Wiley Turtle Decision Document
Revised Myrtle Creek Harvest Plan Environmental Assessment
DOI-BLM-ORWA-R050-2013-0003-EA

Bureau of Land Management
South River Field Office, Roseburg District

Background

The Revised Wiley Turtle Decision is based on the 2016 Revised Myrtle Creek Harvest Plan Environmental Assessment (2016 REA). Revisions specifically pertain to two new northern spotted owl sites (4589A and 0362D). The revised text is in blue Arial font.

The 2016 Revised Myrtle Creek Harvest Plan Environmental Assessment (2016 REA), of which the Wiley Turtle 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 2016 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 utilizes only thinning harvest.

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). Since February of 2013, the BLM has had regular communications (e-mail, phone calls, letters, office visits, and field meetings) with two landowners who have expressed concerns about proposed harvest Unit 29-3-3A which is adjacent to their property.

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 (2015 REA) subsequent to the completed red tree vole surveys to incorporate results of the surveys and to incorporate an evaluation for non-high priority site designation. The 2015 REA was released for a 15-day period of public review and comment between August 12, 2015 and August 26, 2015. Comments were received from four organizations.

Northern spotted owl surveys have been ongoing since the Myrtle Creek Harvest Plan was released in 2014. In 2014 and 2015, the BLM identified new northern spotted owl sites in the analysis area. This new information triggered re-initiation of consultation with the U.S. Fish and Wildlife Service (Service) and issuance of the 2016 Revised Myrtle Creek Harvest Plan (2016 REA) and Revised Finding of No Significant Impact (2016 FONSI). The 2016 REA incorporates analysis of the new sites and the Service's conclusions in the 2016 Biological Opinion (#01EOFW00-2016-F-0065). The BLM provided a 15-day comment period for the revised portions of the 2016 REA between February 12, 2016 and February 26, 2016. We received four comment letters. Two of the new northern spotted owl sites (4589A, 0362D) are affected by the Wiley Turtle Timber Sale. These new sites were not addressed in the original EA because the sites were not being used by the owls in 2013; however effects to these owls were analyzed in the original EA which were located at sites 4589O and 0362A/0362B. Responses to comments pertinent to this decision and not already addressed in the REA are either included in Appendix B or described below.

Decision

After reviewing the 2016 REA, 2016 FONSI and project record it is my decision to authorize the Wiley Turtle Timber Sale, which includes implementation of a combination of activities described in Alternatives Two and Three (Alternative Two Modified; see Appendix A - Maps) in the 2016 REA (pp. 18-35). The northern spotted owls (4589 and 0362) that are the subject of this revised decision were analyzed in the 2013 EA and the nature and magnitude of effects to those owls are essentially similar to those described in the 2013 EA and 2016 REA. The new information affecting the Wiley Turtle Timber Sale does not substantially change the analysis of northern spotted owls. These owls, analyzed in the original EA, simply moved short distances (less than 0.3 mile) to new alternate nest locations and I find changes to the original Wiley Turtle Timber Sale Decision are not warranted.

I am making two notable changes to Alternative Two in response to public comments. The first change addresses concerns about the effects of variable retention harvest (VRH) on habitat in stands 80 years of age or older. It is my decision to modify Alternative Two by eliminating variable retention harvest in units 80 years of age and older, and instead implementing uniform commercial thinning (CT) or variable density thinning (VDT) as described in Alternative Three of the 2016 REA. Units less than 80 years old in 2015 will be treated as described in Alternative Two. Additionally, I am choosing to apply CT in Unit 29-39E as described in Alternative Three of the 2016 REA.

The second notable change pertains 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.

As a result of these changes, Alternative Two Modified includes approximately 1,014 acres of VDT, 614 acres of CT, 209 acres of VRH, and 209 acres of reforestation and stand maintenance. Forest management treatments will be conducted as described in the 2016 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 2016 REA (pp. 25-30).

The Wiley Turtle Timber Sale consists of ten units in Sections 31 and 32, T. 28 S., R 2 W.; Sections 33, 35 and 36, T. 28 S., R 3 W.; Section 6, T. 29 S., R 2 W.; Sections 3, 7, 11 and 15, T. 29 S., R. 3 W.; and Sections 13 and 24, T. 29 S., R 4 W., Willamette Meridian (see Appendix A - Maps). Table 1

shows the harvest units total approximately 290 acres in the following land use allocations: General Forest Management Area (GFMA, 201 acres), Connectivity/Diversity Block (C/D, 35 acres), and Riparian Reserves (RR, 54 acres). Treatments in the GFMA include 75 acres of CT, 18 acres of VDT, and 108 acres of VRH. Variable density thinning will be applied in all RR associated with the units (54 acres) and one unit (35 acres) located in the C/D Block land use allocation. Eight units will be harvested with cable yarding methods and two units will be harvested using ground-based harvest methods. In addition to timber harvest, the following activities will occur (see Table 2 and Appendix A - Maps):

- **Road Construction (1.31 miles) and Decommissioning (1.62 miles):** About 73 percent (0.99 miles) of the roads to be constructed will be located within unit boundaries. Three road segments (0.32 miles) are outside of unit boundaries and will be constructed in forest less than 80 years old. All road construction and decommissioning will occur during the dry season (described below). Five road segments (1.19 miles) will be constructed and used for harvest operations, then decommissioned. One road segment (0.12 miles) will be constructed and retained for future use. Table 2 displays road treatments and lengths, and Appendix A - Maps show the road locations.

  At a minimum, road decommissioning (1.19 miles of newly constructed road and 0.43 miles of renovated road) will consist of removing temporary drainage structures, constructing water bars, seeding and mulching disturbed areas, and blocking roads to vehicular use (2016 REA, p. 26). If it is not possible to accomplish decommissioning at the end of the first operating season, the purchaser shall be responsible for winterizing 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 (12.80 miles): Two road segments (0.43 miles; see Table 2 and Appendix A - Maps) will be renovated, used for harvest operations, and decommissioned (described above) during the dry season (described below). Twelve road segments (13.01 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 Daylighting (5.98 miles): Daylighting followed by road renovation will occur along five road segments (see Table 2). Daylighting will be conducted as described in the 2016 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: Approximately 1 acre in forest less than 80 years of age outside of unit boundaries will be cleared for road rights-of-way.

- Subsoiling: Approximately 1.4 acres of skid trails, equipment areas and landings will be subsoiled. Subsoiling will treat compacted soils to a minimum of 18 inches in depth or to the top of gravelly-cobbly soil layers if these layers are shallower than 18 inches.

- Post-Harvest Fuels Treatment: Fuel accumulations along roads, primary skid trails, and landings will be piled and burned as described in the 2016 REA (p. 29). Specifically, activity

fuels within 50 feet of BLM Road 29-4-11.1 in Units 1 and 2, and BLM Road 28-3-35.0 in Unit 10 will be hand piled and burned and activity fuels in Unit 11 will be machine piled and burned at landings.

- Post-Harvest Tree Planting and Density Control: Approximately 108 acres will be planted with tree seedlings. Density control treatments within planted areas will be applied as necessary to maintain open tree canopy for approximately 30 years.

Total harvest volume is estimated at 5,515 thousand board feet. Approximately 4,560 thousand board feet derived from harvest on 237 acres (including 1 acre of right-of-way) in the GFMA and C/D Blocks land use allocations is chargeable to the Roseburg District annual allowable sale quantity. The remaining 955 thousand board feet is derived from variable density thinning in 54 acres of Riparian Reserves and is not chargeable to the annual allowable sale quantity. Timber sale unit numbers and corresponding 2016 REA unit designations are displayed in Table 1.

Table 1: Wiley Turtle Timber Sale Unit Description

Sale Unit	2016 REA Unit Designation	Age in 2015	Harvest Acres	Harvest Prescription[1]	Land Use Allocation[2]	Tree Size (Quadratic Mean Diameter)	Northern Spotted Owl Critical Habitat	Yarding Method
1	29-4-13B	84	11 1	CT VDT	GFMA RR	14.2	No	Cable
2	29-4-13A	79	55 6	VRH VDT	GFMA RR	12.2	No	Cable
3	29-3-07A	69	35	VDT	C/D	11.0	No	Cable
4	29-3-15A	54	17 3	CT VDT	GFMA RR	11.5	Yes	Cable
5	29-3-15B	70	16	VRH	GFMA	11.0	Yes	Cable
6	DEFERRED							
7	29-3-03A	75	37 5	VRH VDT	GFMA RR	13.3	Yes	Cable
8	28-3-33A	43	9 4	CT VDT	GFMA RR	11.7	Yes	Cable
9	28-3-35A	80	38 29	CT VDT	GFMA RR	11.3	Yes	Cable
10	28-2-31A	57	9 6	VDT VDT	GFMA RR	11.2	Yes	Ground Based
11	28-2-32A	102	9	VDT	GFMA	13.8	Yes	Ground Based
Total			290					

[1]CT = Uniform Commercial Thinning; VDT = Variable Density Thinning; VRH = Variable Retention Harvest
[2]GFMA = General Forest Management Area; RR = Riparian Reserves; C/D = Connectivity/Diversity Block

Applicable project design features described in the 2016 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 seed or root fragments (2016 REA, p. 14). Any equipment removed from the contract area during the life of the contract must be re-cleaned before being returned to the contract area.

Conventional ground-based yarding equipment will operate on designated skid trails, using pre-existing trails to the greatest extent practicable. Ground-based operations will be limited to the dry season, typically May 15 through October 15, but may be shortened or extended, dependent on weather conditions, when soils are at their driest and least susceptible to compaction. 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 (2016 REA, p. 32).

Conventional ground-based harvest systems, excluding feller-bunchers, are acceptable for the ground-based harvest areas. Areas containing soils with high clay content, low levels of rock or located in areas with high soil moisture are susceptible to soil compaction. Field review[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 (2016 REA, p. 33). The system shall also have the capability to yard in multi-span configuration.

With the exception of the clearing of road rights-of-way and variable retention harvest units, no timber falling, bucking or yarding shall be conducted in thinning units 1, 3,4, and 8-11 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 six road segments. Table 2 and Appendix A - Maps display details of necessary road treatments.

Table 2: Wiley Turtle Timber Sale Road Construction, Renovation, Decommissioning and Daylighting

Road Number	Road Treatment	Treatment Length (miles)	Daylighting (miles)	SaleUnit Number
Spur 1	Construct, Decommission	0.58	0	2
Spur 2	Construct, Decommission	0.03	0	2
Spur 3	Construct, Rock, Decommission	0.07	0	4
Spur 4	Construct, Rock, Retain	0.12	0	5
Spur 5	Construct, Rock, Decommission	0.17	0	7
Spur 6	Construct, Decommission	0.34	0	9
Spur 7	Renovate, Rock, Decommission	0.26	0	9
Spur 8	Renovate, Decommission	0.17	0	10
28-2-32.1	Renovate, Rock, Retain	0.02	0	11
28-2-32.2	Renovate, Rock, Retain	0.19	0	11
28-2-32.3	Renovate, Rock, Retain	0.58	0	11
28-3-34.0	Renovate, Rock, Retain	0.38	0	9
28-3-34.9	Renovate, Rock, Retain	0.16	0	9
28-3-35.0	Renovate, Rock, Retain	3.25	2.99	11
28-3-35.2	Renovate, Rock, Retain	1.13	1.13	9
28-3-35.5	Renovate, Rock, Retain	0.08	0.08	9
29-3-03.0	Renovate, Rock, Retain	0.10	0.10	9
29-3-11.1	Renovate, Rock, Retain	1.96	1.68	7, 8
29-4-11.1	Renovate, Rock, Retain	4.11	0	1, 2, 3
29-4-13.2	Renovate, Rock, Retain	0.41	0	2

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

Unit acres were reduced because of operationally feasibility, to exclude high-quality northern spotted owl habitat, and to provide management protection for Survey and Manage species. Table 3 indicates the extent to which unit sizes for each of the Wiley Turtle Timber Sale units have been reduced, resulting in a reduction of the total amount of treated area by 58 acres (16 percent).

