain wildlife trees such as hollows, forked tops, broken tops, leaning trees, etc.

Snags would be retained where operationally feasible and safe. Retention of snags and coarse wood are discussed in the EA (pp. 3, 4, 8, 19, 21, 22, 28, 29). Selection of trees for retention in Riparian Reserves and Late-Successional Reserves would include trees displaying defects and physical characteristics that may provide wildlife habitat (EA, p. 22).

Green tree retention, including generous unthinned "skips" where density dependent mortality will play out, is necessary. Thin heavy enough to stimulate development of understory vegetation, but don't thin too heavy.

The retention of skips is described in the EA (pp. 12, 21 and 22). Processes of natural mortality will continue to play out in these skips. The marking prescriptions are in Chapter 2 of the EA (pp. 19-23). Relative density of retained trees would range from 25 to 30 in treated Riparian Reserves (EA p. 21); 35 to 40 in GFMA (EA, p. 21); and 25 or more in Late-Successional Reserves (EA, p. 22). Over 50 percent green tree canopy cover would be retained in thinned units (EA, pp. 21, 22).

If using whole tree yarding or yarding with tops attached to control fuels, the agency should top a portion of the trees and leave the greens in the forest in order to retain structure and nutrients on site.

As a rule, whole-tree yarding is seldom used. Where it is used as a means to reduce activity fuels levels in units it would be counter-productive to top the trees before yarding as these are the fuels that we seek to reduce. All the same, many branches will break off and remain on-site when trees are felled and yarded. There were no issues or concerns associated with soil nutrients that were identified by the soil scientist in connection with limited whole tree yarding.

Avoid impacts to raptor nests and enhance habitat for diverse prey species. Train marking crews and cutting crews to look up and avoid cutting trees with nests of any sort and trees with defects.

Gaps and skips would be established based on habitat features such as hardwood trees, snags, large down wood, and trees possessing uncommon or unique structural characteristics (EA, p. 22). Retained trees include trees displaying defects and physical characteristics that may provide wildlife habitat (EA, p. 22).

Take proactive steps to avoid the spread of weeds.

As described in the EA (p. 34), actions taken to contain, control and eradicate existing infestations are implemented under the *Roseburg District Integrated Weed Control Plan* (USDI/ BLM 1995b). These actions include inventory of infestations, assessment of risk for spread, and application of control measures in areas where other management actions are proposed or planned. Control measures may include release mowing, hand-pulling, and limited use of approved herbicides.

BLM herbicide application treats individual plants. Application methods are limited to truck-mounted sprayers, backpack and hand sprayers, and wick wipers. Time and location of application is also restricted based upon forecast weather conditions, proximity to live water and riparian areas, and proximity to residences or other places of human occupation.

As further described (EA, p. 27) Preventative measures would be implemented that focus on minimizing the risk of introducing new weed infestations or spreading existing ones, and would include:

- Steam cleaning or pressure washing equipment used in logging and road construction to remove soil and materials that could transport weed seed or root fragments.
- Scheduling work in uninfested areas prior to work in infested areas.
- Seeding and mulching disturbed areas with native grass seed; or revegetating with native plant species where natural regeneration is unlikely to prevent weed establishment.

Buffer streams from the effects of heavy equipment and loss of bank trees and trees that shade streams.

Riparian Reserves and riparian management areas would be one site-potential tree height (EA, p. 20). "No-treatment" areas would be established within Riparian Reserves and riparian management areas based upon the nature of individual streams (EA, p. 20). The marking prescription in Riparian Reserves includes retention of snags and large down wood including all decay class 3, 4, and 5 large woody debris (EA, p. 21). Relative density of green trees would range from 25 to 30 and average minimum canopy cover would be 50 percent in the treated portion of Riparian Reserves (EA, p. 21).

If the stand is younger than 80 years, the agency may rely on the Pechman exemption and not complete surveys for rare and uncommon species.

Survey and Manage requirements were addressed in the EA (p. 13, 33, 65-68). All stands being treated in the Suicide Bar Thinning project are less than 80 years old (EA, pp. 37 and 38) therefore they meet Pechman exemption "a".

As documented by district personnel, units in section 5 include marbled murrelet habitat and nests.

One unit (29-8-5E) in Section 5, T.29. S., R. 8 W. has enough residual habitat trees to approximate nesting habitat suitability for the marbled murrelet. No nests are known to exist as occupancy of the unit or the adjacent suitable nesting habitat was never documented during surveys done in 2011 and 2012 (EA, Table 3-12, p. 61).

Units 29-8-5A, 29-8-5B, 29-8-5C, 29-8-5D, 29-8-5F (EA Appendix C, Table C-4), are not considered suitable nesting habitat for the murrelet, but are within 100 yards of suitable marbled murrelet nesting habitat. Surveys were done in and around these units in 2011 and 2012 but occupancy behaviors were not observed in the units.

