Orb Weaver Thinning Decision Document
Revised Myrtle Creek Harvest Plan Environmental Assessment

DOI-BLM-OR-R050-2013-0003-EA

Bureau of Land Management
South River Field Office, Roseburg District

Background

The Revised Myrtle Creek Harvest Plan Environmental Assessment (REA), of which the Orb Weaver Timber Sale is a component, proposed to apply uniform and variable density thinning to 1,160 acres and variable retention harvest to 334 acres in the Matrix land use allocations. Additionally, variable density thinning would be applied to 374 acres in the Riparian Reserves land use allocation. The REA describes and analyzes a no action alternative and two action alternatives. Under Alternative Two (the proposed action), thinning and variable retention harvest would be utilized whereas Alternative Three would utilize only thinning harvest.

The BLM made two notable changes (described on page 2) to Alternative Two. The selected alternative, Alternative Two Modified, includes approximately 1,014 acres of variable density thinning (VDT), 614 acres of uniform commercial thinning (CT), 209 acres of variable retention harvest (VRH), and 209 acres of reforestation and stand maintenance. Forest management treatments will be conducted as described in the REA (pp. 21-25) with the exception of the gap size in Riparian Reserves. Road management, fuels management and subsoiling actions will be as described in the REA (pp. 25-30).

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

The BLM initiated the Myrtle Creek Harvest Plan project in December of 2012. The project has been described in the Roseburg District Quarterly Planning Update since December 4, 2012 (REA, p. 5). Informal scoping comments were received from two individuals and two organizations in January, February, and March of 2013. Letters were sent to landowners with property adjacent to BLM-administered lands where timber harvest is proposed, those whose property lies beside or astride identified haul routes, and those with registered surface water rights for domestic use located within one mile downstream of any proposed units in September 2013. The scoping comments were considered and addressed in the REA (pp. 5-10).

The Myrtle Creek Harvest Plan Environmental Assessment (EA) was released for a 30-day period of public review and comment beginning on June 4, 2014, and running through July 3, 2014. Comments were received from four organizations and four individuals. Additionally, we received a form letter from 189 individuals during the comment period. After the EA was issued, surveys for red tree voles were completed. The Myrtle Creek Harvest Plan was revised (REA) subsequent to completion of red tree vole surveys to incorporate results of the surveys and to incorporate an evaluation for non-high priority site designation. The REA was released for a 15-day period of

public review and comment between August 12, 2015 and August 26, 2015. Comments on the REA were received from four organizations. Responses to comments pertinent to this decision and not already addressed in the REA are either included in Appendix B or described below.

Decision

It is my decision to authorize the Orb Weaver Timber Sale, which continues implementation of a combination of activities described in Alternatives Two and Three (Alternative Two Modified; see Appendix A - Maps) in the REA (pp. 18-35). I made two notable changes to Alternative Two in response to public comments. One of those changes does not pertain to the Orb Weaver Timber Sale because it affected the amount of variable retention harvest in stands 80 years of age and older. The change pertinent to this sale is related to concerns about the effects of creating openings as large as one and a half acres in size within Riparian Reserves. To address concerns about Riparian Reserve treatments, it is my decision to create gaps no larger than 0.25 acres. One additional change that affects the Orb Weaver project is that uniform commercial thinning in REA Unit 29-3-9E (Sale Unit 5) will be applied as described in Alternative Three of the REA rather than variable retention harvest as proposed in Alternative Two.

The Orb Weaver Timber Sale consists of twelve units in Sections 20, 21, 28, 29, 32 and 33, T. 28 S., R. 3 W.; Section 4, 5 and 9, T. 29 S., R. 3 W.; and Section 15, T. 29 S., R. 4 W., Willamette Meridian (see Appendix A - Maps). Table 1 shows the harvest units total approximately 310 acres in the following land use allocations: General Forest Management Area (GFMA, 149 acres), Connectivity/Diversity Block (C/D, 71 acres), and Riparian Reserves (RR, 89 acres), including 10 acres within the "no-treatment" areas. Treatments in the GFMA include approximately 62 acres of CT, 83 acres of VDT and 4 acres of rights-of-way clearing. In the CD Block land use allocation, VDT will be applied to 38 acres and CT will be applied to 33 acres. Variable density thinning will be applied in 79 acres within RR, outside of the "no-treatment" areas. All or a portion of each unit will be harvested using cable yarding methods while portions of three units will be harvested using ground-based methods. In addition to timber harvest, the following activities will occur (see Table 2 and Appendix A - Maps):

- **Road Construction (0.99 miles) and Decommissioning (1.47 miles):** Five road segments (0.99 miles) will be constructed and used for harvest operations, then decommissioned. Table 2 displays road treatments and lengths, and Appendix A - Maps show the road locations. About 75 percent (0.75 miles) of the roads to be constructed will be located within unit boundaries. Three road segments (approximately 0.24 miles) are outside of unit boundaries: 0.06 miles in forest over 80 years old and 0.18 miles in forest less than 40 years old. All road construction and decommissioning will occur during the dry season (described below).

  At a minimum, road decommissioning (0.99 miles of newly constructed road, 0.38 miles of renovated road and 0.09 miles of improved road) will include removing temporary drainage structures, constructing water bars, seeding and mulching disturbed areas, and blocking roads to vehicular use (REA, p. 26). If it is not possible to accomplish decommissioning at the end of the first operating season, the purchaser shall winterize temporary roads by water-barring, obstructing motorized access, and mulching. Road construction and decommissioning will follow the northern spotted owl operating restrictions where applicable (see below).

- **Road Renovation (5.66 miles):** One road segment (0.38 miles; see Table 2 and Appendix A – Maps) will be renovated, used for harvest operations, and decommissioned (previously described) during the dry season (described below). Eleven road segments (5.28 miles) will be renovated during the dry season and retained for future 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 and/or installing cross drains and live water culverts when needed, and spot aggregate placement where needed. Northern spotted owl operating restrictions will apply where applicable (see below).

- **Road Improvement (0.35 miles):** Table 2 shows two road segments will be improved; one road (0.26 miles) will be retained for future use and one road (0.09 miles) will be decommissioned after use as previously described on page 2. Road improvement typically includes placement of rock and installation of drainage structures.

- **Road Daylighting (0.89 miles):** Daylighting will occur along three road segments on two roads (see Table 2, Appendix A - Maps). Daylighting will be conducted as described in the REA (p. 28). Daylighting treatments include clearing shrubs and trees and/or thinning trees less than 24 inches diameter breast height where overstory trees shade the roadway surface. Treatments will be limited to 33 feet from the center line of the road.

- **Road Rights-of-Way Clearing (4 acres):** There will be approximately 2.8 acres of clearing within unit boundaries. Road rights-of-way outside of unit boundaries, totaling approximately 0.24 miles in length, will require clearing approximately 0.9 acres in forest less than 80 years old and 0.3 acres in forest over 80 years old.

- **Subsoiling:** Approximately 0.8 acres of skid trails will be subsoiled. Subsoiling will treat compacted soils to a minimum depth of 18 inches 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, primary skid trails, and landings will be piled and burned as described in the REA (p. 29). Specifically, activity fuels within 50 feet of BLM Roads in units 2, 3 and 6 will be hand piled and burned, and activity fuels in all units will be machine piled and burned at landings.

Total harvest volume is estimated at 4,072 thousand board feet. Approximately 3,027 thousand board feet derived from harvest on 218 acres (including right-of-way clearing) in the GFMA and C/D Blocks land use allocations is chargeable to the Roseburg District annual allowable sale quantity. The remaining 1,045 thousand board feet is derived from variable density thinning in 79 acres of Riparian Reserves and is not chargeable to the annual allowable sale quantity. Timber sale unit numbers and corresponding REA unit designations are displayed in Table 1.

To address public and internal concerns, unit acres shown in Table 1 were reduced to exclude high-quality wildlife habitat and to protect aquatic resources, and because of operational feasibility. In total, the units making up the Orb Weaver Timber Sale have been reduced by 41 acres (12 percent).

Table 1: Orb Weaver Timber Sale Unit Description

Sale Unit	REA Unit Designation	Age in 2015	Harvest Acres	RR "No-treatment" Area	Alt. Two Mod. Harvest Prescription[1]	Land Use Allocation[2]	Northern Spotted Owl Critical Habitat	Yarding Method
1	29-4-15A	88	1.0 1.0	0.0 0.0	CT VDT	GFMA RR	No	Cable
	29-4-15B	55	37.1 9.9	0.0 0.0	CT VDT	GFMA RR	No	Cable
2	29-3-9B	81	10.5 10.4 0.4	0.0 2.8 0.0	VDT VDT ROW	GFMA RR GFMA	No	Cable
3	29-3-9C	76	14.1 9.9 0.8	0.0 1.8 0.0	VDT VDT ROW	GFMA RR GFMA	No	Cable
4	29-3-9D	68	11.3 9.9 0.1	0.0 1.6 0.0	VDT VDT ROW	GFMA RR GFMA	Yes	Cable
5	29-3-9E	72	3.7	0.0	CT	GFMA	Yes	Cable
6	28-3-32C	77	29.1 20.0	0.0 1.7	VDT VDT	GFMA & C/D RR	Yes	Cable & Ground-Based
7	29-3-5A	70	21.7 0 1.4	0.0 0.0 0.0	VDT VDT ROW	GFMA RR GFMA	Yes	Cable
8	28-3-32B	74	12.7 2.6	0.0 0.6	VDT VDT	C/D RR	Yes	Cable & Ground-Based
9	28-3-28B	42	16.5 6.0	0.0 0.6	CT VDT	GFMA & CD RR	Yes	Cable
10	28-3-28A	39	17.1 3.0	0.0 0.0	CT VDT	C/D RR	Yes	Cable & Ground-Based
11	28-3-21B	51	23.5 6.6	0.0 0.7	VDT VDT	GFMA RR	Yes	Cable
12	28-3-21A	48	19.1 0.1	0.0 0.0	CT VDT	GFMA RR	Yes	Cable
Total			299.5	9.8				

[1]CT = Uniform Commercial Thinning; VDT = Variable Density Thinning; ROW = Road Rights-of-Way Clearing
[2]GFMA = General Forest Management Area; C/D = Connectivity/Diversity Block; RR = Riparian Reserves;

Applicable project design features described in the REA (pp. 32-35) have been incorporated into timber sale contract stipulations.

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 seeds or root fragments (EA, p. 27). 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. Ground-based operations will be limited to the dry season when soils are at their driest and least susceptible to compaction. The dry season is typically May 15 through October 15, but 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, excluding feller bunchers, are acceptable for the ground-based harvest areas. Some areas in the harvest units are subject to compaction because they contain soils with high clay content, low levels of rock or are located in areas with high soil moisture. Monitoring[1] shows past feller buncher operations on these soil types have yielded unacceptable levels of soil compaction.

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 five road segments. Table 2 and Appendix A - Maps display details of necessary road treatments.

Table 2: Orb Weaver Thinning Road Construction, Renovation and Decommissioning

Road Number	Road Treatment	Treatment Length (miles)	Daylighting (miles)	Sale Unit Number
Spur 1	Construct, Rock, Decommission	0.06		1
Spur 2	Construct, Rock, Decommission	0.11		2
Spur 3	Construct, Decommission	0.29		3
Spur 4	Construct, Rock, Decommission	0.13		4
Spur 5	Construct, Rock, Decommission	0.40		7
Spur 6	Renovate, Rock, Retain	0.17		10
Spur 7	Renovate, Rock, Retain	0.11		12
29-3-9.1	Renovate, Rock, Decommission	0.38		3
28-3-21.0	Renovate, Rock, Retain	0.44		11
28-3-21.6	Renovate, Rock, Retain	0.08		12
28-3-28.2	Renovate, Rock, Retain	0.08		9
28-3-32.0	Renovate, Rock, Retain	1.96		6
29-3-16.0	Renovate, Rock, Retain	0.84	0.8	6, 9, 10, 11, 12
29-3-5.0	Renovate, Rock, Retain	0.28		6, 7, 8
29-3-9.3	Renovate, Rock, Retain	0.30		4
29-4-15.1	Renovate, Rock, Retain	1.04		1
29-3-9.2	Improve, Rock, Decommission	0.09	0.09	2
28-3-21.1	Improve, Rock, Retain	0.26		

[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 Modified will address public concerns and meet the project objectives (purpose and need) of providing sustainable timber production; developing desired species composition, structural characteristics, and distribution of seral or age classes; enhancing species and structural diversity in Riparian Reserves; and reducing stand densities to promote tree survival and growth (REA, pp. 48-60). Alternative One would not accomplish these objectives (REA, pp. 45-47). Alternative Two would meet the project objectives but would not adequately address public concerns. Alternative Three would not accomplish the project objectives to the extent that Alternative Two or Alternative Two Modified will because Alternative Three would not contribute to developing desired seral or age class distribution in the GFMA land use allocation (REA, p. 60).

Wildlife

Consultation with the U.S. Fish and Wildlife Service (Service) has been completed and the project complies with the Endangered Species Act. In a Biological Opinion (TAILS #: 01EOFW00-2013-F-0200, dated September 30, 2013) the Service found "…the proposed action would not jeopardize the continued existence of the northern spotted owl…and will not adversely modify critical habitat for the spotted owl…" (p. 1) The project area is outside of marbled murrelet management zones, and hence would have no effect on the species or its habitat (REA, p. 188).

Northern Spotted Owl (*Strix occidentalis* var. *caurina*)

Disturbance

No effect to northern spotted owls from noise disruption or disturbance is expected (REA, p. 33, 77). 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.

Suitable and Dispersal Habitat

The BLM modified Alternative Two in response to public comments on the EA/REA. As a result of the modifications, the effects of proposed activities on northern spotted owls and their habitat will be reduced from the effects disclosed for Alternative Two in the REA and the effects described in consultation documents (Biological Assessment and Biological Opinion). The effects will be reduced because unit acres have been reduced, and hence the amount of habitat removed or modified will be less.

In summary, between consultation and final unit layout the total treated area was reduced by 41 acres. Additionally, 4 acres of variable retention harvest that would have removed northern spotted owl dispersal habitat have been changed to thinning which will modify but maintain its function as dispersal habitat. Due to changes in harvest prescription, unit size, and gap size in Riparian Reserves, the environmental effects of project implementation on northern spotted owls will be less than those described in for Alternative Two in the REA and in consultation documents.

The Orb Weaver Timber Sale includes application of thinning in northern spotted owl dispersal habitat (283 acres) and suitable habitat (13 acres) outside of northern spotted owl nest patches. Thinning in the Orb Weaver Timber Sale will affect the core area in three northern spotted owl sites (1363B, 1811O, and 0293A) which are described below.