Table 3: Comparison of units included in consultation documents and units in the Wiley Turtle Timber Sale.

Sale Unit	2016 REA Unit Designation	Age in 2015	Land Use Allocation[1]	REA Unit Harvest Acres	Sale Unit Harvest Acres	Alternative Two REA Unit Harvest Prescription[2, 3]	Sale Unit Harvest Prescription[2]
1	29-4-13B	84	GFMA RR	16 2	11 1	VRH VDT	CT VDT
2	29-4-13A	79	GFMA RR	64 6	55 6	VRH VDT	VRH VDT
3	29-3-07A	67	C/D	38	35	VDT	VDT
4	29-3-15A	54	GFMA RR	22 8	17 3	CT VDT	CT VDT
5	29-3-15B	70	GFMA RR	19 1	16 0	VRH VDT	VRH VDT
6	DEFERRED						
7	29-3-03A	75	GFMA RR	41 6	37 5	VRH VDT	VRH VDT
8	28-3-33A	43	GFMA RR	15 7	9 4	CT VDT	CT VDT
9	28-3-35A	80	GFMA RR	37 33	38 29	VRH VDT	CT VDT
10	28-2-31A	57	GFMA RR	15 8	9 6	VDT VDT	VDT VDT
11	28-2-32A	102	GFMA RR	9 1	9 0	VRH VDT	VDT VDT
Total				348	290		

[1]GFMA = General Forest Management Area; RR = Riparian Reserves; C/D = Connectivity/Diversity Block
[2]CT=Uniform Commercial Thinning; VDT = Variable Density Thinning; VRH = Variable Retention Harvest
[3]Alternative Two was analyzed for consultation purposes.

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 (2016 REA, pp. 48-60). Alternative One would not accomplish these objectives (2016 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 (2016 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 (2016 REA, p. 188).

Two northern spotted owls (4589 and 0362) moved to new alternate nest sites since consultation with the Service was completed in 2013. The BLM re-initiated consultation with the Service in 2015. The Service found that the proposed actions analyzed in the February 9, 2016 Biological Opinion (#01EOFW00-2016-F-0065) are consistent with their findings in the September 30, 2013 Biological Opinion (#01EOFW00-2013-F-0200). Proposed actions are 1) not likely to jeopardize the spotted owl (USFWS 2016, p. 1); 2) planned in a manner which incorporates recommendations of the Spotted Owl Revised Recovery Plan's Recovery Actions 10 and 32 (USFWS 2016, p. 1); and 3) not likely to adversely modify northern spotted owl critical habitat in the affected subunits (USFWS 2016, p. 2) (2016 REA p. 138).

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

Disturbance

No effect to northern spotted owls from noise disruption or disturbance is expected (2016 REA, p. 33, 77). Any operations with the potential for disruption of nesting northern spotted owls would be subject to seasonal restrictions. Operations within applicable disruptions threshold distances of known northern spotted owl sites or unsurveyed suitable habitat will be prohibited from March 1st to July 15th, both dates inclusive.

Suitable and Dispersal Habitat

The BLM modified Alternative Two in response to public comments. 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 2016 REA and the effects described in consultation documents (Biological Assessment and Biological Opinion). Table 3 shows the Wiley Turtle Timber Sale units are all smaller than the units used for environmental analysis and consultation, and variable retention harvest prescriptions for timber sale units in habitat 80 years of age and older have been changed to thinning only.

In summary, Table 3 shows that between consultation and final unit layout the total treated area was reduced by 58 acres, including approximately 12 acres of variable retention harvest in suitable northern spotted owl habitat. Additionally, 60 acres of variable retention harvest that would have removed suitable northern spotted owl habitat have been changed to thinning which will only modify habitat. Due to changes in harvest prescription, unit size, and gap size in RR, the environmental effects of project implementation on northern spotted owls will be less than those described for Alternative Two in the 2016 REA.

The Wiley Turtle Timber Sale includes application of variable retention harvest (VRH) in northern spotted owl dispersal habitat less than 80 years old (108 acres; units 2, 5, and 7) in the GFMA land use allocation outside of northern spotted owl nest patches or core areas. Post-harvest, VRH units will not support northern spotted owl use (2016 REA, p. 77) but retained habitat components will contribute to future development of suitable habitat; providing the necessary habitat diversity such as multi-layered canopy, large trees and snags. For the Wiley Turtle Timber Sale, tree retention includes approximately 18 acres of aggregate retention (see Appendix A - Maps) and 6-11 trees per acre of dispersed retention (2016 REA, pp. 24 and 77) that will comprise 20 to 30 percent of the pre-harvest stand basal area (2016 REA, p. 23). In approximately 40 years, post-harvest, VRH units will provide dispersal habitat and in approximately 80 years, post-harvest, VRH units will provide nesting, roosting and foraging habitat (2016 REA, p. 77).

Thinning will modify approximately 94 acres of northern spotted owl habitat less than 80 years old and 88 acres of habitat 80 years of age or older. Thinned areas will function as dispersal habitat post-harvest because 40 percent canopy cover will be retained (2016 REA, pp. 21-22). The entire area to be thinned, with the exception of approximately 10-14 acres, is outside of known northern spotted owl nest patches and core areas. Up to fourteen acres will be thinned in the core areas of northern spotted owl sites 2291O (1 acre; Unit 11), and 4589O (9 acres; Unit 8)/4589A (13 acres; Unit 8). None of the Wiley Turtle Timber Sale harvest units would affect the core area of northern spotted owl site 0362D. None of the Wiley Turtle Timber Sale enters northern spotted owl nest patches. The Wiley Turtle Timber Sale units as they relate to northern spotted owl habitat are described below.

Units 1 and 9 are 80 years of age and older and are located outside of northern spotted owl nest patches and core areas in the GFMA and RR land use allocations. Northern spotted owl habitat will be modified but habitat function will be maintained because at least 60 percent canopy cover will be retained.

Units 2 and 5 are less than 80 years old and are located outside of northern spotted owl nest patches and core areas in the GFMA and RR land use allocations. In the short-term, upland portions of these units will not support northern spotted owl use (2016 REA, p. 76). Treated Riparian Reserves will provide dispersal habitat because 50 percent canopy cover will be retained.

Unit 7 is 75 years old in 2015 and is located outside of northern spotted owl nest patches and core areas in the GFMA and RR land use allocations. Unit 7 is dispersal habitat, contrary to an error in Table 3-18 of the 2016 REA (p. 78) that identifies it as suitable habitat. Consequently, the effects to suitable habitat in northern spotted owl home ranges 1363B and 4589O will be less than those disclosed for Alternative Two in the 2016 REA. The viability threshold status for suitable habitat in the sites will remain unchanged (2016 REA, p. 77). Post-harvest, upland portions of the unit will not support northern spotted owl use until they develop characteristics of dispersal habitat in approximately 40 years (2016 REA, p. 77). Treated Riparian Reserves will provide dispersal habitat because at least 50 percent canopy cover will be retained.

Units 3, 4 and 10 are less than 80 years old and are located outside of northern spotted owl nest patches and core areas in the GFMA, C/D Blocks and Riparian Reserves land use allocations. Northern spotted owl habitat will be modified, but dispersal habitat function will be maintained because at least 40 percent canopy cover will be retained.

Unit 8 is less than 80 years old and nine acres of the unit are located in the core area of home range 4589O and thirteen acres are located in the core area of home range 4589A in the GFMA and RR land use allocations. Northern spotted owl dispersal habitat will be modified, but habitat function will be maintained because at least 40 percent canopy cover will be retained. The viability threshold status for suitable habitat in the site will remain unchanged (2016 REA, p. 77). The most recent survey (July 2015) shows sites 4589O and 4589A are unoccupied by northern spotted owls.

Unit 11 is 102 years old and is mostly located outside of northern spotted owl nest patches and core areas in the GFMA land use allocation. Approximately 1 acre of Unit 11 is in the core area of home range 2291O. Northern spotted owl suitable habitat will be modified such that it will function as dispersal habitat post-harvest. The site will remain above the suitable habitat viability threshold in the home range and core area (2016 REA, p. 63). The most recent survey (July 2015) shows site 2291O is unoccupied by northern spotted owls.

Northern spotted owls are expected to continue to use thinned areas after operations are complete because post-treatment canopy closure will remain above 40 percent and the quadratic mean diameter of trees in the treated stands will exceed 11 inches, figures widely used as thresholds for dispersal function (2016 REA, pp. 62, 75 and 76). However, the northern spotted owls may expand home range size (2016 REA, p. 75) and may utilize the thinned stand less than unthinned stands until canopy closure returns to pre-thinning levels (2016 REA, p. 76).

Northern Spotted Owl 2012 Critical Habitat

The Wiley Turtle Timber Sale is located in the critical habitat Klamath East Subunit 2. Most (182 acres; Units 4-11) of the sale is within the 2012 designated northern spotted owl critical habitat (2016 REA, p. 177a). Within critical habitat, thinning will be applied to 53 acres of habitat less than 80 years of age and 76 acres of habitat 80 years of age or older. 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. Variable retention harvest will be applied to 53 acres of habitat less than 80 years of age. Areas where variable retention harvest is applied are not expected to be used by northern spotted owls in the short-term. Use as dispersal habitat is expected to resume in approximately 40 years, post-harvest (2016 REA, p. 77).

Based upon the critical habitat analysis in the Biological Opinions (BO), the U.S. Fish and Wildlife Service finds Wiley Turtle Timber Sale (referred to as the Wiley Coyote and Myrtle Turtle Timber Sales in the BOs; USDI FWS 2013 and 2016) 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, 118; USFWS 2016, #01EOFW00-2016-F-0065, pp. 104, 109). Between consultation (2013) and final unit layout approximately 18 percent (40 acres) of the proposed harvest acres in the critical habitat unit were dropped from consideration, therefore the effects of implementing Wiley Turtle Timber Sale will be less than those disclosed in the 2016 REA and displayed in 2013 consultation documents.

Northern Spotted Owl 2011 Recovery Plan

Known threats to the northern spotted owl are addressed by recovery strategies 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).

This project is consistent with the 2011 Northern Spotted Owl Recovery Plan by implementing disturbance-based management within the range of the northern spotted owl with the goal of maintaining or restoring forest ecosystem structure, composition, and processes so they are sustainable under current and future climate conditions. It is also consistent with the Recovery Plan recommendations for the application of ecological forestry principles (2016 REA, p. 81). The Wiley Turtle Timber Sale complies with Recovery Action 6 by implementing ecological forestry principles that emphasize retention of larger and older trees, snags and downed wood, and live trees (2016 REA, p. 23-24).