Occupancy behavior by a marbled murrelet is only known in the forest stand north of Unit 29-8-5D and adjacent to Unit 29-8-5C (EA, Table 3-12, p. 61). Occupancy by marbled murrelets refers to observing marbled murrelets flying in a circle above the stand, or flying at or below the tree canopy (EA, p. 61). This flying behavior indicates a high probability that marbled murrelets may be nesting in a particular forest stand but nest sites are rarely found. The proposed units in Section 5, T. 29 S., R. 8 W. do not include a forest stand with a known marbled murrelet nest nor has occupancy behavior been observed in any proposed units. Units 29-8-5C and 29-8-5D are within 100 yards of the stand where occupancy behavior was observed, as discussed above. The occupancy behavior was observed in 2011, but marbled murrelets were not detected during subsequent surveys done in 2012, 2013 or 2014.

In units 29-8-5D and 29-8-9A every effort, as described in the EA, and more, needs to be expended to protect these increasingly important breeding refugia for this rapidly declining species. One location we visitied [sic], 29-8-5C impressed us with the number and variety of large and old trees. We noted the existing down wood, snags and hardwood component therein; the associated under story and the exceptional presence of "wildlife" trees. Try as we might, UW could find no good reason for the BLM to construct/improve portions of Road BN 6 and the entirety of BN 6A into the unit. It is UW's studied opinion that no management operations are presently needed in unit 29-8-5C for the improvement of mamu and NSO habitat that would not cause more harm than benefit to these declining species. Unit 29-8-5C and its associated road(s) should be dropped from this harvest plan.

The forest conditions in Unit 29-8-5C are summarized in Table 3-2 of the EA (p. 38). Stand exam data reported the presence of older remnant trees in some of the proposed units, at densities of generally less than one per acre. These trees, and snags, are not the focus of thinning and would be retained to the greatest degree practicable (EA, p. 19). Additionally, a feathered thinning treatment would be applied along Unit 29-8-5C where it is adjacent to older forest stands (EA, p. 20). Treating unsuitable marbled murrelet habitat in Unit 29-8-5C would accelerate development of suitable nesting habitat (EA, p. 77).

Road BN6 and ridge spur BN6A are necessary to facilitate uphill yarding in Unit 29-8-5C as downhill yarding would be necessary without these two roads. Downhill yarding in a stand to be thinned would result in excessive stand damage that would prevent us from meeting treatment objectives for Late-Successional Reserves which are described in the EA (p. 3).

Unit 29-8-5C is not considered suitable nesting habitat for the marbled murrelet (EA Appendix C; Table C-4) but a few scattered larger trees are present and down wood is abundant in some locations. The EA (pp. 40-42, 70-71) acknowledges the effects of "No Action" on the development of the forest stand as well as the foreseeable changes after the proposed treatments (EA, pp. 43-50). The EA describes the changes within the forest stands as a result of harvest and discusses (for example) that over the long term gaps created during the variable density thinning "would allow for the growth of larger trees adjacent to the openings, with full crowns and large limbs more typical of open-growth conditions. The increased growth rates, expected to persist for 30 years or longer, would aid in differentiation of tree sizes and crown characteristics associated with mature and late-successional forest more quickly than if left untreated." (EA, p. 46). These changes equate to better habitat development and better connection between habitat patches that are scattered throughout Section 5, T.29. S., R. 8 W.

The EA (pp. 74-78) also acknowledges the short term and long-term effects on the northern spotted owl and the marbled murrelet from thinning the proposed units.

[The Middle Fork Coquille River w]ater flows in the summer are pitiful. Water quality is poor in almost any season.

As noted in the EA (p. 102), variable density thinning areas in Riparian Reserves would create small canopy gaps. These would have little effect on forest hydrology, as there would be no large openings created, greater than two tree heights across, that could affect precipitation, snow melt and peak flows

The summer flows in the Middle Fork Coquille River are the result of precipitation patterns and irrigation withdrawals, not timber harvest. As described in the EA (pp. 100 and 103), no effects on stream temperature and turbidity are expected. Vegetation that provides primary shading for perennial stream channels would be protected by minimum 60-foot wide "no-treatment" areas based on the cool, moist microclimate gradient found between riparian and upland ecosystems (Rykken *et al*., 2007). For riparian areas extending beyond 60 feet from streams, evidence for increasing air temperature or relative humidity is not distinguishable from upslope areas (Rykken *et al*., 2007). Maintaining a 50 percent angular canopy density within the secondary shade zone would be consistent with TMDL implementation strategies.

For streams with little or no potential to increase summer stream temperature, as with intermittent streams, minimum 35-foot wide "no-treatment" areas would be designated in order to protect streams from sedimentation (Rashin *et al*., 2006). In addition to the "no-treatment" areas established on streams, silvicultural treatments would not be applied to naturally wet areas, springs or seeps within the extent of riparian vegetation or seasonally saturated soils, whichever is greatest.

"No-treatment" areas effectively reduce or eliminate disturbance to stream channels and stream banks, filter surface run-off allowing sediment to be deposited on the forest floor before it can enter streams, and provide thermal regulation of water temperatures.

We understand from the maps provided with the EA that the BLM is also implementing retention areas in their Matrix thinning units.

There are skips in Suicide Bar thinning units, all of which are in the Late-Successional Reserves land use allocation or in marbled murrelets sites which are managed as unmapped Late-Successional Reserves. The skips are located in areas of resource concerns or unique stand characteristics.