Site 1363B has been unoccupied by northern spotted owls from 2012 through 2015. The site is below the suitable habitat viability threshold. Variable density thinning portions of units 3 and 4 will modify approximately 38 acres of dispersal habitat within the core area of the site. Units 3 and 4 will continue to function as dispersal habitat.

Site 1811O has been unoccupied by northern spotted owls from 2011 through 2015. The site is above the suitable habitat viability threshold. Portions of units 8, 9 and 10 are within the core area of the site; approximately 1 acre of suitable habitat and 30 acres of dispersal habitat will be modified. Habitat function of treated suitable habitat will be maintained and thinning will not reduce suitable habitat in the core area below the viability threshold (REA, p. 63).

Site 0293A was unoccupied by northern spotted owls from 2010 through 2013 and an incidental northern spotted owl has been documented at the site in 2014 and 2015. The site is below the suitable habitat viability threshold. Unit 7 will modify but maintain habitat function on approximately 2 acres of suitable habitat within the core area of the site.

Thinning in suitable habitat will modify forest condition to improve long-term habitat quality by promoting tree growth, habitat diversity, and resilience to fire, insects and disease while maintaining habitat function because 60 percent canopy cover will be retained (REA, p. 21, 22, 76, and 78). Treatments in dispersal habitat are intended to accelerate development of suitable northern spotted owl habitat (REA, p. 3, 76, 81, 88). Thinning dispersal habitat will diversify forest conditions and promote development of suitable habitat while maintaining habitat function because at least 40 percent canopy cover will be retained (REA, p. 21, 22, 76). Implementation of the Orb Weaver Timber Sale will not change the suitable habitat viability status of three affected sites (REA, p. 78).

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 in dispersal habitat and the quadratic mean diameter of trees in the treated stands will exceed 11 inches, figures widely used as thresholds for dispersal function (REA, p. 62, 75 and 76). Likewise, canopy closure in suitable habitat will remain at or above 60 percent (REA, pp. 21, 22, 76, 78). However, the northern spotted owls may expand home range size (REA, p. 75) and may utilize the thinned stand less than unthinned stands until canopy closure returns to pre-thinning levels (REA, p. 76).

Northern Spotted Owl 2012 Critical Habitat

The Orb Weaver Timber Sale is located in the critical habitat Klamath East Subunit 2. Table 1 shows units 4 through 12 of the timber sale are within the 2012 designated northern spotted owl critical habitat (REA, p. 177) in stands less than 80 years old. Canopy cover in thinned units will remain above 40 percent, thus maintaining dispersal habitat function and providing for northern spotted owl movement between the western Cascades, coastal Oregon, and Klamath Mountains (REA, pp. 80 and 81).

Based upon the critical habitat analysis in the Biological Opinion (BO), the U.S. Fish and Wildlife Service finds Orb Weaver Timber Sale activities in northern spotted owl habitat in the Klamath East Subunit 2 will not impair the overall function of the subunit because there will be sufficient habitat remaining to provide connectivity between subunits and demographic support (USFWS 2013; 01EOFW00-2013-F-0200, pp. 104 and 118). Between consultation and final unit layout for the sale approximately 16 percent (25 acres) of the proposed harvest acres in the critical habitat unit were dropped from consideration, therefore the effects of implementing Orb Weaver Timber Sale will be less than those disclosed in the REA and displayed in consultation documents.

Northern Spotted Owl 2011 Recovery Plan

Known threats to the northern spotted owl are addressed by recovery strategies in the 2011 Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentailis caurina*) (Recovery Plan) that include habitat conservation and active forest restoration as recovery strategies (USFWS 2011, p. II-2). The Recovery Plan also strongly encourages land managers to be aggressive in the implementation of recovery actions (USFWS 2013, p. 42).

The Recovery Plan recommends conserving northern spotted owl sites and high-value northern spotted owl habitat (USFWS 2011, pp. III-42 thru 47). The BLM conserves northern spotted owl sites and habitat in the Orb Weaver Timber Sale by excluding harvest in northern spotted owl nest patches, excluding harvest in high-quality northern spotted owl habitat, limiting activities within core areas, designing activities to maintain or accelerate development of suitable habitat, and implementing seasonal timing restrictions in areas of known northern spotted owl activity and unsurveyed suitable habitat.

The Recovery Plan identifies a number of activities that could have short-term effects to northern spotted owls, but which would still be consistent with the Recovery Plan. Among these are implementation of active forest management and disturbance-based principles throughout the range of the northern spotted owl with the goal of maintaining or restoring forest structure, composition and processes so they are sustainable and resilient under current and future climate conditions. The Service recommends implementation of restoration activities that reduce threats from stochastic disturbance and promote forest resilience to change (USFWS 2011, pp. III-13, III-14, III-45), which will be accomplished by implementing Orb Weaver Timber Sale. Thinning will promote tree survival, tree growth and forest health which, in turn, will contribute toward development of stands that are resilient to insects, disease, and fire (REA, p. 3) and will provide benefits to northern spotted owl habitat (REA, p. 76-77). Given these factors, the sale is consistent with the Recovery Plan (REA, p. 81).

In a Biological Opinion (USDI FWS 2013), the Service made the following findings:

- The NWFP reserve system coupled with spotted owl Recovery Actions 10 and 32 are intended to enhance spotted owl demographic support through habitat conservation. The Roseburg District is implementing Recovery Actions 10 and 32, to the extent practicable, so as to avoid and minimize impacts to spotted owl sites and high value and complex habitats. All activities are planned outside disruption distances of known affected sites (USDI FWS 2013, p. 117). No effect from noise disruption or disturbance is expected (REA, p. 33, 77). Any operations with the potential for disruption of nesting owls would be subject to seasonal restrictions.

- The action area's contribution to the Oregon Coast Range, Klamath Mountains and the Oregon West Cascades Provinces' demographic support function is not likely to be appreciably diminished (USDI FWS 2013, p. 117). The Orb Weaver Timber Sale will not impair the function of the Klamath East 2 Subunit (USDI FWS 2013, p. 104).
- The Orb Weaver Timber Sale is consistent with the NWFP and the project purpose and need, and to the extent practicable consistent with recovery plan. The sale is not likely to appreciably reduce the likelihood of survival and recovery of the spotted owl population at the provincial or range-wide scales (USDI FWS 2013, p. 118).

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 (REA, pp. 13, 179 and 185).

There will be no effects on the Federally endangered rough popcorn flower (*Plagiobothrys hirtus*). The project is not in the species' geographic range and vernally wet meadows are not present (REA, p. 185)

No Bureau sensitive plant species were located during surveys in the Orb Weaver Timber Sale units, therefore no affects to Bureau sensitive species are anticipated (REA, pp. 13, 181-186).

Aquatic Habitat, Fish, and Essential Fish Habitat

The Orb Weaver Timber Sale units are within the Myrtle Creek and Days Creek-South Umpqua watersheds. Oregon Coast coho salmon (*Oncorhynchus kisutch*), a federally threatened species, is present in the fish-bearing portions of Myrtle Creek and Days Creek, which are designated as critical habitat for the Oregon Coast coho salmon, and Essential Fish Habitat for the Oregon Coast coho salmon.

No direct effects from harvest activities are expected to Oregon Coast coho salmon, critical habitat for the species, or Essential Fish Habitat (REA, pp. 100, 101, 104-105). 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 (100 feet on Oregon Coast coho salmon bearing streams, 60 feet on fish bearing and perennial streams; 35 feet on intermittent streams) have been established adjacent to the stream channels (REA, p. 32).

Potential effects on aquatic systems come primarily from road related activities, which can contribute sediment to streams that can affect substrate for spawning. Road work done during the dry season has no mechanism for sediment transport to occur from roads to streams (REA, p. 101). All road construction, road renovation, road decommissioning, and native surface road improvement will take place during the dry season, typically mid-May through mid-October (REA, pp. 34, 100 and 113). Absent seasonal precipitation which could mobilize sediments, these activities will not contribute sediment to streams that could affect spawning substrates (REA, pp. 101). Application of project design features and Best Management Practices will effectively eliminate delivery of road derived sediment to live stream channels (REA, pp. 104, 106). 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 (REA, pp. 99, 101, 106 and 133).

Hauling on native surface roads will take place during the dry season, typically mid-May through mid-October (REA, pp. 34). Dry-season hauling will neither generate nor deliver sediment to live stream channels (REA, p. 100 and 102). 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; the amount of sediment entering streams will be undetectable (REA, pp. 101 and 107). Implementing project design features and Best Management Practices will reduce the potential for these effects (REA, p. 101, 104). Active haul during the wet season on gravel-surfaced routes will be suspended during or prior to forecasts of substantial rain or if the haul route becomes adversely impacted (REA, pp. 35 and 104). Where haul routes are paved, there is no mechanism for sediment to be generated or carried to adjacent stream channels (REA, p. 99).

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 (REA, pp. 99, 104, 105, 106 and 195).

In rain-on-snow hydroregions, openings in a forest canopy greater than two tree heights across can affect precipitation, snow melt and peak flows (REA, p. 107). All or portions of thinning units 8-12 are in the rain-on-snow hydroregion. Variable density thinning in Riparian Reserves will maintain an average canopy cover of at least 50 percent (REA, p. 22) and, in response to public comments on the EA, gaps will be 0.25 acres in size or smaller. Variable density thinning in the Matrix will have gaps 0.25 to 0.5 acres in size. Small gaps created by the variable density thinning will have little effect on forest hydrology (REA, p. 108).

As discussed in the REA (p. 95), average road density is 4.4 miles per square mile. Based on rights-of-way widths, assumed to be 40-feet on average, roads cover approximately 4,824 acres and represent 3.3 percent of the analysis area (REA, p. 95). 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) (REA, p. 93). Table 2 shows that the road decommissioning associated with the Orb Weaver Timber Sale will result in a net decrease in road density which will remain well below the 12 percent threshold for risk of peak flow enhancement identified by Harr et al. (1975).

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 (REA, p. 32 and Appendix D). The height of a site-potential tree is calculated as 160-feet for the Myrtle Creek and Days Creek-South Umpqua watersheds (REA, pp. 32 and 191). Approximately 79 acres of variable density thinning will be conducted in Riparian Reserves on the Orb Weaver Timber Sale. One objective for these treatments is to accelerate the development of diverse plant communities that are characteristic of late-seral conditions (REA, pp. 3, 55, 102 and103).

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).” There is no permanent road construction authorized in the South Umpqua River Tier 1 Key Watershed in association with the Orb Weaver Timber Sale, which is consistent with management direction in the ROD/RMP (p. 20) to neither construct nor authorize through discretionary permits a net increase in road mileage in the watershed.

In developing the project, the *Myrtle Creek Watershed Analysis and Water Quality Restoration Plan* (USDI/BLM 2002a), *South Umpqua Watershed Analysis and Water Quality Restoration Plan* (USDI/BLM 2001a) and *Lower South Umpqua Watershed Analysis* (USDI/BLM 2000) were used to evaluate existing conditions, establish desired future conditions, and assist in the formulation of appropriate alternatives (REA, pp. 2 and 191).

The purposes of this project include promoting diversity and accelerating tree growth in Riparian Reserves to speed attainment of late-seral stand conditions (REA, pp. 2-3 and Appendix D). The thinning prescriptions are considered to be a watershed restoration project and are therefore consistent with the Watershed Restoration component of the Aquatic Conservation Strategy (REA, p. 192).

Cultural/Historical Resources

The Orb Weaver Timber Sale was surveyed for cultural resources in 2013. One new site (OR-10-320) was located outside of the activity area boundaries. The site was determined ineligible for the National Register of Historic Places and, as a result, will not be managed for conservation. One previously documented site (35DO111) overlaps two harvest units, but the units have been reconfigured to avoid impacting the site. Consequently, the project will have "No Effect" on significant or unevaluated cultural resources. The results of the surveys are documented in CRS Nos. SR1305. The BLM has completed its National Historic Preservation Act Section 106 responsibilities under the 2012 National Programmatic Agreement and the 1998 Oregon Protocol. In compliance with the Act, if cultural resources are discovered ground-disturbing activities will be halted until an Archaeologist can properly evaluate and document the resources (REA, p. 15).

Noxious Weeds

As discussed in the REA (p. 14), 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 (REA, p. 14). Control measures may include mowing, hand-pulling, and limited use of approved herbicides (REA, p. 14).

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 in the risk of weed establishment and spread (REA, p. 14).

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 (ROD) eliminating the Survey and Manage mitigation measures, but deferred issuing a remedy until further proceedings. Judge Coughenour did not set aside the Pechman exemptions, or enjoin the BLM from proceeding with projects.

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 2011 Settlement Agreement made four modifications to the 2001 ROD: (A) acknowledged existing exemption categories (2006 Pechman Exemptions); (B) updated the 2001 Survey and Manage species list; (C) established a transition period for application of the species list; and (D) established new exemption categories (2011 Exemptions).

On April 25, 2013, the Ninth Circuit Court of Appeals invalidated portions of the 2011 Settlement Agreement, but the 2006 Pechman Exemptions remain unchanged.

Judge Pechman'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 of large wood, channel and floodplain reconstruction, or removal of channel diversions; and

d) The portions of projects 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."

Table 1 above, shows thinning will be applied to all of the Orb Weaver Timber Sale units which are less than 80 years old, with the exception of Unit 2 and a portion of Unit 1. All associated road construction is sited in stands less than 80 years old, with the exception of Spur Road 1. Consequently, all of the units and road locations (except Unit 2, a portion of Unit 1 and Spur Road 1) comply with Pechman exemption "a".

In 2014, habitat conditions in thinning Unit 2, a portion of Unit 1 and Spur Road 1 were evaluated for suitable habitat. No suitable habitat was present in Unit 1 or along Spur Road 1. Required protocol surveys were conducted in suitable habitat in Unit 2 using the 2001 Survey and Manage ROD species list (REA, pp. 34 and 67). One target species (*Megomphix hemphilli*) was identified in Unit 2. The site is located in the Riparian Reserve "no-treatment" area. Additionally, Unit 5 was evaluated and suitable habitat in Unit 5 was surveyed; no target species were identified. One known site of *M. hemphilli* is in Unit 4. The site is protected because it is located in a "skip".

None of the Orb Weaver Timber Sale units or road construction locations required red tree vole surveys (REA, pp. 41-42) because suitable habitat defined by the Survey Protocol for the Red Tree Vole (Huff et al. 2012) is not present.