The project will be conducted following principles of ecological forestry as recommended throughout the Northern Spotted Owl Recovery Plan (USFWS 2011, pp. III-11 thru 14, 19, and 20). It will emulate natural disturbance processes through prescriptive actions (USFWS 2011, p. III-13), promoting spatial heterogeneity within patches on local landscapes, and restore species and structural diversity within the historical range of variability, including early successional ecosystems (USFWS 2011, pp. III-14 and 18).

The Northern Spotted Owl Recovery Plan recommends conserving northern spotted owl sites and high-value northern spotted owl habitat (USFWS 2011, pp. III-42 thru 47). The Recovery Plan also 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 restoration activities that would reduce threats from stochastic disturbance (USFWS 2011, pp. III-13 thru 14, and 45 thru 46) and restoration of high quality early-seral habitat (USFWS 2011, pp. III-14 and 46), both of which will be accomplished by implementing Wiley Turtle Timber Sale. Given these factors, the sale is consistent with the Recovery Plan (2016 REA, p. 81).

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

- Through designation of revised critical habitat, the Service has encouraged land managers to consider implementation of forest management practices recommended in the Revised Recovery Plan (USDI FWS 2011) to restore natural ecological processes where they have been disrupted or suppressed (*e.g.*, natural fire regimes), and application of ecological forestry management practices (e.g., Franklin et al. 2007) within critical habitat to reduce the potential for adverse impacts associated with commercial timber harvest when such harvest is planned within or adjacent to critical habitat. In the final rule, the Service encourages land managers to consider the conservation of existing high-quality spotted owl habitat, the restoration of forest ecosystem health, and the ecological forestry management practices recommended in the Revised Recovery Plan that are compatible with both the goals of spotted owl recovery and Standards and Guidelines of the Forest Plan. (USDI FWS 2013, p. 72)
- The revised spotted owl recovery plan (USDI FWS 2011) emphasizes the importance of retaining the older, and more structurally complex stands between the reserves (Recovery Action 32); conserving spotted owl sites for demographic support through maintaining

habitat at known sites (Recovery Action 10); and the use of ecological forestry principles (Franklin et al. 2002, Johnson and Franklin 2009 and Franklin and Johnson 2012) when implementing silvicultural activities (Moist Forest Habitat and Recovery Action 6). The Biological Assessment (USDI BLM 2013) indicates these Recovery Actions were considered in the design of the project and incorporated to the extent practical, in keeping with the intent of the project (USDI FWS 2013, pp. 84-85).

- 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 (2016 REA, pp. 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 (USID FWS 2013, p. 117). The Wiley Turtle Timber Sale will not impair the function of the Klamath East 2 Subunit (USDI FWS 2013, p. 104).
- The Wiley Turtle 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).

In a 2016 Biological Opinion (USDI FWS 2016), the Service made the following findings:

- Through designation of revised critical habitat, the Service has encouraged land managers to consider implementation of forest management practices recommended in the Revised Recovery Plan to restore natural ecological processes where they have been disrupted or suppressed, and application of ecological forestry management practices within critical habitat to reduce the potential for adverse impacts associated with commercial timber harvest when such harvest is planned within or adjacent to critical habitat. In the final rule, the Service encourages land managers to consider the conservation of existing high-quality spotted owl habitat, the restoration of forest ecosystem health, and the ecological forestry management practices recommended in the Revised Recovery Plan that are compatible with both the goals of spotted owl recovery and Standards and Guidelines of the Forest Plan. (USDI FWS 2016, p. 177-178)
- The Wiley Turtle Timber Sale does not enter any RA 32 habitat. The 2016 Biological Assessment concludes that there will be no regeneration stands meeting the intent of Recovery Action 32 within harvest units (p. 64). The Biological Assessment indicates all Recovery Action 32 habitat identified in the Action Area during project development has been eliminated from most final proposed commercial harvest units. (p. 96)
- The Project was designed to conform to the Roseburg District BLM RMP (USDI BLM 1995) and the NWFP (USDA FS and USDI BLM 1994). No treatments are proposed in the Known Spotted Owl Activity Center (KSOAC). (p. 96)

- Less than 2 percent of the spotted owl NRF habitat in the action area will be affected by the proposed action. As such, the Service expects the affected Matrix lands, at the scale of the entire Action Area, to continue to function as well for spotted owl dispersal after implementation of the proposed action as they currently do, and the late successional habitat currently there and which is anticipated to develop in the future should be more readily protected from future wildfire due to implementation of the proposed action. (p. 96)
- The conservation of high value habitat that is known or likely to be occupied by spotted owls is being achieved by the BLM through implementation of Recovery Actions 10 and 32 on all applicable lands (USDI FWS 2011a, p. III-41). Recovery Action 6 is also applicable because of harvest activities that promote spotted owl habitat. In addition, Recovery Actions 2 and 3 are applicable in that the BLM will continue spotted owl demographic monitoring of known sites. (p. 97)
- The proposed action is not likely to appreciably reduce the likelihood of survival or recovery of the spotted owl population at the provincial or range-wide scales. (p. 101) although connectivity and demographic support will be adversely impacted those functions are not expected to be precluded in subunit KLE 2. (p. 104)
- It is the Service's biological opinion that the Roseburg District BLM's proposed action is not likely to jeopardize the continued existence of the spotted owl…is not likely to adversely modify spotted owl or…critical habitat…In addition to the non-jeopardy NWFP Opinion, the proposed action is reasonably consistent with Recovery Actions 6, 10, 12 and 32 of the spotted owl recovery plan…The proposed activities are not likely to appreciably diminish the conservation support function of affected subunits (KLE-2, KLW-1, ORC-3, ORC-5, or WCS-6) or critical habitat at the Provincial and range-wide scales (p. 109)

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 (2016 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 (2016 REA, p. 185)

No Bureau sensitive plant species were located during surveys in the Wiley Turtle Timber Sale units, therefore no affect to Bureau sensitive species is anticipated (2016 REA, pp. 13, 181-186).

Aquatic Habitat, Fish, and Essential Fish Habitat

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.

The Wiley Turtle Timber Sale units are within the Myrtle Creek and Days Creek-South Umpqua watersheds. No direct effects from harvest activities are expected to Oregon Coast coho salmon, critical habitat for the species, or Essential Fish Habitat (2016 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 (2016 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 (2016 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 (2016 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 (2016 REA, pp. 101). Application of project design features and Best Management Practices will effectively eliminate delivery of road derived sediment to live stream channels (2016 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 (2016 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 (2016 REA, pp. 34). Dry-season hauling will neither generate nor deliver sediment to live stream channels (2016 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 (2016 REA, pp. 101 and 107). Implementing project design features and Best Management Practices will reduce the potential for these effects (2016 REA, pp. 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 (2016 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 (2016 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 (2016 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 (2016 REA, p. 107). Variable density thinning units 10 and 11 are the only Wiley Turtle Timber Sale units in the rain-on-snow hydroregion. Variable density thinning in Riparian Reserves will maintain an average canopy cover of at least 50 percent (2016 REA, p. 22) and, in response to public comments on the 2016 REA, 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 (2016 REA, p. 108).

Variable retention harvest in units 2, 5, and 7 occurs in the Upper South Fork Myrtle Creek subwatershed. Equivalent Clearcut Area (ECA) in the Upper South Fork Myrtle Creek subwatershed is 15.9 percent. With the addition of concentrated harvest areas (approximately 90 acres), the ECA would increase a small fraction of one percent in the subwatershed (2016 REA, p. 108). There would be no mechanism for peak flow enhancement due to a lack of response until ECA exceeds 29 percent of the subwatershed (2016 REA, p. 108). Consequently, variable retention harvest units in the Wiley Turtle Timber Sale do not present a risk to peak flow enhancement.

As discussed in the 2016 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 (2016 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) (2016 REA, p. 93). Table 2 shows that the road decommissioning associated with the Wiley Turtle 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 (2016 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 (2016 REA, pp. 32 and 191). Approximately 54 acres of variable density thinning will be conducted in Riparian Reserves on the Wiley Turtle Timber Sale. One objective for these treatments is to accelerate the development of diverse plant communities that are characteristic of late-seral conditions (2016 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 Wiley Turtle 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 (2016 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 (2016 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 (2016 REA, p. 192).

Cultural/Historical Resources

The Wiley Turtle Timber Sale was surveyed for cultural resources. Three sites were located in the area. Sites 35DO86 and OR-10-317 will be avoided through unit boundary modification and will not be impacted by ground-disturbing activities. Site 35DO1457 was formally evaluated, found to be not eligible for listing in the National Register of Historic Places and, as a result, will not be managed for conservation. Consequently, the project will have "No Effect" on significant or unevaluated cultural resources. The results of the surveys are documented in CRS Nos. SR1302, SR1303, and SR1411. 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, ground-disturbing activities will be halted if cultural resources are discovered until an Archaeologist can properly evaluate and document the resources (2016 REA, p. 15).

Noxious Weeds

As discussed in the 2016 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 (2016 REA, p. 14). Control measures may include mowing, hand-pulling, and limited use of approved herbicides (2016 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 (2016 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 units 3, 4, 8 and 10 which are less than 80 years old (2016 REA, pp. 19 and 20). With one exception (approximately 0.12 miles within Unit 9), all associated road construction is sited in stands less than 80 years old. Consequently, these units and road locations comply with Pechman exemption "a". Habitat conditions in thinning units 1, 9 and 11and variable retention harvest units 2, 5, 6, and 7 were evaluated and required protocol surveys were conducted in suitable habitats using the 2001 Survey and Manage ROD species list (2016 REA, pp. 34 and 67).

Survey and Manage wildlife surveys were conducted in suitable habitats in 2014. Surveyors identified one *potential* Survey and Manage mollusk species (*Pristiloma arcticum crateris)* in Unit 7. A voucher specimen was sent to a taxa expert for definitive identification, but results have not been received. In the absence of the results, the identified site will be protected as described in the 2016 REA (p. 34). Survey and Manage mollusks were not located during surveys in units 5, 9, and 11. Units 1 and 2 were not surveyed because no habitat is present. None of the Wiley Turtle Timber Sale units or road construction locations required red tree vole surveys (2016 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 (2016 REA, p. 13). The results of the surveys are displayed in Appendix B of the 2016 REA (p. 180). Survey and Manage lichens were identified in Wiley Turtle Timber Sale units 1, 5, 7, 9, and 11. The identified lichens will be protected by applying project design features described in the 2016 REA (p. 13). Road locations outside of harvest units were surveyed in 2014. One Survey and Manage lichen species was identified during surveys of Spur 1. The lichen was avoided during final road location such that there will be no effect to the lichen. Lichens were not located in any other surveyed road locations outside of harvest units.

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 2016 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 decreased as a result of thinning, with reductions increasing as a function of heavier thinning.
- After thinning, carbon pools remain lower throughout a 50-year period.
- Carbon pool estimates for thinned stands remained lower even after accounting for carbon transferred to wood products.

The findings of the 2016 REA with respect to thinning are consistent with published findings (Sessions et al. 2011[1]) that carbon pools immediately decline following thinning, and remain lower 50 years after thinning (2016 REA, pp. 123-124). This conclusion applies to the thinned areas (182 acres) in the Wiley Turtle Timber Sale.