Survey and Manage botanical species were surveyed in 2012 using the 2001 ROD species list for Survey and Manage lichens, mosses, bryophytes and vascular plants (REA, p. 13). The results of the surveys are displayed in Appendix B of the REA (p. 180). Survey and Manage target species were not identified in the Orb Weaver Timber Sale surveyed units. Road locations outside of harvest units were surveyed in 2014 and no Survey and Mange species were located.

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.[2] The conclusions of the REA, with respect to the effects of thinning on carbon storage, were reviewed against findings of the study. Among the study findings were:

- Forest carbon pools always immediately decrease 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 REA with respect to thinning are consistent with published findings (Clark et al. 2011[1]) that carbon pools immediately decline following thinning, and remain lower 50 years after thinning (REA, p. 123-124). This conclusion applies to the thinned areas in the Orb Weaver Timber Sale.

The REA (p. 199) also notes that Smith et al. (2006)[3] 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 also consistent with the findings from the Oregon State University study that not all carbon from harvested timber is transferred into wood and paper products.

Monitoring

As stated in the RREA (p. 137), monitoring of the effects of the Orb Weaver Timber Sale will be done in accordance with provisions contained in the 1995 ROD/RMP, Appendix I (p. 84-86, 190-191), focusing on the effects of timber harvest on: Riparian Reserves, Matrix, Air Quality, Water and Soils, Wildlife Habitat, Fish Habitat, Special Status Species Habitat.

---

[2] 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.

[3] 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

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, Steve Lydick within 15 days of the publication of the notice of decision/timber sale advertisement on September 29, 2015, 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.

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 October 14, 2015 (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.

9/21/15

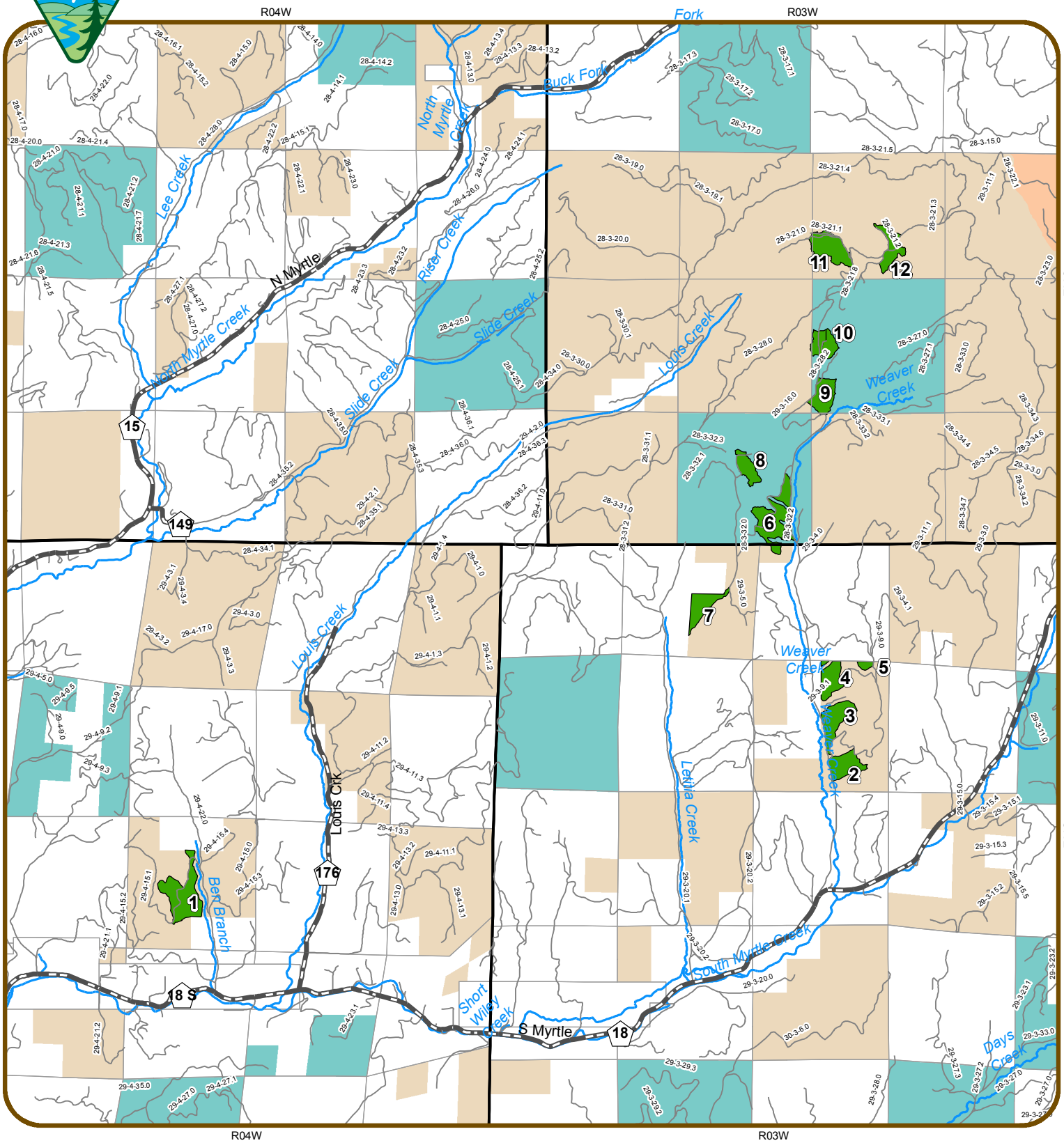
Steve Lydick
Field Manager
South River Field Office
(541) 464-3211

Date

Appendix A

Orb Weaver Timber Sale Maps

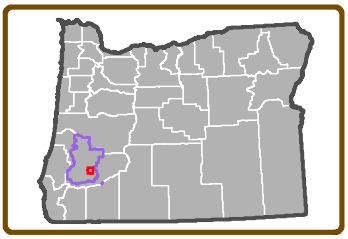
Orb Weaver Units and Roads Vicinity Map



County Roads
Existing Road
Major Stream
Timber Sale Units
Adaptive Management Area
Connectivity/Diversity Block
General Forest Management Area

0 0.25 0.5 1 1.5
Miles

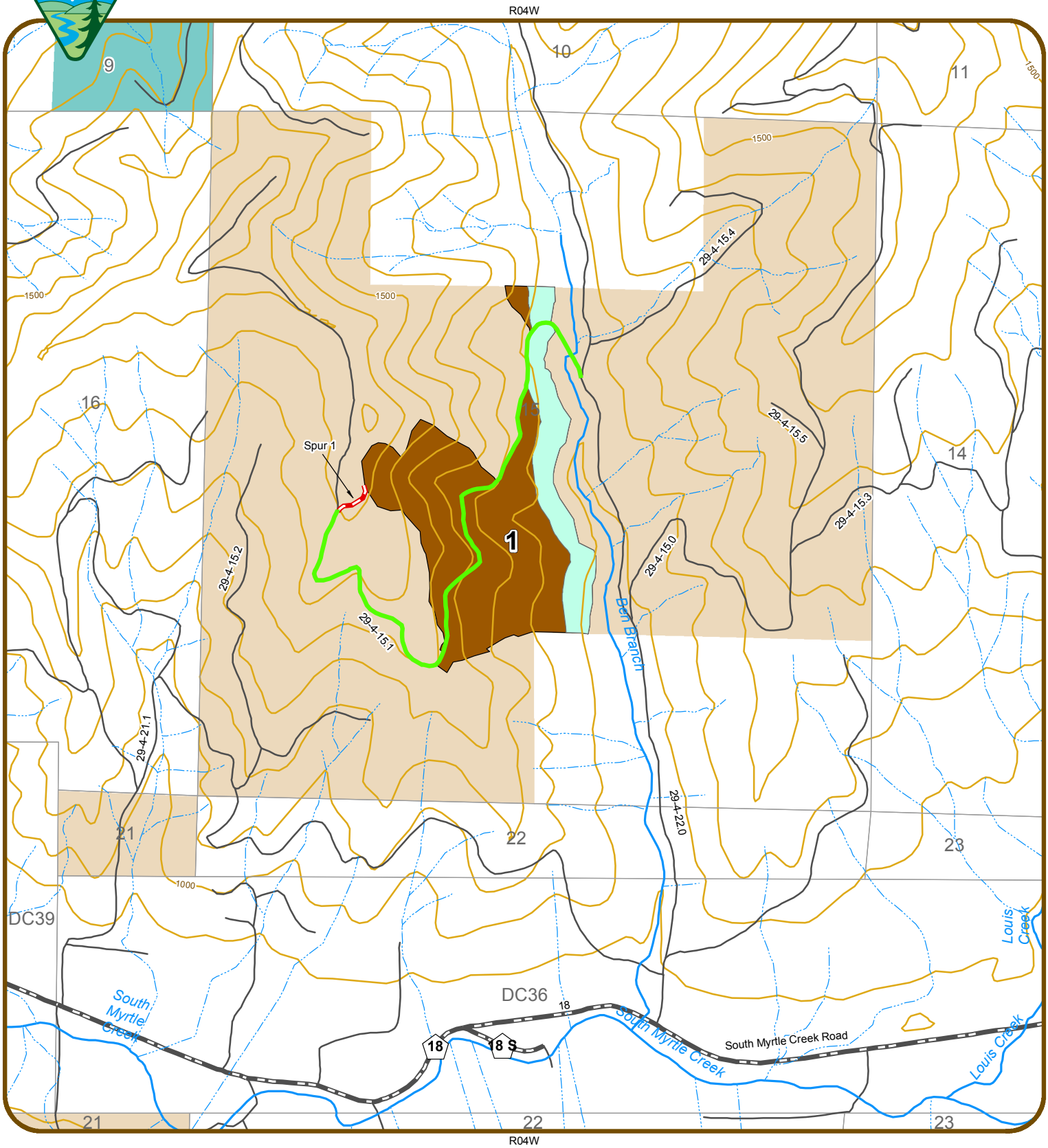
N
W E
S



Date: 9/24/2015

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.

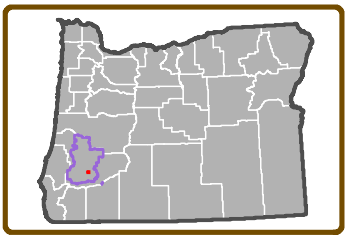
Orb Weaver Units and Roads



County Roads
Construction-Decommission
Renovation-Maintain
Existing Road
Stream
Major Stream
100' Contours
Uniform Commercial Thinning
Riparian Reserve Variable Density Thinning
Connectivity/Diversity Block
General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N
W E
S



Date: 9/24/2015

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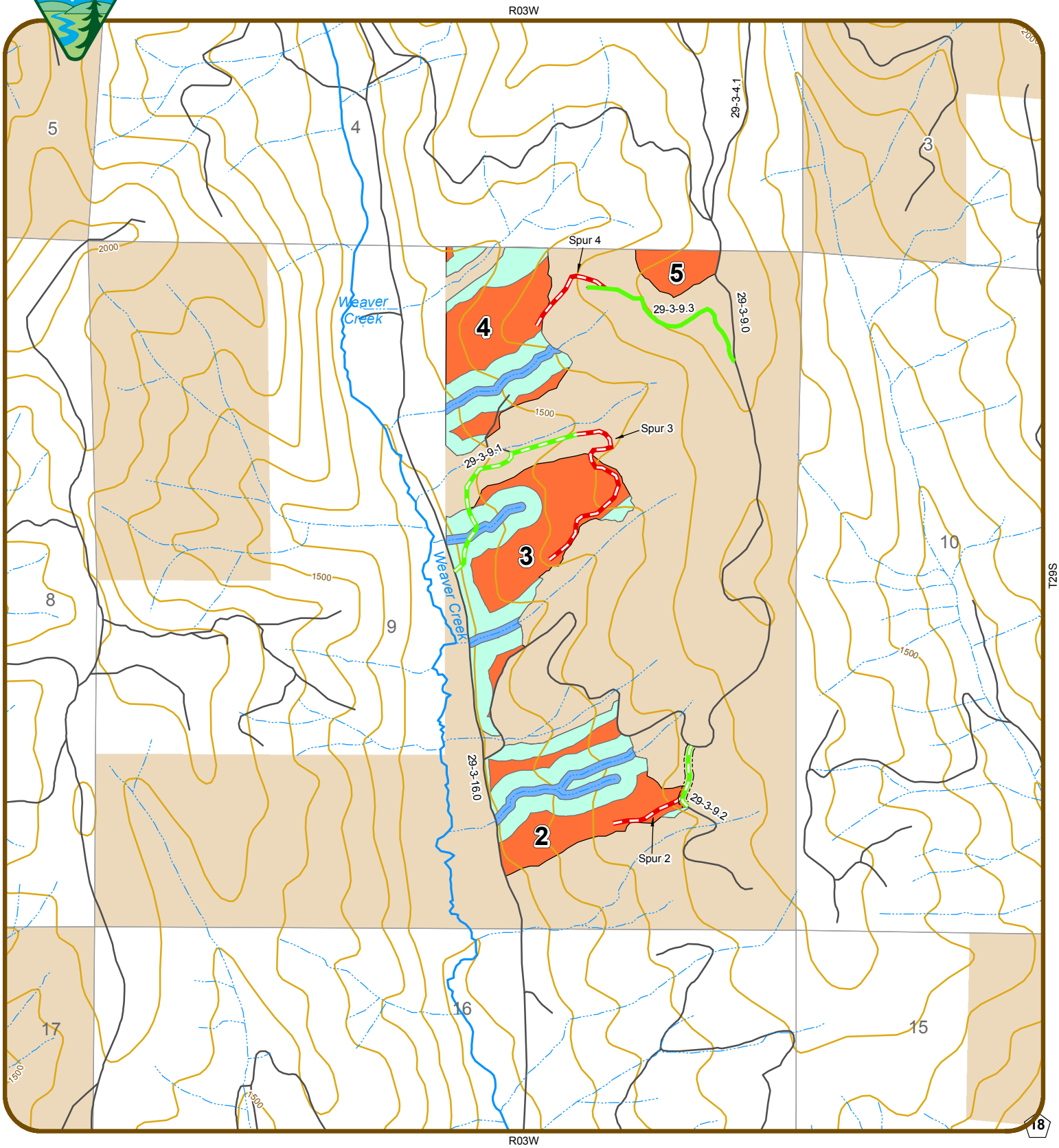
Orb Weaver Units and Roads

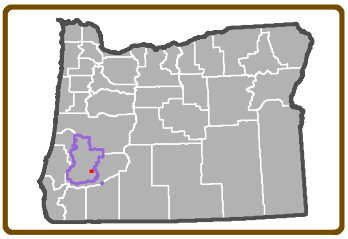


County Roads
Construction-Decommission
Renovation-Maintain
Renovation-Decommission
Existing Road
Daylighting
Stream
Major Stream
100' Contours
Variable Density Thinning
No Harvest Stream Buffer
Riparian Reserve Variable Density Thinning
General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N
W E
S

Date: 9/24/2015



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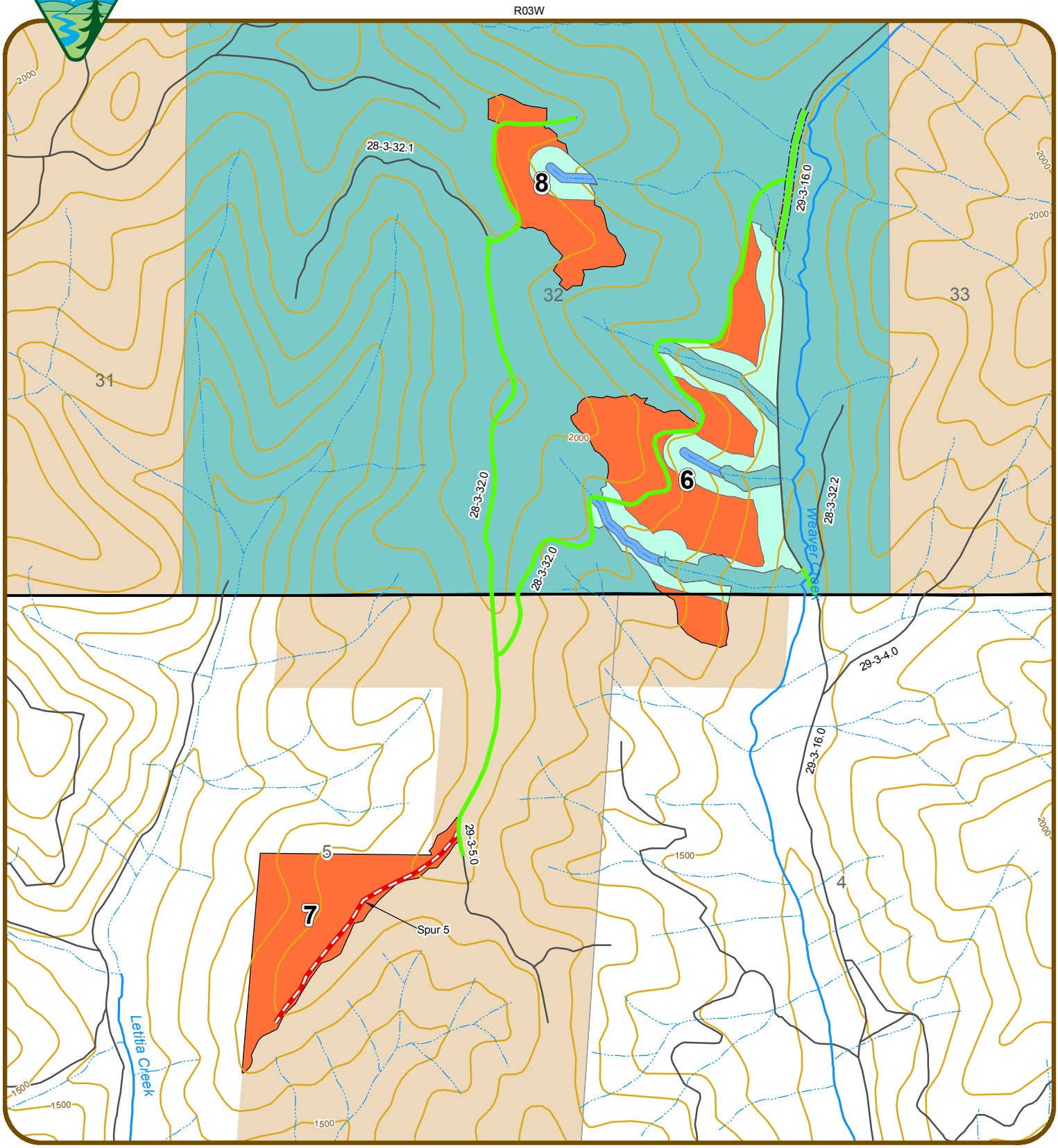
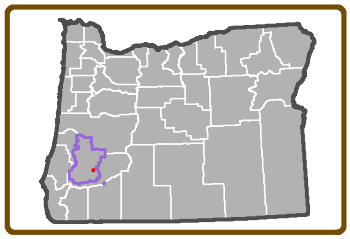
Orb Weaver Units and Roads



- Construction-Decommission
- Renovation-Maintain
- Existing Road
- Daylighting
- Stream
- Major Stream
- 100' Contours
- Variable Density Thinning
- No Harvest Stream Buffer
- Riparian Reserve Variable Density Thinning
- Connectivity/Diversity Block
- General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N W E S



Date: 9/24/2015

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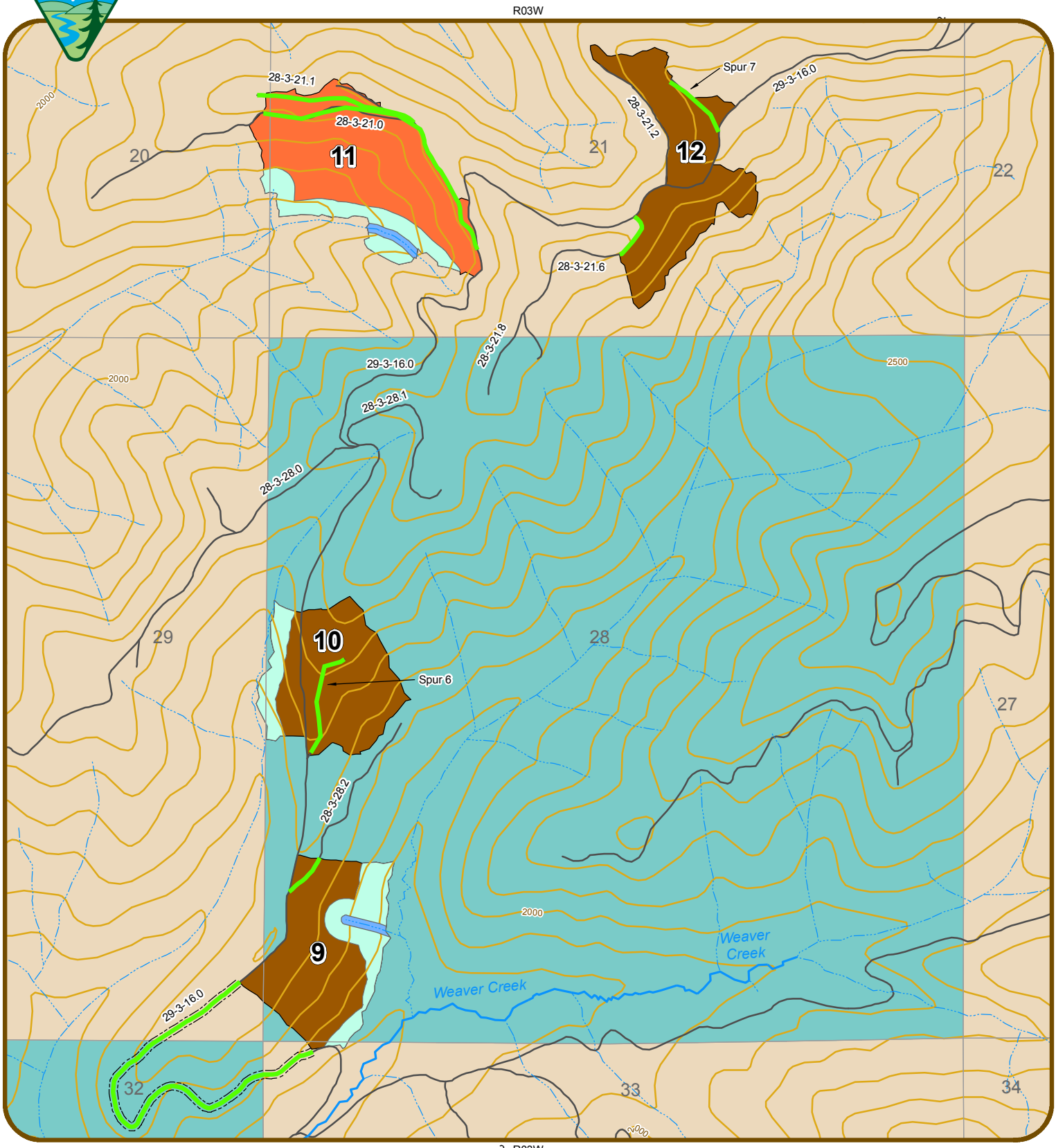
Orb Weaver Units and Roads



Renovation-Maintain
Existing Road
Daylighting
Stream
Major Stream
100' Contours
Uniform Commercial Thinning
Variable Density Thinning
No Harvest Stream Buffer
Riparian Reserve Variable Density Thinning
Connectivity/Diversity Block
General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N
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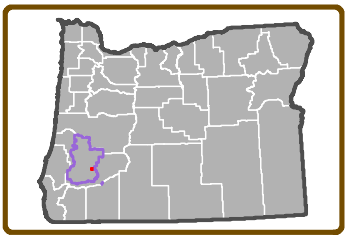
Date: 9/24/2015



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Appendix B

Bureau of Land Management Response to Comments on the Myrtle Creek Harvest Plan that are Relevant to the Orb Weaver Timber Sale

We received 8 unique letters on the Myrtle Creek Harvest Plan Environmental Assessment (EA) and four unique letters on the Revised Myrtle Creek Harvest Plan EA (REA). Substantive comments were grouped into 19 broad categories. Representative statements of the unique comments in each category are summarized below in *italic font* prior to each BLM response. This appendix responds to comments that are pertinent to the Orb Weaver Timber Sale. All EA page numbers referenced in the BLM Responses refer to the Revised Myrtle Creek Harvest Plan Environmental Assessment (REA).

1. Unit Specific Comments

BLM Response 1: The BLM did not receive any unit specific comments pertinent to the Orb Weaver Timber Sale units.

2. Specific Northern Spotted Owl Sites

Comment 2a: *Also particularly offensive are the 6 units that are in the singular core area of 1811O. That is 41 acres of thinning within a 500 acre core area. That is too much logging in owl habitat.*

BLM Response 2a: The last year NSO site 1811O was occupied by a pair of NSOs was 1995. Site 1811O has been unoccupied by NSOs from 2011 through 2015. The site is above the suitable habitat viability threshold. Portions of units 8, 9 and 10 are within the core area of the site; approximately 1 acre of suitable habitat and 30 acres of dispersal habitat will be modified by thinning. Habitat function of treated suitable and dispersal habitat will be maintained and thinning will not reduce suitable habitat in the core area below the viability threshold (REA, pp. 63, 79). Thinning in NSO 1811O will improve long-term habitat quality by promoting development of large trees and multiple canopies (EA, p. 78).

3. Roads

Comment 3a: *"Avoid road construction. Road construction causes serious adverse effects on soil, water, and habitat. There are already too many roads out there."*

BLM Response 3a: Road construction has been minimized to the greatest extent possible (REA, p. 6). New roads were located and designed to minimize effects and avoid user conflicts (REA, p. 25). The effects of road construction on soil, water and wildlife habitat were addressed in Chapter Three of the REA (pp. 61-115, 124-134, Appendix D). Ground-based yarding would be restricted to the dry season (REA, p. 32), existing skid trails will be used to the greatest extent possible (REA, p. 32), main skid trails and landings will be subsoiled (REA, p. 32), and use of unsurfaced roads for timber hauling would be limited to the dry season (REA, p. 34). Stands with no suitable access were dropped from consideration (REA, p. 2).

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 2 of the REA, 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. The BLM is reducing road density by decommissioning 1.62 miles of road in the Orb Weaver project (see Table 2).

For reasons previously described and given that road construction diminishes the forest landbase, roads are only constructed where necessary to achieve 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 to remove the largest trees in a stand. Large 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 (REA, p. 3 and 24). All of the road construction in the Orb Weaver Timber Sale, with the exception of three road segments (approximately 0.3 miles) is within harvest units. All but approximately 0.06 miles of the road construction in the Orb Weaver project is in stands 40 years old or younger.

Comment 3b: *"The agency assumes that temporary and semi-permanent new roads will have no effect because they are temporary. The agency has shown no scientific evidence for this assumption. In fact, scientific research has shown exactly the opposite."*

BLM Response 3b: The BLM does not assume temporary roads will have no effect because they are temporary as the commenter purports. The BLM understands that road construction can affect resources, analyzed the potential effects of road construction in the REA, and took measures to avoid or minimize impacts.

> REA ((p. 6) – "Best management practices (BMPs) limit the amount of road construction to what is necessary to manage the land…Road systems would be planned in a manner that meets resource objectives and minimize resource damage. Roads would be located in areas that minimize mass soil movement, erosion, and sedimentation."
>
> REA, (pp. 13-15) – Surveys for botanical species and cultural resources were completed and botanical and cultural resources identified were avoided during final road location.
>
> The REA (p. 14) acknowledges that road construction equipment can introduce new weed species into an area and can spread existing weed species. Project design criteria are included in the REA and the Orb Weaver decision to steam clean or pressure wash equipment to remove contaminated soil.
>
> REA (p. 67) – "Data from the GeoBob database (USDI BLM 2013) shows these [sensitive] species are present in the analysis area. None of the known [sensitive species] locations coincide with proposed harvest units or road construction locations."
>
> REA (p. 76) – Table 3-17 summarizes the effects to northern spotted owl habitat by alternative.
>
> REA (p. 77) – "Road construction outside of harvest units would remove approximately two acres of [northern spotted owl] habitat in nine road segments. Due to the limited opening size created by the constructed roads outside of harvest units, the function of adjacent stands is

expected to be maintained. Movement of northern spotted owls through the landscape would continue."

REA (p. 82) – "Road construction would remove potential [bat] roosting habitat along 14 acres of habitat in stands greater than 80 years old but would also contribute to edge habitat and open foraging habitat. Road construction through younger stands would also increase available edge and gaps in the proposed units and result in more foraging areas for bats."

REA (p. 84) – "Road construction in stand at least 80 years old would remove approximately 14 acres of [mollusk] habitat."

REA (p. 85) – "The open areas created by variable retention harvest and road construction would not be suited to Pacific wren use…"

REA (p. 86) – "The open areas created by variable retention harvest (334 upland acres) and road construction would not be suited to hermit warbler use…"

REA (p. 87) – "Timing restrictions described in Chapter Two Project Design Feature D would be applied to eliminate effects of timber harvest, road construction and fuels management from potential disturbance to nesting birds and their young."