The analysis for direct and indirect effects shows variable retention harvest will release approximately 14.9 tonnes of carbon per acre immediately after treatment and thinning will release 3.19 - 4.22 tonnes of carbon per acre (2016 REA, p. 123). As proposed in the 2016 REA for Alternative Two, harvesting the Wiley Turtle Timber Sale units will release approximately 3,884 to 4,119 tonnes of carbon. Harvesting the Wiley Turtle Timber Sale units as described in Alternative Two Modified reduced carbon released to 2,190- 2,377 tonnes, which represents a reduction of approximately 43 percent.

Table 3-26 of the 2016 REA (p. 124) compares carbon release and storage in the No Action Alternative to the effects of variable retention harvest under Alternative Two. Under No Action, the carbon pool in standing live trees increases from current balance of 125 to 218 tonnes per acre in 50 years. Under Alternative Two, carbon in standing live trees is immediately reduced to 30 tonnes per acre post-harvest, and 50 years after treatment is 63 tonnes per acre. The findings that carbon pools immediately decline following treatment, and remain lower 50 years after treatment are consistent with Sessions et al. (2011).

The 2016 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 consistent with the finding that not all carbon from harvested timber is transferred into wood and paper products.

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[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

Monitoring

As stated in the 2016 REA (p. 137), monitoring of the effects of the Wiley Turtle 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.

Protest Procedures

The principle of administrative finality precludes any further protest of the original September 3, 2015 Wiley Turtle Timber Sale Decision and the findings contained therein. Consequently, any further protest is specifically limited to the revised portion of the Revised Wiley Turtle Timber Sale Decision pertaining to northern spotted owls, as show in blue Arial font.

The decision described in this document is a forest management decision and revised portions of this decision are subject to protest by the public. In accordance with Forest Management Regulations at 43 CFR Subpart 5003 Administrative Remedies, protests may be filed with the authorized officer, Scott Lightcap within 15 days of the publication of the notice of decision on April 21, 2016, 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 September 18, 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.

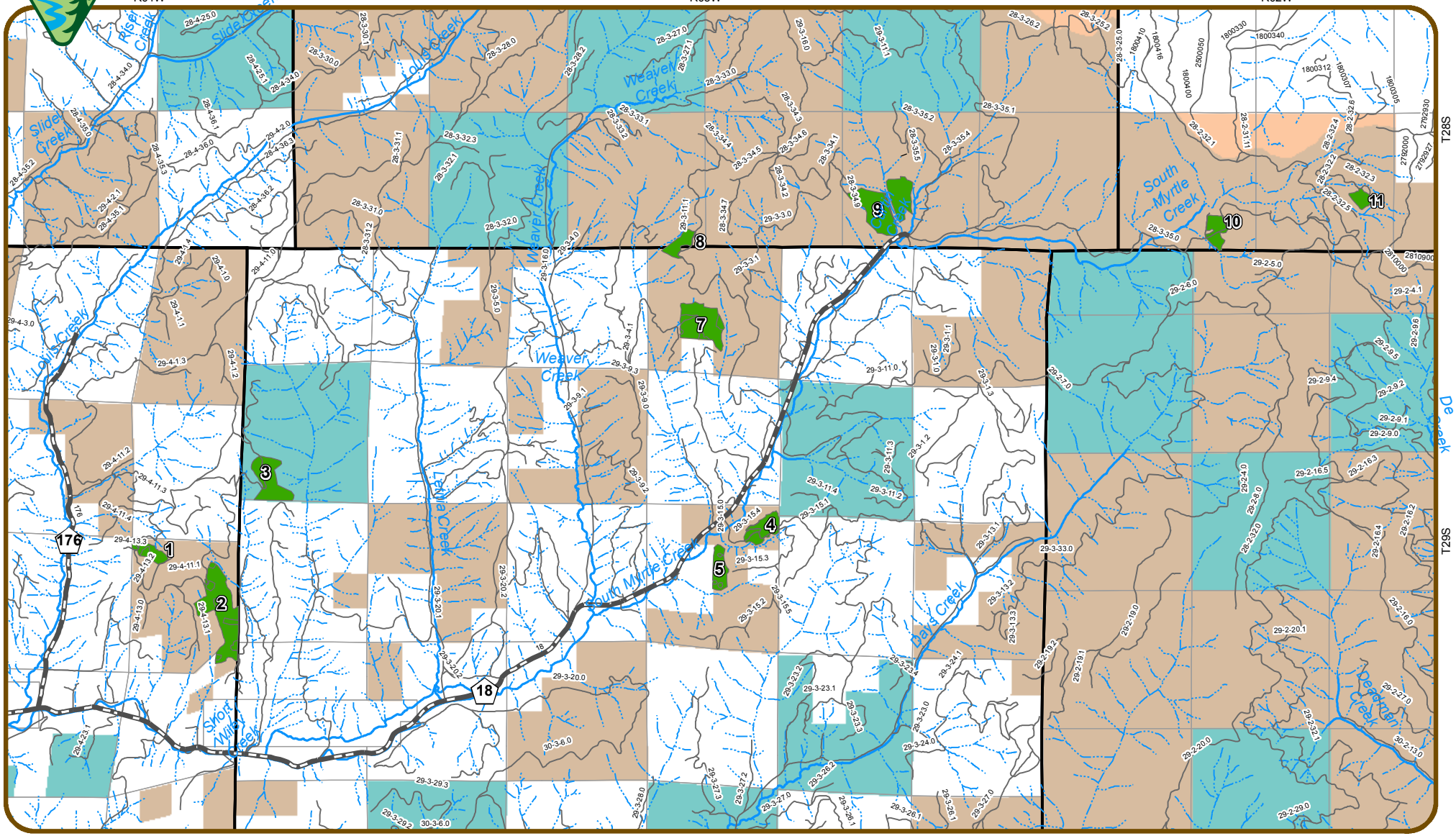
FOR Scott Lightcap
Acting Field Manager
South River Field Office
(541) 464-3211

18 April 2016
Date

Appendix A

Wiley Timber Sale Maps

Wiley Turtle Units and Roads Vicinity Map



0 0.25 0.5 1 1.5
Miles

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

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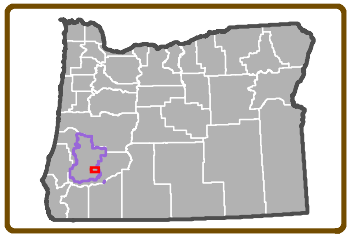
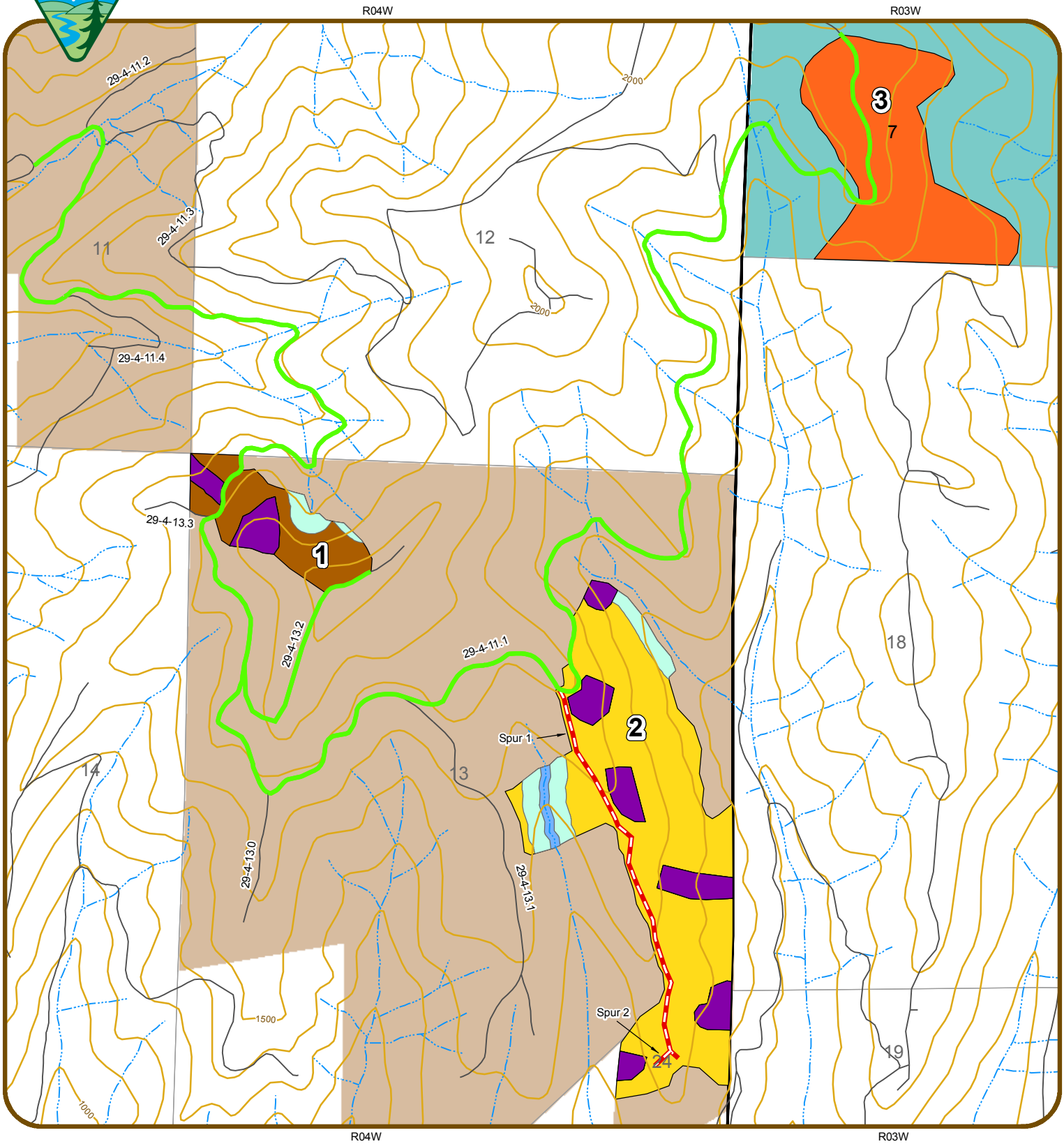
Date: 7/29/2015



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.