REA (p. 90) – "Hermit warblers prefer habitats with closed tree canopy…Road construction would remove suitable habitat."

REA (p. 101) – "None of the road construction would have any direct hydrologic connectivity to streams, since newly constructed roads would not cross fish-bearing streams and would be constructed in stable, ridge top locations, to the greatest extent practicable, or separated from the nearest stream by another road."

REA (p. 103) – "Road renovation, improvement and construction would not affect recruitment of large wood to streams. Generally, removal of trees for road construction would occur outside of "no-treatment" areas. Proposed road construction within Riparian Reserves is limited to 0.14 miles, of which less than 100 feet occurs within a "no-treatment area" of the upper extent of a headwater stream. This construction may minimally reduce the amount of large wood that could enter streams, but the likelihood of reducing the quantity of in-stream large wood is minimal due to site specific characteristics of these roads proposed for construction and the nature of the nearest stream."

REA (p. 104) – "There would be no change in pool availability as road maintenance/renovation, construction, and decommissioning would not remove trees that would affect recruitment of pool-forming wood or impact the capacity of stands adjacent to streams to contribute large wood or small functional wood in the future…Proposed road construction/improvement and renovation would not involve installation or replacement of stream crossings, and would not affect fish passage."

REA (p. 106) – "Cross-channel yarding of timber would occur where…where new road construction would cause excess resource damage."

REA (p. 111) – "Existing unstable areas and areas with a high potential of instability have been excluded from harvest and road construction…"

REA (p. 113) – "Over 90 percent of the proposed road construction would be on ridge-tops or on stable sideslopes, having low risk of failure. Nine short segments of road, approximately 0.5 miles in combined length, would be constructed on moderately stable sideslopes. Implementing BMPs would minimize risk of slope failure in these locations."

REA (p. 129) – "The open areas created [by] variable retention harvest (up to 759 acres) and road construction would not be suited to Pacific wren use…"

REA (p. 133) – "The analysis on fish considers proposed and future foreseeable activities that can affect sediment and substrate, and in-stream functional wood such as thinning and road construction in the Riparian Reserves. Other proposed and ongoing management activities listed previously, and timber harvest and road construction outside of Riparian Reserves would have no cumulative effects on sediment and substrate or in-stream functional wood as they would have no direct or indirect effects."

REA (p. 134) – "…proposed road decommissioning helps to offset road construction and reduces cumulative effects associated with new roads."

REA (p. 195) – To achieve Aquatic Restoration Strategy objectives there will be no new, permanent stream crossings or new, permanent road construction in Riparian Reserves.

REA (pp. 123, 136, 201) – Road construction was included in calculations for carbon release.

Comment 3c: "*Research results, published in Restoration Ecology, shows…that ripping out a road is NOT equal to never building a road to begin with...Even though ripped roads increase water infiltration over un-ripped roads, it does not restore the forest to a pre-road condition. "These increases do not represent "hydrologic recovery" for the treated areas, however, and a risk of erosion and concentration of water into unstable areas still exists." Luce, C.H., 1997. Effectiveness of Road Ripping in Restoring Infiltration Capacity of Forest Roads, Restoration Ecology; 5(3):265-270."*

BLM Response 3c: The BLM is not ripping roads with intentions of restoring natural conditions as purported by the commenter. The BLM will decommission approximately 1.62 miles of roads and subsoil approximately one acre in the Orb Weaver Timber Sale to avoid sedimentation into streams, initiate habitat development for wildlife species, reduce compaction, reduce soil bulk density, provide soil aeration, allow for natural seeding of trees, contribute to survival and growth of seedlings and increase water infiltration capacity (REA, p. 77, 99, 103, 113). The BLM agrees that ripping roads may not eliminate all effects from road construction but decommissioning and subsoiling will produce benefits where they are proposed when compared to retaining those roads and landings. The BLM agrees with the commenter's citation from Lucas (1997), "…ripped roads increase water infiltration over un-ripped roads…"

Road decommissioning would be accomplished in a variety of ways, based upon evaluation of circumstances specific to each road. At a minimum, decommissioning would include water-barring and blocking the road(s) to vehicular use. It may also include removing drainage structures, sub-soiling the roadbed, mulching with straw and seeding with native grasses, or mulching with logging slash to further discourage off-highway vehicle use. Landings on temporary roads may be subsoiled in conjunction with road decommissioning (REA, p. 26).

Subsoiling would be completed in ground-based harvested areas, on compacted and displaced soil areas in main and secondary skid trails, equipment areas and on some native surfaced landing areas free of logging slash. Subsoiling includes decompacting the affected areas, water barring as needed, replacing some topsoil on the treated areas to provide innoculum, and placing slash on the decompacted areas as mulch and a deterrent to unauthorized OHV use. Current tilling practices specify that slash, other organic debris and topsoil cover at least 50 percent of the subsoiled areas, where available (REA, p. 30, 113).

Although subsoiling with slash and topsoil placement does not bring about complete recovery from soil compaction and displacement, it is an important step in the recovery process (Luce 1997). Past monitoring indicates that a single tilling pass results in 40 to 80 percent fracturing of compacted soil. Several passes that are offset from each other can bring about greater than 80 percent soil fracturing (REA, p. 113).

4. Stand Age

Comment 4a: "*The rationale that BLM must log to fulfill the purposes of the matrix land allocation is unsupported because there is significant new information indicating a need for more forest conservation. For instance, mature forests store carbon to help mitigate global climate change and they provide habitat for spotted owls (which need additional conservation of suitable habitat so they can co-exist with barred owls).*"

BLM Response 4a: The preceding comment is speculative. It provides no specific examples, supported by peer reviewed literature, to support the assertions that there is new information which would undermine the established purpose for the matrix allocations.

One of the primary objectives of stands in the Matrix is for the purpose of timber production. Other land use allocations, specifically Late-successional Reserves and Riparian Reserves, were established for ecological reasons that include terrestrial and aquatic habitat objectives.

Carbon Storage and Release were analyzed in Chapter Three and Appendix E (REA, pp.120-124, 135-136, 197-201).

"There is no data indicating a relationship between forest treatments or lack of treatments and an increase or decrease in the distribution of the barred owl." (REA, p. 66).

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.

The BLM has properly identified purposes and needs of the project in the REA (pp. 2-3). These purposes and needs are reasonable given directives and objectives in the ROD/RMP (pp. 15, 19-20, 33, 60, 150-153). The REA specifies the underlying purposes and needs to which the agency is responding (REA, pp, 2-4). The analysis of alternatives is guided by the agency's purpose and need (REA, Chapter 3).

Comment 4b: *The agency must carefully explain why they think it's OK to thin stands over 80 years old in riparian reserves*

BLM Response 4b: See BLM Response 9a.

Comment 4c: "*Focus on treating the youngest stands that are most "plastic" and amenable to restoration.*"

BLM Response 4c: The pool of candidate harvest stands was refined based on stand age, stand development, site conditions, logistical considerations and other factors (REA p. 2). The need for treatment was discussed on pages 2 and 3 of the REA.

BLM management action/direction (MAD) is intended to require that young stand commercial thinning be part of a planned schedule of timber harvest. Very little commercial thinning was assumed during the first few decades of the NFP, only about 10 percent of the harvest acres (USDI, 1994, Appendices - pp. 266 and 253). This MAD emphasizes the higher potential growth response from initiating thinning early in a stand's life (Reukema and Bruce, 1977; Bailey and Tappeiner, 1998). The intent was to focus on stands with the highest potential for response to thinning first, rather than focus on the higher volume in older stands that were closer to rotation age.

Without question, the Roseburg District has been giving priority to thinning younger stands across the district. Nearly all thinning harvests in the past two decades have come from stands less than 80 years of age. Commercial density management (thinning) accomplishments have been eight times the projected level for the first two decades of the plan period (USDI, 2014b, Table 9, p. 37; USDI, 1994, Table II-6, Appendices p. 252). The Myrtle Creek REA reflects this continuing emphasis on thinning in stands under 80 (REA, Tables 2-1 and 2-2, pp. 19-20).

5. Riparian Reserves Treatments & Aquatic Conservation Strategy

Comment 5a: "*Most riparian reserves are short of dead wood…*"

BLM Response 5a: We assume the commenter is referring to the presence of dead wood within the stream channel and the future supply of dead wood to the stream. The supply of small wood relative to the stream sizes in the treatment units is not limited but large wood is limited. Small wood is present within RR but has been transported downstream during high flows where it eventually is trapped by large wood forming debris jams. Because large wood is limited in the treatment units, small wood debris jams are limited.

Field review by the BLM was used to verify that Riparian Reserves are not limited by the abundance of small functional dead wood. Small fish-bearing reaches adjacent to units generally had large volumes of functional wood derived from adjacent stands as alder and small conifers were subject to blow down or mortality and fell toward the streams. Some larger pieces were interacting with the stream channels, but overall there were few pieces capable of trapping and storing gravel and creating deep pool habitat…"(REA, p. 93). The supply of small functioning wood is not limited as evidenced by the fact that in the rare cases where reaches of streams in the analysis area contain large dead wood, smaller dead wood is trapped forming debris jams.

Comment 5b: *"Any proposal to log riparian reserves must address these [Aquatic Conservation Strategy] factors, develop clear goals, provide clear linkages between proposed actions and desired outcomes… show there is a need for intervention."*

BLM Response 5b: The commenter incorrectly assumes that small wood and potential functional dead wood are limiting factors to in-stream habitat. The treatment units are not limited in small dead wood. Streams in the treatment units are limited in large dead wood. Thus, thinning is being conducted to promote development of future large dead wood. In the short-term, BLM has been implementing stream restoration projects to add large dead wood to streams (REA p. 93).

Consistency of the proposed action with the objectives of the Aquatic Conservation Strategy is included in Appendix D of the REA (pp. 191-196). Variable density thinning in Riparian Reserves was designed to attain desired late-successional vegetation characteristics by promoting ecological diversity and complexity (REA, p. 191, 192, 193, 194). Variable density thinning is considered a restoration action and is consistent with the Watershed Restoration component of the ACS (REA, p. 192).

Comment 5c: *"Within the Riparian Habitat Conservation Areas, timber management and other land management activities are essentially prohibited unless the watershed analysis indicates such activity is necessary to accelerate meeting desired ecological conditions."*

BLM Response 5c: There is no Riparian Habitat Conservation Area (RHCA) land use allocation on BLM lands, so management direction for RHCAs is not applicable. On Roseburg BLM lands, the ROD/RMP permits management activities in the Riparian Reserves land use allocation: "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." (ROD/RMP, p. 25) Variable density thinning (density management) was proposed for the reasons stated above to meet the purpose and need to increase habitat diversity in Riparian Reserves (REA, pp. 2 and 3).

Accelerating the attainment of desired ecological conditions is not noted in the Aquatic Conservation Strategy (ACS). Management actions that do not maintain the existing condition or lead to improved conditions in the long term would not "meet" the intent of the Aquatic Conservation Strategy (NWFP, p. B-10). Appendix D in the Revised Myrtle Creek Harvest Plan REA shows the project is consistent with the ACS.

The Myrtle Creek Watershed Analysis makes a recommendation for density management (commercial thinning) of mid and late seral stands in Riparian Reserves.

> "The purpose of commercial thinning is to maintain or improve overstory and understory tree growth rates and vigor and manipulate species composition and spatial arrangement by reducing stand density. Snag and coarse woody debris recruitment and releasing or thinning understory components may be done at the same time.
>
> Treatment prescriptions may vary depending on site and landscape specific objectives. Treatments would maintain or improve diameter growth rates and control crown depth and crown closure to meet the objectives. Density management may also create gaps to release or thin the understory and recruit snags and coarse woody debris.
>
> Stand structure and expected stand development should be the principal criteria for treatment, not the age of the stand." (Myrtle Creek Watershed Analysis, p. 183)

Comment 5d: *"Considering CWD and snags are important components of riparian reserves, their* [sic] *current lacking within the project areas, the habitat improvement these incidentally felled trees would provide and the purpose and need of the project, it seems prudent to reserve them within the riparian reserve LUA (instead of placing them on trucks to be sent to mills)."*
BLM Response 5d: All coarse woody debris and snags would be retained in "no-treatment" Riparian Reserve area. In treated areas within Riparian Reserves, existing snags would be protected to the greatest extent practicable (REA, p. 23). In general, the size of trees to be removed outside of the "no-treatment" will not contribute large long-lasting functional wood to streams. The largest trees in the treated areas will be retained wherever practicable (REA, pp. 23 and 24). Treatments will promote vegetation structural and species diversity that will accrue in the outer portions of the Riparian Reserves which will in turn promote primary productivity and allow nutrients to be more readily accessible to fish (REA, p. 102).

Comment 5e:

> *"Thinning in mature Riparian Reserves does not comply with the Aquatic Conservation Strategy (ACS) of the Northwest Forest Plan. The NWFP states:*
>
> *"Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves, except…. to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives."*

BLM Response 5e: Consistency of the proposed action with the objectives of the Aquatic Conservation Strategy is included in Appendix D of the REA (pp. 191-196). Variable density thinning in Riparian Reserves was designed to attain desired late-successional vegetation characteristics by promoting ecological diversity and complexity (REA, p. 191, 192, 193, 194). Variable density thinning is considered a restoration action and is consistent with the Watershed Restoration component of the ACS (REA, p. 192).

Comment 5f: "*The EA failed to describe which ACS objective was met by clearcutting 1.5 acre gaps in the reserves*[4] *and thinning native forests in the reserves up to 118 years old. The BLM has never proposed to abuse the riparian reserves in this way before, and we are dismayed the BLM is using these prescriptions in the reserves for the first time in this EA."*

BLM Response 5f: The Myrtle Creek Harvest Plan does not prescribe any clearcutting. Using regeneration harvest will not automatically preclude consistency with the Aquatic Conservation Strategy. At no point is regeneration harvest, authorized under the Northwest Forest Plan and BLM RMPs tiered to it, identified as inconsistent with the objectives of the Aquatic Conservation Strategy. Treatments in Riparian Reserves are limited to variable density thinning as described in the REA (pp. 22-23). Variable density thinning in Riparian Reserves is not new, and the Roseburg BLM has been using thinning in Riparian Reserves to achieve ACS objectives for over a decade. Under Alterative Two Modified, the selected alternative, the size of gaps and skips in Riparian Reserves will be no larger than 0.25 acres.

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[4] Myrtle Creek Harvest Plan EA page 22.

Comment 5g:

> "*Thinning: There is no scientific justification to thin mature, native forests in riparian reserves, such as the 118-year-old native forest in unit 28-5-27A. We described some of the problems with thinning older forests above in section 4. These problems are magnified when done in Riparian Reserves. Logging in older riparian reserves has the appearance of a volume grab, not restoration, especially when there is no scientific justification for improving forest health by thinning mature riparian forests.*
>
> *Canopy gaps of 1.5 acres in the riparian reserves are way too big. The BLM offers no justifications for a football field and a half opening in reserves. It meets none of the 9 ACS objectives. It appears to be just a volume grab."*

BLM Response 5g: As of 2015, Alternative Two Modified includes two units (29-4-13B and 28-2-32A) in the Orb Weaver Timber Sale that are in the GFMA land use allocation that are 80 years of age or older. The RMP allows commercial thinning and density management in the GFMA land use allocation to be programmed for stands under 80 years of age (ROD.RMP, p. 151) but does not prohibit thinning in stands over 80 years of age; regeneration harvest is not necessarily the only treatment option for older stands. BLM Response 9a explains this further.

Variable density thinning in Riparian Reserves is not a "volume grab" as volume from Riparian Reserves is not included in ASQ calculations. Variable density thinning in Riparian Reserves was designed to create structural diversity and species complexity consistent with ACS objectives (REA, Appendix D, pp. 191-196). See BLM Responses 5e, 5f and 9a.

6. Adjacent Landowner Comments

BLM Response 6: The BLM did not receive any specific comments pertaining to lands adjacent to the Orb Weaver Timber Sale units.

7. An EIS is needed

Comment 7a:

> *"A FONSI is not applicable to this project. An EIS is needed to address the significant impacts this project.*
>
> *This project meets the "intensity" test because of its large size and impacts to numerous endangered species, including the newly arrived wolf. The degree to which the proposed action affects public health and safety is large, considering it impacts access to household drinking by at least one family, and maybe more, and impacts the family's safety with a new road near their home.*
>
> *This project impacts unique characteristics of ecologically critical areas, such as endangered species habitat and rural residential habitat. This project especially impacts the quality of the human environment when it proposes regeneration harvest next to rural residents, lowering their property value and increasing their workload on invasive noxious weeds. The highest impact to the human environment is depriving people of their clean spring water, potentially not replacing it at all in a manner that allows pressurized irrigation water.*

This is all highly controversial: removing spotted owl habitat to create early-seral forests, thinning mature forests, even in riparian reserves, directly impacting water of adjacent citizens, and the large size of this project. Precedents set include large gaps in riparian reserves, thinning mature forests in riparian reserves and the matrix, regeneration harvests of young, 50-year-old forests, and daylighting. This action is related to other actions with cumulatively significant impacts, including the White Rock OHV emphasis area.

An EIS is needed."

BLM Response 7a: The project affects only four percent of the BLM land in the analyzed watersheds and only one percent of all ownerships in the analyzed watersheds. The effects to threatened and endangered species were analyzed (REA, p. 61-66, 71-73, 75-81, 87-89, 92-96, 98, 100-105, 127-128, 131-133, Appendix B, Appendix C, Appendix D) and upon review, the decision maker determined the effects do not warrant development of an EIS (see FONSI). Drinking water quality and quantity will not be affected (REA, pp. 7, 95, 98, 104, 107, 108). The Orb Weaver Timber Sale will not affect the water supply or safety of the referenced landowners because none of the units are adjacent to the referenced landowner's property.

Critical habitat for listed species and "rural residential habitat" are not the equivalent of "ecologically critical areas". As stated in the finding of no significant impact (FONSI) for the project, historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas are not present in the analysis area. The Tater Hill Area of Critical Environmental Concern/Research Natural Area is within the analysis area but would not be affected by proposed actions.

The Orb Weaver Timber Sale will not remove northern spotted owl habitat to create early-seral habitat because it is entirely comprised of thinning. Thinning will occur in forests that will benefit from treatment (see BLM Responses 9a and 9b). The proposed action is not precedent setting: the Roseburg District has been harvesting in Riparian Reserves for over a decade; harvesting in mature forest was established in the 1995 ROD/RMP; 50 year old forest will not be regenerated; and daylighting is consistent with thinning and road maintenance which were established in the 1995 ROD/RMP. The White Rock OHV emphasis area is a third party proposal and not a BLM foreseeable future action. The Draft FONSI and Final FONSI declare the project will not have a significant impact on the human environment and an EIS is not warranted.

Wolves are not know to occur in the analysis area. The wolf activity area of the referenced wolf (OR7/Rouge Pack) was entirely outside of the Roseburg District BLM-administered lands in 2014 and is entirely off of the Roseburg District in 2015[5]. The proposed actions will have no effect on the referenced wolf pack.

8. Regeneration Harvest

BLM Response 8: The Orb Weaver Timber Sale does not include any regeneration harvest.

[5] Map available at http://www.dfw.state.or.us/wolves/

9. Thinning

Comment 9a:

"…the BLM is thinning stands that are too old. The EA points out:

> * *In the GFMA, commercial thinning would be programmed in stands under 80 years old… (ROD/RMP, p. 151);*

At least a dozen units in this project are over 80 years old where they would be thinned. For instance, unit 28-5-27A is 118 years old and is proposed for commercial thinning. This unit should be left alone. It is too old for thinning."

BLM Response 9a: In C/D Blocks, commercial thinning and other density management would be programmed for stands under 120 years of age (ROD/RMP, p. 153). Even though the RMP does not prohibit thinning in C/D Block stands over 120 years old, all of the thinning in C/D Blocks is in stands below 120 years old (REA, pp. 19-20, 41-42).

As of 2015, Alternative Two Modified includes eleven thinning stands in the GFMA land use allocation that are 80 years of age or older: 28-3-35A, 28-3-36A, 28-4-17B, 29-3-9B, 28-5-27A, 29-4-11A, 29-4-11B, 29-4-15A, 29-4-13B, 28-2-32A and a portion of Unit 28-3-28C. The Orb Weaver Timber Sale includes portions of two of these units: 29-4-15A (1 acre) and 29-3-9B (11 acres).

The RMP allows commercial thinning and density management in the GFMA land use allocation to be programmed for stands under 80 years of age (ROD.RMP, p. 151) but does not prohibit thinning in stands over 80 years of age; regeneration harvest is not necessarily the only treatment option for older stands. See "*Management Actions/Direction for Commercial Thinning and Regeneration Harvest in the General Forest Management Area (GFMA)*" in the administrative record for further explanation. It is appropriate to thin older stands in the GFMA land use allocation where volume production, stand vigor, and structure objectives for thinning will be met and where other management objectives are achieved concomitantly.

The ROD/RMP management action/direction is intended to require that young stand commercial thinning be part of a planned schedule of timber harvest to take advantage of the fact that yield is maximized by thinning at the earliest possible age (Reukema and Bruce 1977) and that early thinning provides the best opportunity to maintain large crown ratios and rapid growth rates (Bailey and Tappeiner 1998).

The ROD/RMP management action/direction does not explicitly preclude thinning in older stands. It is evident from the 1994 FEIS that the value of thinning older stands was acknowledged; "Commercial thinning can be effective in increasing recoverable timber yields by harvesting trees which would otherwise die prior to the final regeneration harvest in stands as old as 150 years (Williamson and Price, 1971; Williamson, 1982)." [Roseburg FEIS, 1994; p. Appendices 76]. Clearly it was expected that opportunities to thin older stands was sanctioned.

Thinning will usually be designed to assure high levels of volume productivity (ROD/RMP p. 151). The ROD/RMP (p. 62) states, "Apply commercial thinning in the Matrix where research indicates gains in timber production are likely." The REA states that thinning is expected to provide high levels of volume productivity (REA, p. 48). This is supported by research in young stands (e.g., Chan et al. 2006). Additionally, Williamson (1982) analyzed a stand thinned at age 110, 19 years post-harvest. He found that the thinned plots had responded well, whether growth was measured for individual trees or the entire

stand. For the entire 19 year period, gross growth was slightly reduced compared to unthinned. He concluded: "This study illustrates vividly the advantages of thinning stands that are this old, rather than simply sanitizing them and salvaging mortality."

Williamson and Price (1971) analyzed data from nine studies where thinning has been done in stands ranging from 70 to 150 years-old. Cubic foot volume averaged about 77 percent of normal gross growth between ages 70 and 110 and increased to 118 percent at age 150. They also found that near maximum utilization of the site can be accomplished over a wide range of residual densities.

A high level of volume productivity does not infer a goal of maximization. The principal benefit of thinning regardless of stand age is the harvest of merchantable trees that would otherwise be lost to mortality, large trees at a given age, enhanced stand stability and vigor (Reukema and Bruce 1977; Curtis and Marshall 2009). The thinning studies in older stands cited above exhibit those benefits.

Thinning in older stands can also result in substantial improvement of forest health. Williamson and Price (1971) examined results from nine studies of thinning in older stands and found that thinned stands had less mortality from all natural causes. Windthrow was lower than unthinned stands and insect damage, primarily from bark beetles, was dramatically inhibited (Williamson and Price, 1971).

The BLM concludes that thinning in the subject older stands is not precluded in the ROD/RMP and is consistent with the ROD/RMP[6] direction because thinning will increase growth. The stands in question range in age from 80 to 118, five of the seven units are within 80 to 86 years old. The key stand attributes or relative density and crown ratios suggest they are good candidates to positively respond to thinning

Comment 9b: "*Dozens of units being thinned that are over 80 years old and some are even over 100 years old. Thinning older forests doesn't meet the purpose and need of the EA, to promote forest health. In older stands, trees are not "released" as they are in younger stands. Additionally, felling and yarding of trees causes numerous logging scars on retained trees, and 100-year-old trees can't recover from their wounds like 50-year-old trees. Crown ratios do not increase and scald is a problem when thinning in older stands. New roads for extracting volume is not good for the watershed and more wildlife habitat are degraded when thinning older forests.*

There is a good reason why the RMP restricts thinning to younger forests. If the BLM disagrees, the BLM should produce some science that thinning older, mature forests promotes "forest health"."

BLM Response 9b: The commenter offers no evidence to support the assertions made. See response 1a and 9a. Thinning in older stands meets the purpose and need by: 1) producing forest products; 2) promoting trees survival, tree growth and forest health in the Matrix; and 3) promoting habitat diversity. As previously discussed, it is also supported by research.

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[6] ROD/RMP references to support relevancy of the above statement to BLM management (emphasis added in bold):

> "Manage timber stands to reduce the risk of stand loss from fires, animals, **insects,** and diseases."(ROD/RMP p. 60)
>
> *Forest Health* – The ability of forest ecosystems to remain productive, resilient, and stable over time and to withstand the effects of periodic natural or human caused stresses such as drought, **insect attack**, disease, climatic changes, flood, resource management practices and resource demands. (ROD/RMP p. 104-105)
>
> *Density Management* – Cutting of trees for the primary purpose of widening their spacing so that growth of remaining trees can be accelerated. Density management harvest can also be used to improve **forest health**, to open the forest canopy, or to accelerate the attainment of old growth characteristics if maintenance or restoration of biological diversity is the objective. (ROD/RMP p. 103)

Comment 9c: *"The EA failed to fully consider the impacts of removing most old growth in the thinning units. The decision documents should disclosed how many will be taken or left, and not keep the information secret."*

BLM Response 9c: The BLM does not propose to log any old growth habitat in the Myrtle Creek Harvest Plan. The ROD/RMP (p. 112) defines old growth as a forest stage existing from approximately age 200 until stand replacement occurs and secondary succession begins again. All of the units proposed for harvest are under 130 years of age (REA, pp. 19-20 and 41-42). Legacy retention is described in the REA (pp. 23-24). Older remnant trees and large snags that may be present are not the focus of the proposed treatments and would be retained to the greatest degree practicable (REA, p. 23).

10. Age Class Distribution

BLM Response 10: The Orb Weaver Timber Sale portion of the Myrtle Creek Harvest Plan does not affect age class distribution because it only includes thinning which does not alter age class distribution.

11. New Information

Comment 11a: *"The BLM depends on their 1994 RMP for an analysis of logging in the matrix. However, the BLM's RMP NEPA was done 21 years ago. There is a lot of new information in those 21 years that the Myrtle Creek Harvest Plan failed to consider, such as climate change, and the influx of barred owls. The BLM cannot just ignore this new information. For instance, the assumption that the BLM can do regeneration harvests in the matrix is not justified."*

BLM Response 11a: The BLM did not fail to consider climate change and barred owls. The BLM discusses climate change and carbon storage and release in the REA (pp. 121-125, 136-137, 197-201) and barred owls were identified as a threat to the northern spotted owl on page 65 of the REA.

The BLM does not assume that regeneration is appropriate in the Matrix, to the contrary, this project appropriately implements a decision made in the RMP that includes regeneration harvest in the Matrix (REA, p. 8 and RMP, pp. 61, 62, 64-65, 146, 150-153).

Comment 11b: "*The rationale that BLM must log to fulfill the purposes of the matrix land allocation is unsupported because there is significant new information indicating a need for more forest conservation. For instance, mature forests store carbon to help mitigate global climate change and they provide habitat for spotted owls (which need additional conservation of suitable habitat so they can co-exist with barred owls). BLM has a duty to keep its RMP up-to-date, but the EA fails to address this significant new information."*

BLM Response 11b: The BLM has properly identified purposes and needs of the project in the REA (pp. 2-3). These purposes and needs are reasonable given directives and objectives in the ROD/RMP (pp. 15, 19-20, 33, 60, 150-153). The REA specifies the underlying purposes and needs to which the agency is responding (REA, pp, 2-4). The analysis of alternatives is guided by the agency's purpose and need (REA, Chapter 3).

One of the primary objectives of stands in the Matrix is for the purpose of timber production (ROD/RMP, p. 33). Other land use allocations, specifically Late-successional Reserves and Riparian Reserves, were established for ecological reasons that include terrestrial and aquatic habitat objectives.

Carbon Storage and Release were analyzed in Chapter Three and analysis methods are presented in Appendix E (REA, pp.121-125, 136-137, 197-201).

"There is no data indicating a relationship between forest treatments or lack of treatments and an increase or decrease in the distribution of the barred owl." (REA, p. 66).

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.

Comment 11c: "*The BLM brags in the EA that "the percent of existing northern spotted owl habitat removed by harvest during the first decade [of the NWFP] was considerably less than expected."*[7] *But also unexpected was the invasion of the barred owl. Since the NWFP did not consider the impact of the barred owl, the situation would be worse if owl habitat was removed as expected. The EA cannot ignore new information, such as barred owl and climate change that was not considered in the EIS for the NWFP or the RMP. While the EA acknowledges the influx of barred owls, the EA failed to consider that influx in environmental impacts."*

BLM Response 11c: The BLM is not boastful, but simply presenting findings from the 10-year status review indicating that the extent of suitable habitat removed by timber harvest was considerably less than expected.