Wiley Turtle Units and Roads



Construct-Decommission
Renovate/Maintain-Retain
Existing Road
100' Contours
Streams

Retention Aggregates
Uniform Commercial Thinning
Variable Retention Harvest
Upland Variable Density Thinning
Riparian Reserve Variable Density Thinning
No Harvest Stream Buffer
Connectivity/Diversity Block
General Forest Management Area

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Miles

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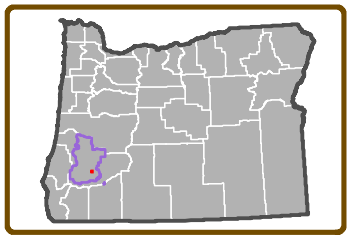
Date: 8/11/2015



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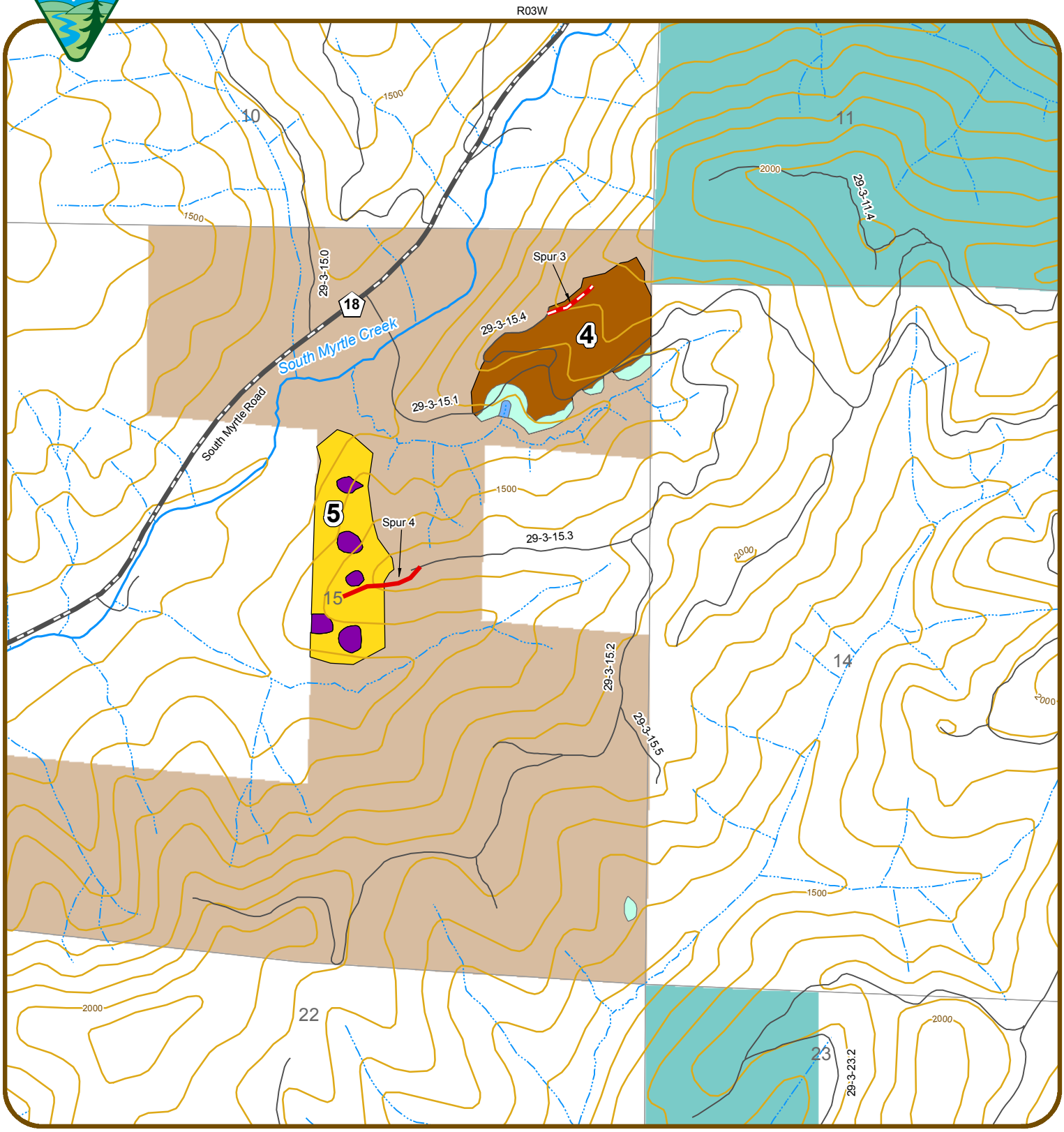
Wiley Turtle Units and Roads



- Construct-Retain
- Construct-Decommission
- County Roads
- Existing Road
- 100' Contours
- Streams
- Major Stream
- Retention Aggregates
- Uniform Commercial Thinning
- Variable Retention Harvest
- Riparian Reserve Variable Density Thinning
- No Harvest Stream Buffer
- Connectivity/Diversity Block
- General Forest Management Area

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Miles

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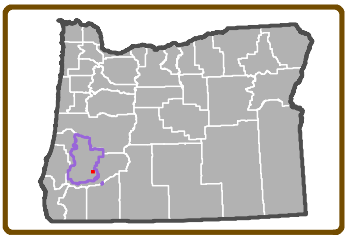

Date: 8/11/2015

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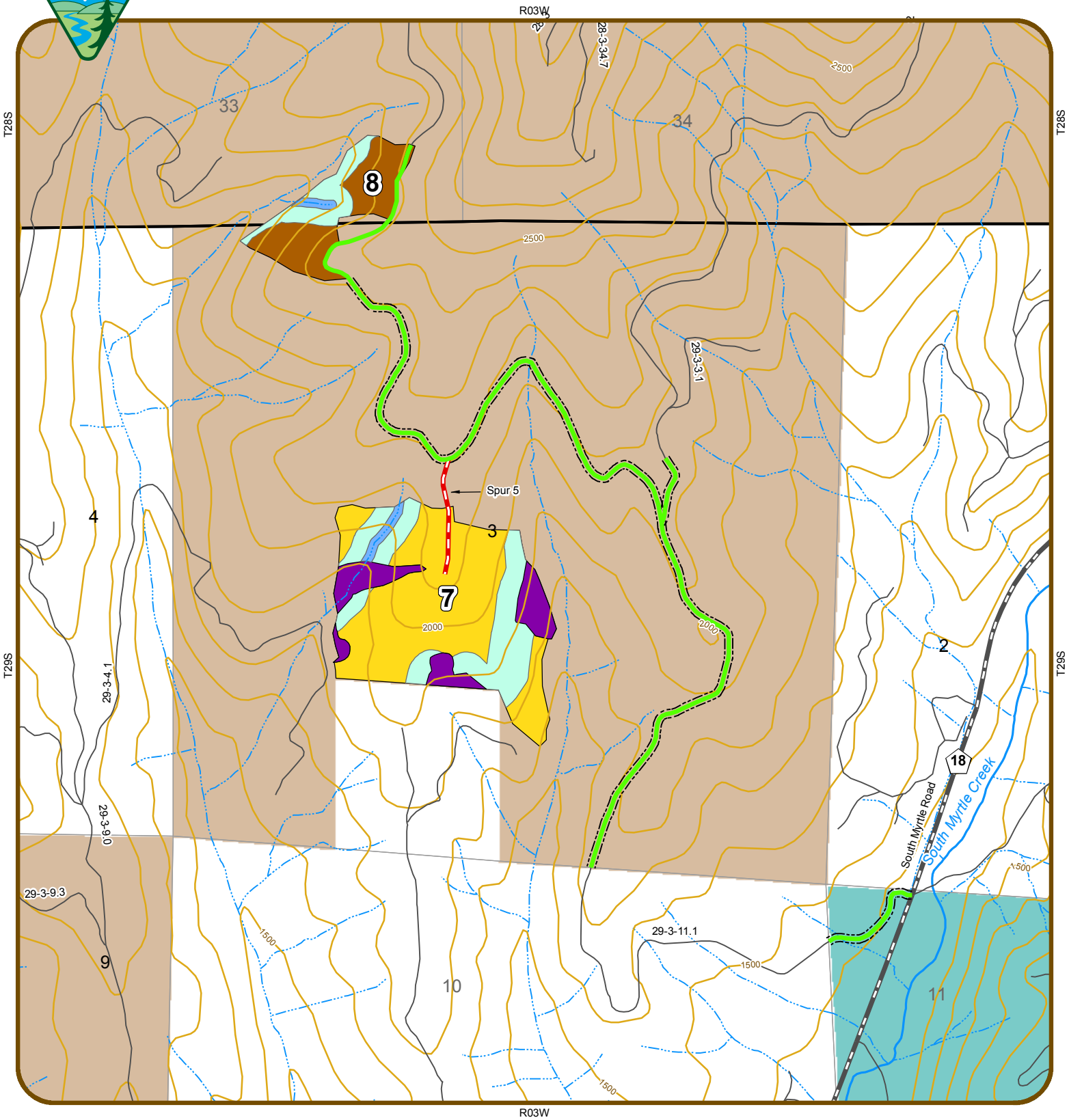
Wiley Turtle Units and Roads

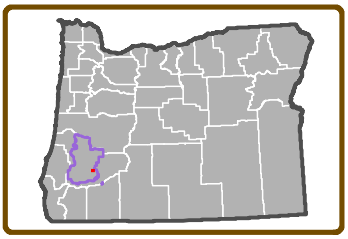


- Construct-Decommission
- Renovate/Maintain-Retain
- County Roads
- Existing Road
- Road to be Daylighted
- 100' Contours
- Streams
- Major Stream
- Retention Aggregates
- Uniform Commercial Thinning
- Variable Retention Harvest
- Riparian Reserve Variable Density Thinning
- No Harvest Stream Buffer
- Connectivity/Diversity Block
- General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N W E S

Date: 8/11/2015



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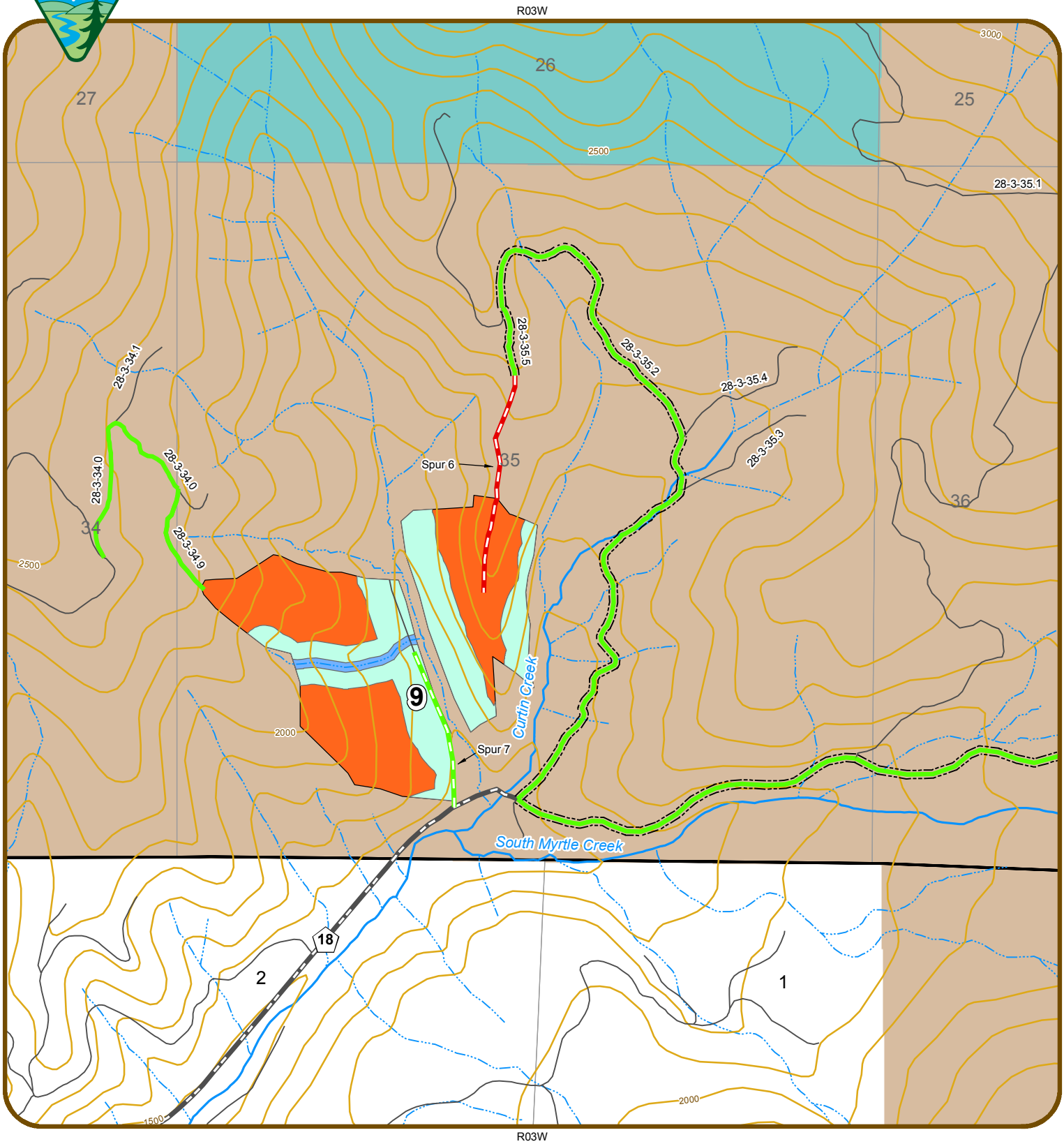
Wiley Turtle Units and Roads