The REA explains that independent of the proposed alternative, the barred owl will remain in the analysis area and is expected to continue increasing its distribution and numbers, thus displacing northern spotted owls. There is no data or peer reviewed literature indicating a relationship between forest treatments or lack of treatments and an increase or decrease in the distribution of the barred owl.

12. Cumulative Impacts

Comment 12a:

> "*As BLM is well aware, much of the public lands it administers are located in a checkerboard arrangement and thereby are often bordered by intensely managed, privately held, industrial timber lands. Thus, Umpqua Watersheds asserts the following: that from a landscape, watershed-wide perspective, this checkerboard arrangement is the true, broadest and most useful context within which the bureau must assess its managerial responsibilities, and out of which it should offer any subsequent harvest and restoration proposals, etc. This wider context should be the basis from which BLM begins any analysis. This, so that its assessments of current and future conditions and the need and purpose for proposed actions are truly representative of the actual ecological state across any given watershed(s).*
>
> *BLM, by any reasonable metric, whether it be sylvan, biological, wildlife (terrestrial and aquatic), hydrological, social/economic, etc., must consider all ownerships in the watersheds herein under consideration. It is Umpqua Watersheds studied opinion that, to include only the public lands contained within the analysis area as the context surrounding the harvest plan, would be to create a grossly inaccurate picture of current conditions on these watersheds. Further, to consider only these public forests, would be to present a disingenuous prediction of the cumulative effects and their intensity upon the analysis area, as a whole."*

[7] EA page 65

BLM Response 12a: The BLM identified analysis assumptions in the REA, which Umpqua Watershed agrees are accurate regarding management of private industrial land in the analyzed watersheds (see Comment 12c). Peak flow and equivalent clearcut area (ECA) analysis considered all ownerships (REA, p. 108). Northern spotted owl site analysis considered all ownerships (Chapter 3 and p. 177).

Private land was analyzed in the PRMP EIS and the ROD/RMP established management direction for a balanced seral or age class distribution in the GFMA (ROD/RMP, p. 61). The purpose and need for Myrtle Creek Harvest Plan is implementation of the ROD/RMP that directs the GFMA land use allocation to be managed in a balanced seral or age class distribution (ROD/RMP, p. 61, 150).

Comment 12b:

> "*From Page 1 of the Draft FONSI , we quote: "Both context and intensity must be considered in determining significance of the environmental effects of agency action (40 CFR 1508.27):"*
>
> *Further, UW notes paragraph 7, under the Intensity section of the same document: "Whether the action is related to other actions with individually insignificant impacts but cumulatively significant impacts. - 40 CFR 1508.27(b) (7)"*
>
> *The draft finding of no significant impact speaks, on page 2, of the lack of early seral forest in the analysis area as a justification for the resumption, by the district, of regeneration harvest (VRH). While it may well be true that there is currently a dearth of the 0 to 30 year age class on area BLM holdings, it is absolutely inaccurate, in speaking of the watersheds herein under discussion, when they are viewed at the landscape level."*

BLM Response 12b: Variable retention harvest was not proposed to create early seral habitat as the commenter suggests. One of the purposes and needs for the Myrtle Creek Harvest Plan is to contribute toward establishing a balanced seral or age class distribution in the GFMA land use allocation per ROD/RMP management direction (pp. 61 and 150). Establishing the balanced seral or age class distribution in the GFMA land use allocation will contribute toward meeting the ROD/RMP Matrix objective to provide early-successional habitat (ROD/RMP, p. 33).

Comment 12c: *"On page 37 of the EA under Timber Resources, section A, the second paragraph states: "It is assumed that large industrial owners will continue to manage primarily for timber production on a rotation of 40 to 65 years. It is also assumed that industrial harvesting will follow the Oregon Forest Practices Act, and stands will likely remain in early- and mid-seral stages across the landscape" (emphasis UW's). Umpqua Watersheds agrees with this analysis, i.e.: that these private timber lands are and will be subject to repeated clear cut harvest and reforestation. At the landscape level, there is thus no dearth of the early seral age class. At more than a few locations, the biological quality of this industrial early seral may be questionable, however it's widespread existence across the watersheds under discussion in this harvest plan, as BLM has stated above, is not."*

BLM Response 12c: The BLM appropriately identified, defined, and analyzed resources in the analysis area. The ROD/RMP does not give management direction for private lands, but it does direct the BLM to manage the GFMA land use allocation for a balanced seral or age class distribution (ROD/RMP, pp. 61 and 150).

Comment 12d: *"Further, it is Umpqua Watersheds' stated opinion, that this fact of the checkerboard bears directly upon every aspect of BLM's action proposals. This extends to the proposed harvest of stands in the mature and older age classes. Just as early seral plantations are abundant on adjoining private timber lands in these watersheds, conversely, stands aged 80 years and over are rare to nonexistent on the considerable private holdings therein. For that matter, in historical terms, they are not overabundant and are often fragmented on the public lands of the Roseburg District, BLM. If the private wood products sector currently and in the future, perceives a need for a supply of older trees, the vast industrial timber, holdings extant in Oregon ought to be well able to supply some of that need. That the private timber industry chooses to focus almost exclusively on harvest of trees in the 40 to 65 year age class (we have observed younger harvests on private industrial lands), ought not be taken, by BLM, as an imperative to harvest older trees from public forests, where the ecological and biological services, including carbon sequestration and climate mitigation of such older stands are so highly prized and so much in demand, now and in the future."*

BLM Response 12d: Again, the ROD/RMP does not give management direction for private lands, but it does direct the BLM to manage the GFMA land use allocation for a balanced seral or age class distribution (ROD/RMP, p. 61 and 150). The ROD/RMP does not prohibit regeneration harvest in stands older than 80 years old. In fact, implementation of the ROD/RMP is dependent upon management of stands older than 80 years old in the Matrix to fulfill management direction and objectives. Table HH-14 of the PRMP EIS shows all of the regeneration harvest in the second decade, of which we are currently in, would occur in stands 100 years and older (PRMP EIS, p. Appendices 233). Alternative Two Modified, the selected alternative, excludes variable retention harvest in stands 80 years of age and older. Alternative Two Modified also includes thinning 585 acres of forest 80 years of age and older.

Comment 12e: "*And, to assume that there are no cumulative impacts from certain proposed management actions in the Myrtle Creek Harvest Area is not correct, in UW's opinion. Again, common sense, basic logic and its own Draft EA demand that the BLM take full account of the cumulative, very negative and ongoing clear cutting on adjoining private timber lands within these watersheds. Such intense management of private industrial timber lands virtually ensures a suite of cumulative, intense and, as UW believes, destructive impacts to wildlife and water quality, including to listed and threatened species currently and into the future. Sadly, these impacts are imposed upon all of the lands and waterways under discussion in the draft promulgated by BLM, including public lands."*

BLM Response 12e: Cumulative impacts were addressed in the REA (pp. 125-137). The cumulative effects analysis considered past activities in the description of the existing conditions (REA, p. 125). Ongoing and future foreseeable activities were also addressed (REA, pp. 125-126). The BLM appropriately described the parameters of the cumulative effects analysis on wildlife and water quality in the REA (pp. 127-134). The cumulative effects analysis varies by wildlife species (REA, p. 127-132). The cumulative effects analysis area for aquatic resources was not limited to BLM administered lands (REA, p. 133).

13. Climate Change/Carbon

Comment 13a: *"It is, at this late date, a well established if unfortunate fact, that climate change is proceeding at an unforeseen and alarming rate, even exceeding the dire predictions derived from previous climate modeling. Harvesting older stands (>80 yrs.) and replacing them with seedlings exacerbates carbon release and damages its sequestration. Again, given the short rotation, clear cut harvest practices conducted on adjacent or nearby private industrial holdings and their cumulative negative impacts upon carbon levels in the atmosphere, BLM should carefully weigh short term harvest benefits against long term climate impacts. Currently, as with other sylvan, biological, wildlife, etc. aspects of forest management, there is a zero to minute possibility, that any such consideration will be much in evidence on industrial timberlands. For better or worse, the burden of this suite of vital considerations falls squarely on our public agencies and the forests they are charged with overseeing."*

BLM Response 13a: Climate change and greenhouse gas emissions have been identified as an emerging resource concern by the Secretary of the Interior (Secretarial Order No. 3226; January 16, 2009), the OR/WA BLM State Director (IM-OR-2010-012, January 13, 2010), and by the general public through comments on recent project analyses (REA, p. 121). The BLM addressed climate change in the Carbon Storage and Release section of the REA (pp. 121-125, 136 and Appendix E).

We have no control over the management of private timber lands and, as stated in the REA (pp. 47 and 127), assume industrial landowners will continue to manage primarily for timber production using intensive timber management practices. Additionally, while we have a Secretarial Order directing us to consider the effects of management on greenhouse gas emissions, there is no legislative mandate that these forest lands be managed for long-term sequestration of carbon as a primary long-term objective.

Comments 13b: *"BLM documents this project will cause 11,444 tonnes of carbon to be released into the atmosphere, and that the clearcut units will recover that carbon at a rate 200% less than the thinned units. Our public forests should be leveraged to mitigate climate change, not cause increased carbon pollution."*

BLM Response 13b: It is unclear how the commenter concluded that clearcut units will recover carbon at a rate of 200% less than thinned units as clearcutting is not proposed in the Myrtle Creek Harvest Plan. Modeling (methods presented in Appendix E of the REA), indicates that over the next 50 years under Alternative One stored carbon will increase by 158% above current conditions (507,024 tonnes carbon increase) (REA, p. 122). Under Alternative Two, using the high point of the modeled range, carbon storage will increase by 104% (343,640 tonnes carbon increase) over the next 50 years, and under Alternative Three, using the high point of the modeled range, carbon storage will increase by 123% (408,436 tonnes carbon increase) (REA, pp.124 and 125). Under Alternative Two it is estimated that re-sequestration of all carbon directly released would occur in eight years and under Alternative Three it will take one to two years (REA, pp. 124 and 125). Under Alternative Two Modified, the carbon storage is estimated to increase 104% to 123% over the next 50 years and the estimated re-sequestration of all carbon directly released would occur in two to eight years. See BLM Response 13a.

14. Conduct Necessary Surveys

Comment 14a: "*BLM needs to conduct surveys for rare and uncommon late successional species such as the red tree vole and provide the results in the NEPA document for public review and comment*… NEPA also requires surveys in order to fulfill NEPA's mandate for informed decision-making. We are also concern*ed that the RTV protocol does not do a good job of determining the presence or absence of the species as required by the 2001 ROD for survey and manage."*

BLM Response 14a: The NEPA does not require surveys as the commenter asserts. The NEPA is a statutory requirement that: 1) mandates preparation of detailed statements of effects; 2) establishes the need for considering alternatives to the proposed action; 3) requires use of an interdisciplinary process; 4) requires consultation with other Federal agencies; and 5) requires that detailed statements and comments and view of other agencies be made available to the public (BLM Handbook H-1790-1, p. 1).

Survey and Manage is a BLM policy, not a statutory requirement. The red tree vole (RTV) protocols are intended to locate RTVs where habitat conditions indicate they are most likely to be found. Whether or not the survey protocols are sufficient is outside the scope of this analysis. The REA explains ongoing survey efforts and requirements (pp. 13 and 34). Protocol survey results are summarized in Appendix F of the REA. The Orb Weaver Timber Sale has no suitable RTV habitat based on Red Tree Vole Survey Protocol (USDA/FS-USDI/BLM 2012).

15. Stands 80 Years of Age and Older

Comment 15a: "*The loss of recruitment of dead wood habitat when logging older stands is a long-term impact and provides a very strong argument against logging in stands over 80 years old.*"

BLM Response 15a: The RMP establishes that harvest is appropriate in the Matrix and made no reservations based on stand age. The ROD/RMP includes management direction (p. 65) for large down logs which has been incorporated into the project design (REA, pp. 24-25). The effects of the project are within those disclosed in the PRMP EIS (USDI-BLM 1994). The Orb Weaver Timber Sale is comprised entirely of thinning units. The RMP has no direction for large wood recruitment of dead wood in thinned units. Nonetheless, the REA (pp. 23) explains that snags and legacy trees will be maintained where practicable.

Comment 15b: "*The RTV [red tree vole] surveys should have been done and results included in the EA so the public could comment on the BLM's implementation of the Survey and Manage standards. The BLM claims only older units with large diameters need RTV surveys, like unit 28-5-27A. We disagree. Units to be regenerated must also have RTV surveys. Variable retention projects do not fit under exemption a: Thinning projects in stands younger than 80 years old". VRH and stands over 80 years old need RTV surveys, not just ones over a diameter limit.*"

BLM Response 15b: The Myrtle Creek Harvest Plan EA was revised to include the analysis for red tree voles and non-high priority site designation. The EA (p. 10) states, "The BLM would conduct surveys in suitable habitat for required 2001 Survey and Manage species in all stands greater than 80 years of age and all variable retention harvest units. Surveys would be conducted using accepted protocols…Red tree vole surveys would be conducted in stands subject to habitat disturbing activities that meet the following criteria: 1) Minimum quadratic mean diameter (QMD) is 18 inches or larger, and 2) Stand age is 80 years old or older *or* the stand has at least two superdominant trees per acre that have suitable habitat characteristics such as large limbs, palmate branches, broken tops or forked trunks (USDA/FS-USDI/BLM 2012)." Surveys have been completed in suitable habitat. Survey results are summarized in Appendix F of the REA and a 15-day period was provided so the public can submit comments. The Orb Weaver Timber Sale has no suitable RTV habitat based on Red Tree Vole Survey Protocol (USDA/FS-USDI/BLM 2012).

Comment 15c: "*The EA fails to accurately disclose the adverse effects (trade-offs) of logging on late successional habitat.*"

BLM Response 15c: The REA does not disclose the effects of proposed activities on Late-Successional Reserves because all of the harvest units are located outside of Late-Successional Reserves (REA, p. 19-20) and there are no Late-Successional Reserve in the analysis area. The REA discloses effects of three alternatives on forest stands (REA, pp. 45-60). The effects of proposed actions on wildlife species associated with late-successional habitats are also disclosed (REA, pp. 61-90).

16. Snags and Large Down Wood

Comment 16a: "*Retain abundant snags and course wood both distributed and in clumps so that thinning mimics natural disturbance. Retention of dead wood should generally be proportional to the intensity of the thinning, e.g., heavy thinning should leave behind more snags not less. Retain wildlife trees such as hollows, forked tops, broken tops, leaning trees, etc.*"

BLM Response 16a: Snags will be retained where operationally practicable and safe. Retention of snags and coarse wood are discussed in the REA (pp. 22, 23, 24, 25). The amount of snags and large coarse wood will comply with the ROD/RMP requirements to retain snags within a timber harvest unit at levels sufficient to support species of cavity nesting birds at 40 percent of potential population levels (ROD/RMP, pp. 34, 38, 64). At a minimum, an average of 120 linear feet per acre of large down wood in Decay Classes 1 and 2 will be provided (REA, p. 24).

Comment 16b: *"Thinning does not always accelerate development of late successional forests, in particular commercial thinning has an adverse effect on snags and dead wood that are defining characteristics of late successional habitat."*

BLM Response 16b: Accelerating development of late-successional forest is not a purpose and need of this project. The purpose and need for this project is clearly described in the REA (pp. 2-3). Relative density of retained trees would range from 0.35 to 0.40 in uniform thinning GFMA units(REA, p. 21); 0.25-0.30 in uniform thinning C/D Blocks units (REA, p. 21); and 0.20 to 0.30 in treated variable density thinning units (REA p. 22). At least 40 percent green tree canopy cover would be retained in thinned units (REA, pp. 21, 22). Snags needed to support 40 percent of potential population levels would be retained (REA, p. 24). Effects to snags (p. 51) and effects to snag associated species (pp.61-90, 127-132) are disclosed in the REA.

Comment 16c: *"Since logging has long-term adverse effects on snag recruitment, it is necessary to adopt mitigation with long-term effects, such as retaining generous untreated "skips" embedded within treatments areas where natural mortality processes can flourish.*

BLM Response16c: The project was designed to retain "skips", legacy trees, snags and large down wood (REA, pp. 21-25). The proposed project would harvest 4.4 percent of the analysis area. Mortality processes would continue to produce variable sizes, quantities and qualities of snags on the remaining 95.6 percent of the analysis area and in the untreated skips within the units.

Comment 16d: *"Considering CWD and snags are important components of riparian reserves, their current lacking within the project areas, the habitat improvement these incidentally felled trees would provide and the purpose and need of the project, it seems prudent to reserve them within the riparian reserve LUA (instead of placing them on trucks to be sent to mills)."*

BLM Response 16d: All coarse woody debris and snags would be retained in "no-treatment" Riparian Reserve area. In treated areas within Riparian Reserves, existing snags would be protected to the greatest extent practicable (REA, p. 23).

17. Northern Spotted Owl (General)

Comment 17a: "*Table 3-14 in the EA shows that the spotted owls in the Myrtlewood watershed are in bad shape. There was no reproduction in 2013, and only 2 reproducing pairs in 2012. If the BLM doesn't help this population, in critical habitat, the owls could be extirpated from the area within our lifetimes. Now is no time to convert potential owl habitat to early-seral habitat, or degrade NRF habitat by thinning in mature forests. The BLM is not allowed to degrade critical habitat, as this project does."*

BLM Response 17a: We assume the commenter is referring to the Myrtle Creek watershed, as there is no Myrtlewood watershed in western Oregon as the commenter suggests, although there is a Myrtlewood Field Office located on the Coos Bay District approximately 20 miles west of the analysis area.

An adverse modification determination is one that resides with the U.S. Fish and Wildlife Service (REA, p. 6). The BLM analyzed effects of the proposed activities on northern spotted owl critical habitat (pp. 73, 80, 87, 127, 130) and consulted with the U.S. Fish and Wildlife Service. In two Biological Opinions (TAILS#: 01EOFW00-2013-F-0200 and TAILS# 01EOFW00-2015-F-0229), the U.S. Fish and Wildlife Service found that the proposed action will not adversely modify critical habitat for the spotted owl and proposed activity in critical habitat in the action area is not likely to impair the capability of critical habitat to provide demographic support or facilitate connectivity among adjacent subunits.

18. Aquatic Conservation Strategy

Comment 18a: "*Logging in riparian reserves will violate the ACS by retarding attainment of dead wood objectives both instream and in the upland portion of the riparian reserves. In most cases passive management will best meet ACS objectives. Any alleged benefits from logging in the reserves are far outweighed by the adverse trade-offs which BLM fails to clearly and accurately disclose in the EA.*"

BLM Response 18a: The REA (p. 3) explains the need for diverse habitats in Riparian Reserves. "There is a need for diverse habitats in Riparian Reserves. Management of Riparian Reserves is intended to aid in the attainment of Aquatic Conservation Strategy (ACS) objectives of restoring and maintaining the ecological health of watersheds and aquatic ecosystems on public lands (ROD/RMP, p. 19). Silvicultural practices are to be applied to control stocking, reestablish and manage stands, and acquire desired vegetative characteristics (ROD/RMP, pp. 25). Density management in Riparian Reserves would reduce canopy cover that is suppressing shade-intolerant conifers and deciduous trees, resulting in a reduction in species diversity. Density management would maintain ecological health, allow the release and accelerated growth of selected trees that would maintain or restore structural diversity of plant communities in the riparian zone, and maintain coarse woody debris for future in-stream recruitment (ROD/RMP, pp. 19 and 20)." (REA, p. 3)

The effects of proposed actions within Riparian Reserves were analyzed in Chapter Three of the REA. Establishment of Riparian Reserves and "no-treatment" areas are explained in the REA (p. 32). Passive management will occur in the "no-treatment" area along streams and under Alternative One (No Action).

Effects on in-stream functional wood are described in the REA (pp. 97, 102-103). Additionally, Appendix D of the REA, "Consistency of the Proposed Action with the Objectives of the Aquatic Conservation Strategy" shows the Myrtle Creek Harvest Plan is consistent with ACS objectives (REA, pp. 191-196).

Comment 18b: "*The EA also fails to disclose that natural processes will lead to attainment of ACS objectives without intervention. See Lutz. J.A. 2005. The Contribution of Mortality to Early Coniferous Forest Development. MS Thesis. University of Washington. http://faculty.washington.edu/chalpern/Lutz_2005.pdf*"

BLM Response 18b: Contrary to the commenter's opinion, the REA describes how stands would develop under the No Action Alternative (REA, p 45-47), the effects of the No Action Alternative on aquatic resources (REA, pp. 96-98) and compliance with ACS (REA, Appendix D, pp. 191-196).

Lutz (2005, unsigned master's thesis) examines the temporal and spatial distribution of mortality and its causes. Suppression was observed in over 80 percent of the plots and was more than 2.5 times as common as mechanical damage. However, biomass lost to mortality via mechanical damage was nearly four times that lost via suppression. Mechanical damage killed larger stems and was episodic and spatially aggregated. Hardwood biomass increased with time as dominant stems achieved large size.

Although frequent in time and space, suppression mortality leads to subtle changes in forest structure. The larger sizes and spatial aggregation of trees killed by mechanical causes yielded greater ecological change by enhancing spatial heterogeneity of structure and composition. Lutz concludes that gap-forming processes that contribute to structural complexity in old growth can also be active in young forests.

In general, shade-intolerant hardwood species are being overtopped by conifers and succumbing to suppression mortality (REA, p. 40). Proposed Riparian Reserves treatments in the REA (p. 22) were designed to promote development of large hardwoods that, through mechanical damage, will be the source of future large dead and down biomass that will benefit the Riparian Reserve habitats as Lutz (2005) concluded. The more common suppression mortality will continue to occur in untreated areas of the Riparian Reserve and in "skips" created in the variable density thinning treatments.

Comment 18c: "*The EA failed to consider that new permanent roads do not meet the objectives of the ACS and instead, degrade water quality for fish and humans.*"

BLM Response 18c: The commenter incorrectly assumes all of the constructed road identified for retention (3.3 miles) occurs in northern spotted owl critical habitat or Riparian Reserves. Page 177 of the REA shows proposed road construction is not entirely within northern spotted owl critical habitat. Table 3-21 shows activities within northern spotted owl critical habitat include five total acres affected by road construction. There are three roads (28-2-31.B, 29-3-15.B and 28-3-25.C) to be constructed and retained within northern spotted owl critical habitat totaling 0.53 miles (0.21 miles outside of harvest units and 0.32 miles within harvest units) or approximately 3 acres based on an average road width of 50 feet. Road 28-2-31.B (0.12 miles) is in dispersal habitat; Road 29-3-15.B (0.10 miles) is in capable and dispersal habitat; and Road 28-3-35.C (0.31 miles) is in capable and suitable habitat. Federally-administered lands will continue to provide for dispersal and connectivity between critical habitat subunits (REA, p. 81) which is a primary function of the Klamath East subunit (REA, p. 65). None of these roads are in the Orb Weaver Timber Sale.

Water Quality/Water Quantity pertaining to Essential Fish Habitat was analyzed in the REA (p. 103) and concluded there will be no effect to water quality and/or quantity. Additionally, Water Quality analysis in the REA (pp. 104-106) indicates there will be no effect on beneficial uses and drinking water sources from the proposed actions. Consistency with the ACS objectives was addressed in Appendix D of the REA (pp. 193-196).

We assume concerns about "high-road-density problems" refers to concerns about increases in peak flow. From a peak flow perspective, there is not concern until roads populate 12 percent of the drainage area. For example, if we used an average 60-foot clearing limit, accounting for feeder roads and main collectors having varying widths, we would need to have in excess of 10 miles of road per square mile before this became a concern. In the Myrtle Creek watershed, road density was estimated to range from 3.03 to 5.94 miles per square mile and averages 4.36 miles per square mile, as reported in watershed analysis in 2002 (p. xiii). While road density has undoubtedly increased some in the ensuing 12 years, it has not increased by 200-250 percent.

19. Other

Comment 19a: "*Where road building is necessary, ensure that the realized restoration benefits far outweigh the adverse impacts of the road. Carefully consider the effects of roads on connectivity, especially at road/stream crossings, across ridge tops, and midslope hydrological processes (such as large wood delivery routes)…Avoid log hauling during the wet season.*"

BLM Response 19a: Roads would be sited on ridge tops and stable side slope locations and disconnected from the road drainage network where practicable (REA, p. 25). Ground-based yarding would be restricted to the dry season (REA, p. 32) and use of unsurfaced roads for timber hauling would be limited to the dry season (REA, p. 34). Road density is disclosed in the Aquatics section (REA, p. 95, 194). "No treatment" areas adjacent to streams filter sediment and provide a continuous source of small and large functional wood to stream channels (REA, p. 100, 101, 102, 105). Road renovation, improvement and construction will not affect recruitment of large wood to streams. Road renovation and improvement will benefit the analysis area because well-maintained roads have less potential to produced sediment that can be delivered to streams. Proposed road construction within Riparian Reserves is limited to 0.14 miles, of which less than 100 feet occurs within a "no-treatment area" of the upper extent of a headwater stream. The likelihood of reducing the quantity of in-stream large wood is minimal due to the site specific characteristics of these roads proposed for construction and the nature of the nearest stream (REA, p. 103). The Orb Weaver Timber Sale requires construction of five road segments, none of them enter the Riparian Reserves, therefore there will be no new road/stream crossings and large wood delivery to streams will not be affected by road construction.

Comment 19b: "*We oppose roadside daylighting (strip clearcutting along roads), especially in riparian reserves where it will certainly prevent or retard attainment of ACS objectives…The EA fails to fully disclose the adverse effects of "road daylighting"*

BLM Response 19b: The Orb Weaver Timber Sale includes 0.89 miles of road daylighting. Daylighting is not clearcutting as suggested by the commenter. Daylighting is a combination of road maintenance and thinning-type treatments that are routinely implemented by the Roseburg BLM and consistent with the ROD/RMP. The REA (p. 28) explains that daylighting treatments include clearing shrubs and trees and/or thinning trees less than 24 inches diameter breast height where overstory tree canopy shades the roadway surface. Daylighting would occur up to 33 feet from center line of existing roads…Daylighting would not occur within pre-established Riparian Reserve "no-treatment" areas except where a hydrologist or fisheries biologist determines that site specific characteristics warrant the need for daylighting to mitigate sediment transport to the stream network while meeting Aquatic Conservation Strategy objectives." (REA, p. 28) The REA discloses the effects of road daylighting in Chapter Three (REA, pp. 76, 77, 80, 87, 88, 97, 100, 103, 105, and 120).

Comment 19c: "*…the EA failed to look at the entire project area, as required by NEPA, and for the most part, only looked at the small percent of the watershed owned by the BLM, ignoring the overall landscape."*

BLM Response 19c: The BLM appropriately defined and analyzed resources in the analysis area. The analysis area is described in the REA (p. 1): The analysis area includes lands managed by the South River Field Office of the Roseburg District, Bureau of Land Management (BLM) in the Myrtle Creek 10th-field watershed[8], as well as the Upper Deer Creek, Days Creek, and Roberts Creek 12th-field subwatersheds. The analysis did not simply use percentage of the watershed administered by BLM. The analysis considered the condition and role of private lands in many instances (REA, pp. 6, 8, 25, 33, 37, 38, 47, 70, 72, 73, 74, 94, 95, 97, 98, 108, 118, 120, 126, 128, 192).

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[8]The U.S. Geological Survey implemented a new numbering/naming convention for hydrologic units (HUs). 5th-field watersheds are now designated as 10th-field HUs, and 6th-field subwatersheds as 12th-field HUs.

Comment 19d: "*The BLM failed to look at the entire watershed. And as mentioned earlier, there is a lot of early-seral habitat on BLM land too. The BLM failed to disclose what early-seral species was more in need of habitat than old-growth dependent species. The BLM failed to consider that historically, the watershed had far more old growth and far less early-seral.*"

BLM Response 19d: The REA never identified the need to create early-successional habitat as part of the purpose and need for action. The purpose and need are clearly stated on pages 2-3 of the REA. The REA considered species associated with early successional habitats (pp. 65, 69-70, 73-74, 80, 85-86, 88, 90 and Appendix C). The commenter incorrectly assumes the BLM desires to manage the landscape to resemble historic conditions. The desired age class distribution for GFMA was established by the ROD/RMP (p. 151) and is identified in the REA (pp. 39, 60). See also BLM Response 19c.

Comment 19e: "*The EA failed to consider the impacts of this project on that endangered species [wolf]. For instance, road density impacts wolves, and this project increases roads. The BLM must consult with USFWS on the endangered wolf impacts of this project.*"

BLM Response 19e: The wolf activity area of the referenced wolf "family" (OR7; Rogue Pack) was entirely outside of the Roseburg District BLM-administered lands in 2014 and is entirely off of the Roseburg District in 2015[9]. The proposed actions will have no effect on the referenced wolf pack.

[9] Map available at http://www.dfw.state.or.us/wolves/