Construct-Decommission
Renovate/Maintain-Retain
Renovate/Maintain-Decommission
County Roads
Existing Road
Road to be Daylighted
100' Contours
Streams
Major Stream

Upland Variable Density Thinning
Riparian Reserve Variable Density Thinning
No Harvest Stream Buffer
Connectivity/Diversity Block
General Forest Management Area

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Miles

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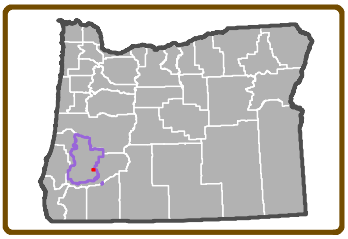
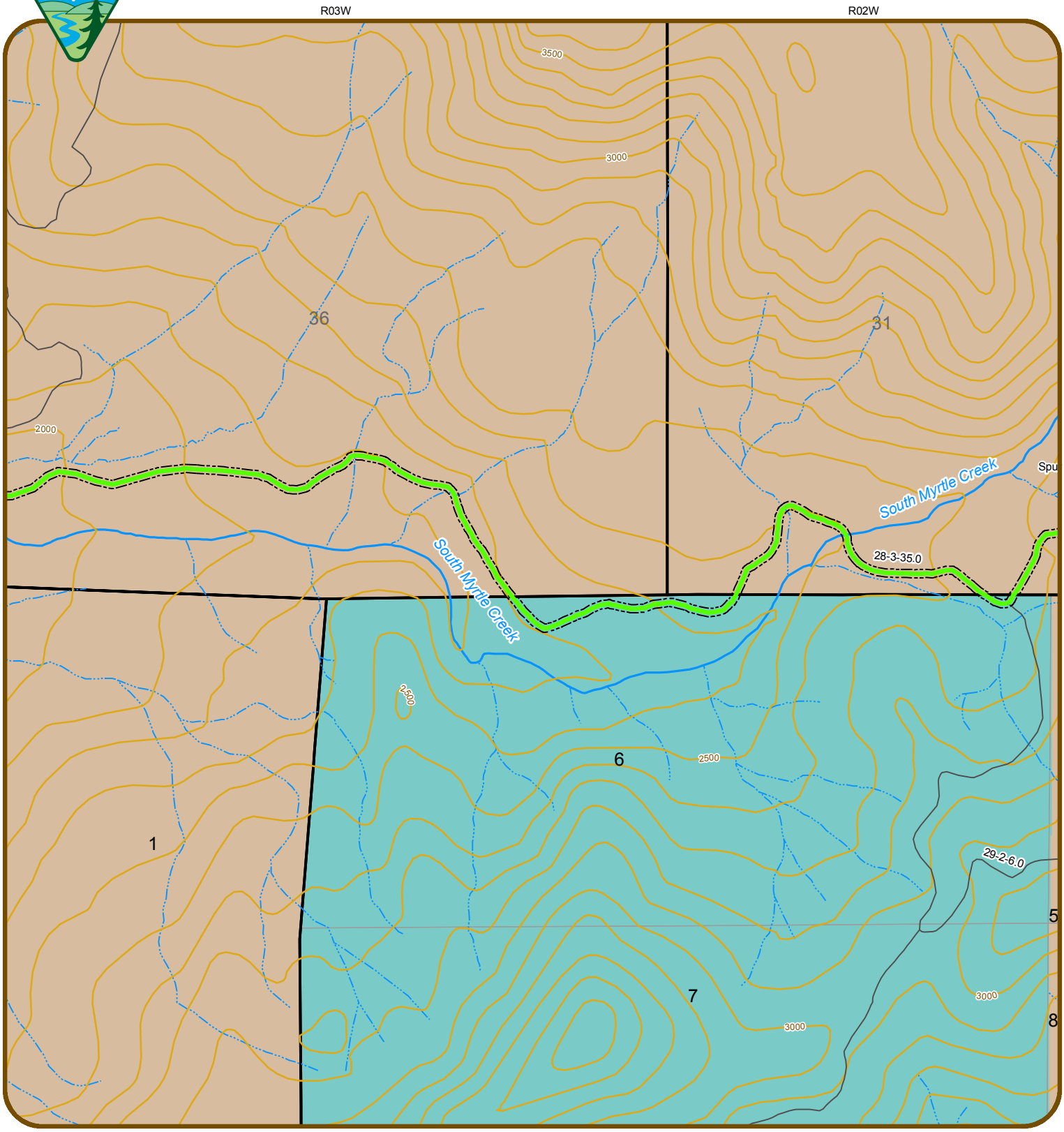
Date: 8/11/2015



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.

Wiley Turtle Units and Roads

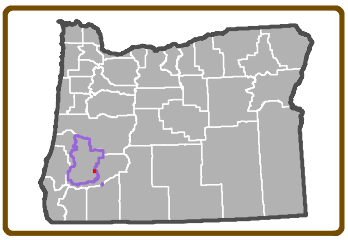


Renovate/Maintain-Retain
Existing Road
Road to be Daylighted
100' Contours
Streams
Major Stream
Connectivity/Diversity Block
General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N
W E
S

Date: 8/11/2015



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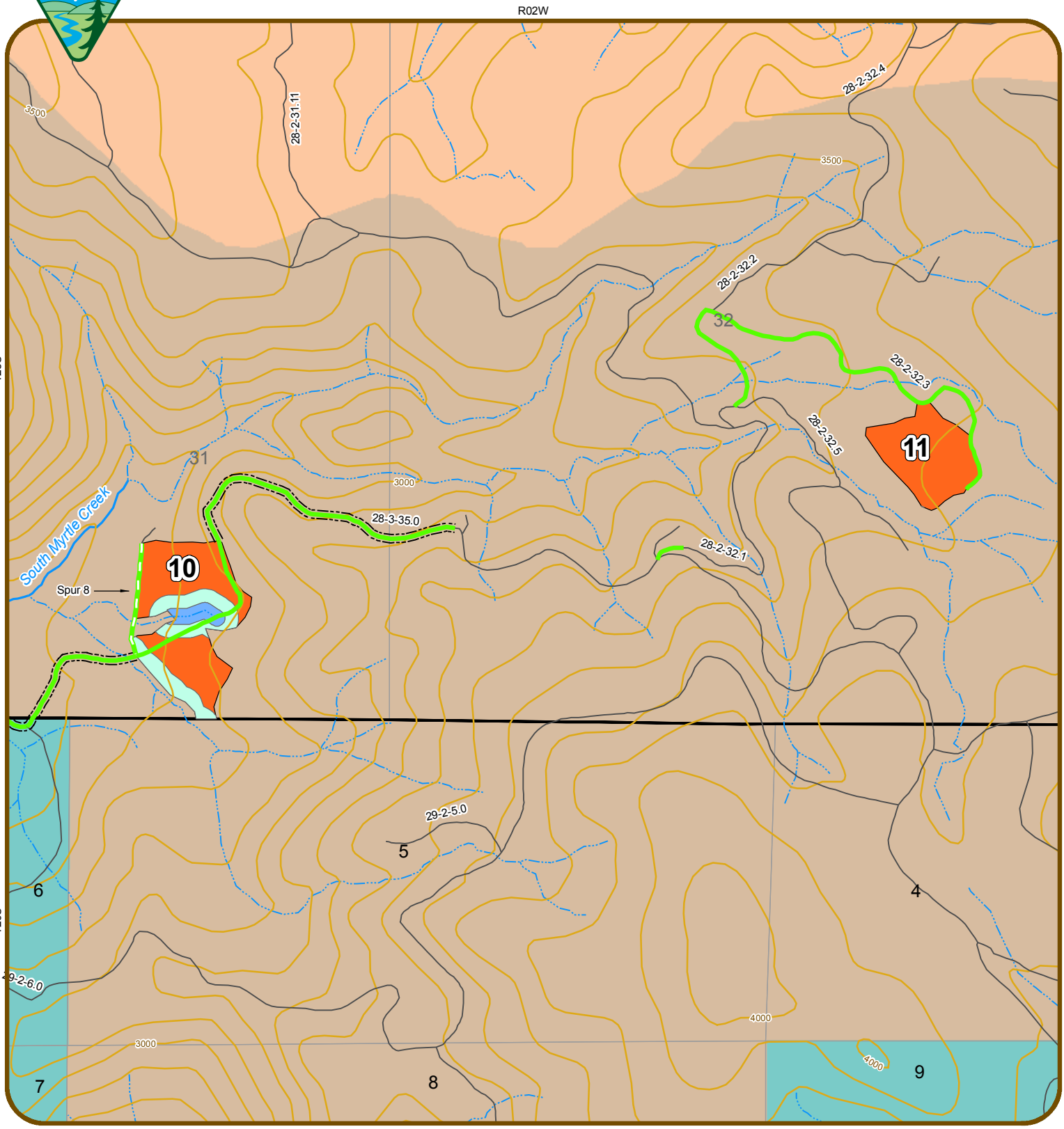
Wiley Turtle Units and Roads



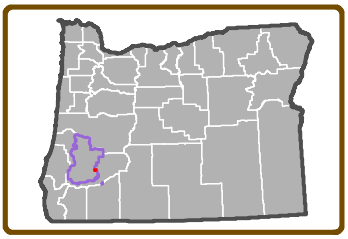
Renovate/Maintain-Retain
Renovate/Maintain-Decommission
Existing Road
Road to be Daylighted
100' Contours
Streams
Major Stream

Upland Variable Density Thinning
Riparian Reserve Variable Density Thinning
No Harvest Stream Buffer
Adaptive Management Area
Connectivity/Diversity Block
General Forest Management Area

0 0.05 0.1 0.2 0.3
Miles

N
W E
S

Date: 8/11/2015



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Appendix B

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

We received eight unique letters on the Myrtle Creek Harvest Plan Environmental Assessment; three unique letters on the **2015** Revised Myrtle Creek Harvest Plan EA; **and four comment letters on the 2016 Revised Myrtle Creek Harvest Plan EA (2016 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 Wiley Turtle Timber Sale. All EA page numbers referenced in the BLM Responses refer to the **2016 REA**.

1. Unit Specific Comments

Comment 1a: "*Units 29-4-03C and 29-3-15C are proposed for Variable Retention Harvest and are under 60 years old. Many other units are under 80 years old…The two units mentioned above, and other units, have not met the culmination of mean annual increment (CMAI)."*

BLM Response 1a: All of the variable retention harvest units in the Wiley Turtle Timber Sale, displayed in Table 1 of this document, comply with the ROD/RMP direction because all of the variable retention harvest units under Alternative Two Modified, the selected alternative, are less than 80 years old and are at least 60 years old prior to harvest. Units 29-4-03C and 29-3-15C are not included in the Wiley Turtle Timber Sale. See BLM Response 4d.

Comment 1b: "*Several units have small corners of matrix on the other side of riparian reserves, so that yarding those small matrix corners means dragging the logs through the reserves. Examples are the NW corner of unit 29-3-03A, and the NE corner of unit 28-4-29A. These matrix corners should be dropped to protect the adjacent riparian reserves."*

BLM Response 1b: Units boundaries were refined during layout. Portions of units that were inaccessible, illogical, or uneconomical will be dropped. Unit 29-3-3A is included in Wiley Turtle Timber Sale. Activities, through the Riparian Reserve, including yarding, were analyzed in the Aquatics section of the REA (pp. 100-104). Full suspension yarding will be required over perennial streams where practicable (REA, pp.33, 100).

Comment 1c: "*Unit 28-3-35A has a trash dump in the riparian reserve. Some of the trash goes on down to the creek, including old, rusted cans and machine parts. (There is also a hornet's nest in the trash). The EA failed to consider the cumulative impacts of logging a riparian reserve dump site."*

BLM Response 1c: The BLM cultural resources crew located the trash dump while conducting surveys and determined the trash dump has no cultural resource significance. We do not manage nonsignificant, non-diagnostic, non-historic trash dumps.

Comment 1d: *"In unit 28-3-35A the road will be widened through the riparian reserve and the riparian road, just a few feet from the stream, will be the major haul road for that unit. Downhill yarding is even planned into the riparian reserve. The reserve itself is beautiful, with older trees and hardwoods that will have to be removed to widen the road. We even saw large, rare snags with numerous cavity nests that need to be cut to widen the road or cut for logger safety. Logging in this part of the unit does not promote forest heath – it severely degrades it. The riparian reserve should be dropped, and all parts of the matrix should be dropped that depend on the road in the riparian reserve."*

BLM Response 1d: BLM Road 28-3-35.A is an overgrown, existing road that will be renovated and is entirely outside of the 60-foot "no-treatment" stream buffer. There are no plans to widen the road, but the road would be renovated to its original width which would require removal of some trees that encroach on the road prism.

Topography in Unit 28-3-35A is favorable for downhill yarding to BLM Road 28-3-35.A. Topography in the unit will help minimize damage to reserve trees such that damage to reserve trees would be within contractual standards. Yarding corridors will be pre-designated and a maximum of 20-feet wide (REA, p. 33); yarding corridors will be designed to limit canopy loss in Riparian Reserves and to meet shade targets (REA, p. 105); and where practicable, full suspension over flowing streams and non-flowing streams with erodible bed and bank and jurisdictional wetlands will be required (REA, p. 105).

2. Specific Northern Spotted Owl Sites

Comment 2a: *"The BLM forgot to include an owl site in 29-3-3. The BLM wildlife biologist came to the piece of private land in that section when the owners called BLM about a spotted owl on their property, on the edge of the BLM property to be logged in unit 29-3-3A. The BLM confirmed it was a spotted owl in that location. But even though it was spotted many times at this location, it is missing from the EA map as an owl site."*

BLM Response 2a: The most recent BLM records were used to identify northern spotted owl sites in the analysis area and BLM records do not indicate an occupied site in section 3, T. 29S., R 3 W., Willamette Meridian. It is no surprise that a northern spotted owl would be seen in or near the referenced unit as it is within the home range of northern spotted owl site 4589O which was analyzed in the REA (pp. 63, 64, 78, 79, and 177). Although an owl may have been observed in or near Unit 29-3-3A, it does not constitute an occupied site. The BLM designates northern spotted owl sites based on presence of breeding northern spotted owls, the presence of young before dispersal, the repeated location of a pair during a single season or over several years, or some other strong indication of continued occupation. The repeated detection of a single owl during the same season or over several years usually does not warrant a site designation.[4]

Comment 2b: "*We object to logging near any spotted owl site, but here BLM failed to follow the watershed analysis recommendations regarding protection of spotted owl sites. Some of the spotted owl home ranges affected by this project (e.g. 0293, 0362, 3097) are "Rank 3" (WA Table 46, EA Table 3-18) and should be lowest priority for logging."*

[4] Oregon BLM Spotted Owl Database Manual v. 1.1.26. October 13, 2010. Page 71.

BLM Response 2b: The Myrtle Creek Harvest Plan overlaps the area described in three watershed analyses (REA, p. 2). The Myrtle Creek Watershed Analysis was completed in 2002, the South Umpqua Watershed Analysis was completed in 2001, and the Lower South Umpqua Watershed analysis was completed in 2000. The northern spotted owl site information in the watershed analyses is outdated. Over the past 12-14 years, the BLM has continued to collect northern spotted owl information in annual surveys. The REA lists potentially affected northern spotted owl sites in the REA (pp. 63, 64, 78, 79) Using recent information, the existing conditions and effects to northern spotted owls are disclosed in the REA (pp. 61-66, 72-73, -75-81, 87-89, 127-128, 131). In addition to dropping units (REA, p. 2), project design features were developed to protect northern spotted owl sites (REA, p. 21, 22, 28, 33 and 34).

Comment 2c: *"Alternative 2 would eliminate 8 acres of dispersal habitat within core areas through VRH treatments. One of those acres, in home range 2291O, would regenerate within a nest patch. According to the EA, the nest patch has been occupied by an owl since 2009. This is unacceptable."*

BLM Response 2c: The last year NSO site 2291O was occupied by a pair of NSOs was 1990. More recent records show a single NSO has occupied the site for the past five years (2009-2013) and the site was unoccupied in 2008 (REA, p. 64, Table 3-14). Surveys in 2014 showed an incidental NSO at the site and in 2015 the site was unoccupied. Site 2291O is above the suitable habitat viability thresholds at the core area and home range scales (REA, p. 63, Table 3-13). Alternative Two would remove one acre of NRF habitat in site 2291O with variable retention harvest. Under Alternative Two Modified, the selected alternative, variable density thinning will be applied to approximately one acre of NRF habitat in site 2291O and the viability status of the site will not change (REA, p.79).

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 Wiley Turtle 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 Wiley Turtle project, with the exception of three road segments (approximately 0.3 miles) is within harvest units. All of the road construction in the Wiley Turtle project is in stands 80 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 affects 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 Wiley Turtle 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."

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

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

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: 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 Wiley Turtle 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: "*Regen logging of mature forests truncates the full cycle of forest development that includes density dependent and density independent mortality, gap formation, understory establishment, biomass accumulation, snag creation, etc...*"

BLM Response 4a: Age class distribution displayed in Table 3-12 (REA, p. 60) shows there is no shortage of older forests in the GFMA portion of the analysis area compared to desired conditions. Forests older than the 90 year 10-year age class exceed desired conditions (REA, p. 60) by approximately 17 percent.

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

BLM Response 4c: See BLM Response 9a.

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

BLM Response 4d: 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*[5] *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.

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."*

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[5] Myrtle Creek Harvest Plan EA page 22.

BLM Response 5g: As of 2015, Alternative Two Modified includes two units (29-4-13B and 28-2-32A) in the Wiley Turtle 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

Comment 6a:

> **"***Concerning Unit 29-3-03A and the harvest proposals made by BLM for this unit, UW notes on page 4 of the Draft FONSI, section 4, The degree to which the effects on the quality of the human environment are likely to be highly controversial - 40 CFR 1508.27(b) (4) This section, in UW's reading, provides consideration of, and affords protection to, adjoining landowners. It goes so far as to mention protection of surface water rights and encourages such homeowners to share any and all concerns regarding management proposals with the BLM. As UW understands it, the landowners in question shared their concerns, in writing and via face to face meetings, on several occasions with the BLM.*
>
> *From the Draft EA itself, we note on page 6, where BLM states: Consider the interests of adjacent and nearby rural landowners, including residents, during analysis, planning, and monitoring related to managed rural interface areas. These interests include health and safety, improvements to property and quality of life. Determine how land owners might be affected by activities on BLM-administered lands. From even a cursory reading of this statement, a reasonable and objective reader would, in UW's studied opinion, infer a special and detailed concern, by the BLM, for and care in planning management actions adjacent to the long-time home of such elderly residents as those living near 29-3-03A. Our examination of the facts of this particular case leads us to believe, at this time, that BLM has largely ignored the laudable intent of the statement quoted above and, instead, insists on proceeding with actions, we believe, most objective observers would deem harmful, inconsiderate, arbitrary, and doubtless, unneighborly, by any reasonable measure.*

Contrary to the assertion, made on page 7 of the Draft EA that: "Specific concerns were addressed through project design features", UW sees little to no evidence indicating that the BLM has addressed the specific and formally stated concerns of these elderly women. Instead, the agency has offered them empty assurances concerning their water line and other pertinent issues important to these citizen, resident landowners. Further, UW finds the proposal for Unit 29-3-03A, as outlined in the EA, highly controversial in its impact on these residents and would not be at all surprised if litigation were to arise in response to its adoption. To help avoid such an undesirable outcome, we suggest, at the least, that BLM modify its plan so as to eliminate the damage to this water line and the over all negative impact of roads and other features, such as harvest wedges, et al. on these residents. Better yet, as outlined in our initial comments regarding the true, accurate and actual context of the analysis area: there is absolutely no dearth of the 0 - 30 year age class in this analysis area and thus, no need to create more of the same by means of regeneration harvest of whatever stripe. For pity's sake, have a heart. Please drop this unit from further consideration in the harvest plan."

BLM Response 6a: See BLM Response 6b.

Comment 6b: "*We also feel dismayed, even somewhat betrayed, about the scant attention paid in the EA to the vulnerabilities we face as adjacent landowners with proposed VRH logging in unit 29-3-3A to our immediate north. There is definitely impact to the human environment involved here, and the EA does not speak to it meaningfully. We have written to you several times delineating our concerns, and spoke at length with you and your project team about our situation. The complications which we reviewed at our March 14, 2013, meeting with you seem as critical as ever.*"

BLM Response 6b: The BLM has taken considerable measures (web postings, phone calls, e-mail, mail, meetings, and field visits) to address concerns shared by the landowners adjacent to Unit 29-3-3A. The table below summarizes the BLM efforts to work with the landowners to address their expressed concerns.

Landowners' Expressed Concern	BLM Response
Primary Water Supply – Harvest may damage the waterline (~1800 feet in Unit 29-3-3A)	In response to the residence's concerns about damage to their domestic waterline, Unit 29-3-3A was designed to minimize risk to the waterline. First, the BLM reduced the amount of logging requiring yarding across the waterline from approximately 16 acres to approximately 5 acres. Then the BLM worked with the landowners during unit layout to protect the waterline by strategic placement of no harvest aggregate retention areas. In the end, 1200 feet of the 1800 foot waterline is protected. The remainder of the line will be protected through contract stipulations and administration.
Primary Water Supply – Harvest may affect water quality or quantity	Water quality and quantity analysis in the REA (pp. 7, 94-95, 105-108) indicates there would be no effect to water quality or quantity. The landowners' primary water source originates at a spring that is uphill and outside of Unit 29-3-3A and will remain unaffected.
Primary Water Supply – Harvest may interrupt water supply for domestic uses including irrigation. Summer is the peak seasonal use.	The purchaser will be held liable for any damage caused to the waterline. If the pipe is damaged, operations must be suspended immediately and cannot resume until the waterline is repaired. These measures will minimize the potential for disruptions in the residents' domestic water supply and ensure prompt restoration of the water supply if the waterline is damaged. In the pre-work meeting between the BLM and the purchaser, the BLM will strongly emphasize the importance of protecting the waterline. Unit 29-3-3A would be eligible for winter logging, but this is at purchaser discretion.
Secondary Water Supply – Harvest may reduce water quantity	The secondary water supply is not an Oregon State registered water right. The secondary water supply was described by the landowners (July 29, 2014) as a small water source (1 foot x 2 foot) created by impounding an intermittent stream that is located several hundred feet from the landowners' home. The landowners indicate it is an arduous hike from the house to the secondary water supply that has occasionally been used by the landowners when the primary waterline has been inoperable (i.e. frozen). The landowners state that the secondary source is not a suitable source of drinking water but may be used for other domestic purposes (i.e. dish washing). On BLM land, there is a dry draw above the secondary water supply; therefore there would be no riparian buffering. However, within Unit 29-3-3A, one side of the dry draw above the secondary water supply is protected with aggregate retention. The other side is part of an area where 400 basal area would be retained in dispersed retention trees. The REA (p. 107) discloses that beneficial uses of water will not be affected, domestic water supply upslope and adjacent to Unit 29-3-3A will not be affected, and water quality and quantity of drinking water sources will not be affected.
Building a road into Unit 29-3-3A may threaten the landowners' privacy and safety during and following harvest.	BLM Road 29-3-3.A will be constructed, surfaced with rock, and decommissioned (REA, pp. 8 and 26).

Landowners' Expressed Concern	BLM Response
Harvest would create patches of young regeneration that can increase wildfire hazard/risk. Harvest would increase fire danger by increasing public access.	The landowners' property is downhill of Unit 29-3-3A which reduces the risk of fire moving from the unit onto the landowners' property during fuels treatment. However, densely stocked young plantations with low canopy base height can be subject to intense fires. The BLM will whole-tree yard to reduce post-harvest slash; treat post-harvest slash by burning piles in the fall or winter when moisture levels are high and fire will not creep outside of piled areas; coordinate with Douglas Forest Protective Association (DFPA) to conduct a defensible space assessment on the landowners property; and decrease planting density along the landowners' boundary. Appendix A - Maps of the Wiley Turtle Decision show the BLM (assisted by the landowners) located an aggregate retention area along the private property boundary which reduces the amount of young plantation adjacent to the landowners' property. Aggregate retention areas will break up the continuity of fuels. Variable density planting will break up continuity of planted trees. Road 29-3-3.A will be decommissioned (REA, p. 8, 26) which will reduce potential for human-caused fires. Wildland fire will always occur in forested environments and will impact people, property and resources; therefore it is unrealistic to expect the non-occurrence of wildland fires. The principal efforts for reducing home ignitions focus on management within the home ignition zone before the wildfire occurrence. The landowners' home is over 1500 feet from the BLM property boundary. Since the landowners own the home ignition zone, landowners bear the responsibility of managing the zone. As stated previously, the BLM will coordinate with DFPA to conduct an assessment within the landowners' home ignition zone and provide recommendations to increase defensibility of their home.
Broadcast burning would threaten the landowners' property and home.	The BLM will not broadcast burn Unit 29-3-3A.
Harvest would impact forest ecology in Unit 29-3-3A that is suitable northern spotted owl habitat and supports a myriad of other wildlife species.	Analysis shows Unit 29-3-3A is not suitable northern spotted owl habitat, it is dispersal habitat. Effects to northern spotted owl are described in the REA (pp. 75-81, 87-89, 127-128 and 131).
Harvest may cause landslides or instability in fragile soils.	Aggregate retention was used to protect potentially unstable soils. The REA addresses slope stability (pp. 109-110, 111-113). Existing unstable areas and areas with a high potential of instability have been excluded from harvest and road construction and tree retention will be used to maintain slope stability. "No-harvest" buffers are established along streams and due to retention of live root mass, the risk of slope instability will remain very low. The residual trees in harvested units will maintain soil stability. Accelerated tree growth, crown expansion, increased root density, and understory development will increase interception of precipitation and transpiration of moisture, providing increased protection against soil erosion and movement.
Landowners request for alternatives that do not harvest Unit 29-3-3A and one that thins the unit.	Alternatives to defer treatment (no action), thin (Alternative Three), or apply variable retention harvest (Alternative Two) in Unit 29-3-3A were considered in the REA.
Harvest would permanently destabilize the terrain or disrupt the path along the water system making waterline maintenance and repair difficult.	The soils analysis (REA, 108-115) does not indicate proposed treatments will permanently destabilize slopes in Unit 29-3-3A. Using contract stipulations, the BLM will require the purchaser to maintain the existing access path adjacent to the waterline during and upon completion of harvest operations.

Comment 6c: *"The clearcut units also harm people. For instance, the proposal will clearcut in watersheds people depend on for water (units 29-3-3A , 28-4-29A, and others).* and

The proposed logging will even interrupt waterlines bringing clean drinking water to people living adjacent to unit 29-3-3A."

BLM Response 6c: See BLM Response 6b.

Comment 6d: *"These units should be dropped completely, or only thinned. Clearcutting next to families means they will suffer smoke from broadcast burns, increased road-side herbicide spraying, decreased property values, increased fire danger and noxious weeds, and other impacts."*

BLM Response 6d: The Roseburg District Resource Management Plan (1995, p. 54) identified 8,552 acres of one to five acre lots zoned by Douglas County for residential use that are managed with special timber harvest mitigation measures, to reduce conflicts with adjacent landowners. No portions of the proposed units are located within these identified areas (ROD/RMP, Map 6).

Broadcast burning will not be used in Unit 29-3-3A. The unit is adjacent to a private parcel of land. The landowners have expressed concerns about proposed actions. The harvest unit is uphill from private property which reduces the risk of fire spreading from BLM lands. The timber from the unit will be yarded to a spur road in the center of the unit. The unit will be whole tree yarded to minimize residual fuels. Landing piles created from harvest activities will be burned in the late fall or early winter when fire would not spread beyond the edge of the covered piles (REA, p. 8).

To reduce potential production and impacts of smoke, pile burning and broadcast burning (16-24 acres) will be accomplished consistent with the recommendations and requirements of the Oregon Smoke Management Plan (REA, pp. 29 and 30). Air quality was analyzed in the REA (pp. 118, 120 and 121).

Changes in post-harvest fuel loads due to the action alternatives are analyzed in the REA (pp. 119-120). It is estimated that post-harvest fuel loads in variable retention harvest units will be 45 tons per acre, with 7.2 tons per acre being fuels in size classes less than three inches in diameter (fuels that are the primary risk for ignition and rate of spread). Thinned units under 80 years of age are predicted to have post-harvest fuel loading from 20-28 tons per acre (about 6.8-9.5 tons per acre fuels less than three inches in diameter). Thinned units over 80 years of age are predicted to have post-harvest fuel loading of approximately 43 tons per acre (about 15.9 tons per acre fuels less than three inches in diameter). Additionally, post-harvest fuel loading will be reduced through the use of machine and hand piling, and burning. Portions of one unit will be broadcast burned (REA, p. 119).

The BLM is not proposing any herbicide spraying (REA, p. 7 and 14). However, continued implementation of the Roseburg District Integrated Weed Control Plan (USDI-BLM 1995b) includes use of herbicides to treat individual noxious weeds as they are identified throughout the planning area (REA, p. 14). Since regular weed treatments would continue and preventative measures to minimize risk of introducing new weed infestations into treated areas will occur, as described in the REA (p. 14), there would be negligible changes in noxious weed populations in the analysis area under the action alternatives (REA, p. 14).

Comment 6e: "*BLM's RMP requires some protections for rural residences adjacent to BLM logging units. However, the BLM is arbitrarily restricting this consideration only to families who own less than 5 acres. If a family owns 6 or more acres, they don't qualify for these protections. We believe this is unreasonable, as all adjacent rural residences should be given the same considerations, such as no clearcutting, broadcast burning, and reduced herbicide use."*

BLM Response 6e: The Myrtle Creek Harvest Plan does not propose to clearcut, broadcast burn or use herbicides adjacent to any rural residences. During scoping, landowners at one residence shared concerns about proposed activities adjacent to their property. Their concerns were addressed in the REA (pp. 6-8). The BLM has had lengthy meetings and discussion with the landowners in which their concerns have been discussed and we have made commitments to address.

The ROD/RMP (p. 54) established direction for Rural Interface Areas which are zoned lands for 1-5 acre lots, a decision that rests with the Douglas County zoning commission. The property in question is approximately 40 acres. The REA (p. 6) elaborates on this designation and indicates that none of the rural interface areas identified by the ROD/RMP are within ¼ mile of proposed harvest units.

Comment 6g: "*One family, consisting of two older women, lives adjacent to the southern boundary of unit 29-3-03A, a VRH that will clearcut areas within the unit. One proposed clearcut area is immediately adjacent to their land, near their home and on their walking trail. The unit contains the waterline to their primary water source, and logs the hillside feeding their secondary water source. The BLM unit also contains a new road in an area of profuse OHV use. The adjacent family submitted several written comments during scoping and met in person with BLM alerting the BLM to these impacts and attempting to find solutions to prevent harm to their property and environment. The BLM did not offer adequate solutions to mitigate these impacts, and the EA entirely failed to mention or consider the impacts to this family residence and the human environment. At the very least, consideration of these impacts is required by NEPA."*

BLM Response 6g: The landowners' "walking trail" is a user-created path on BLM land along their permitted waterline. The landowners have water rights, but the terms and conditions of the use permit specifically state "The United States will not be held liable for any damage to the facilities appurtenant to authorized use caused by the general public or as a result of fire, wind or the natural disasters or as a result of silvicultural practices, timber harvesting operations, or other actions stemming from the normal land management activities of the Bureau of Land Management" (Permit Number OR 53427; section 4.m.). Nonetheless, BLM has made a commitment to the landowners to reduce the potential for damage to the waterline through unit design with the landowner's participation and require the purchaser, through contract provisions, to protect the waterline during logging (REA, p. 7).

We are uncertain what the commenter means when she says there is "profuse OHV use". The BLM recreation staff estimate OHV use in the area to be low based on professional judgment and familiarity with OHV activity across the Roseburg District. The Upper South Myrtle area is not a destination riding area identified by riding clubs or one of the riding hotspots (i.e. Hubbard Creek, Boomer Hill) on the Roseburg District. It is more likely that use is by local residents and citizens of the valley. That said, the new road that is of concern will be decommissioned after use in a manner that will discourage unauthorized vehicle use (REA, p. 8, 26).

The REA did not fail to consider scoping comments. External scoping is discussed in the REA (pp. 5-10). The BLM has had lengthy meetings with Ms. Gwynn and Ms. Blumenthal (the family) and has had continuous correspondence (web posting, phone calls, mail, e-mail, meetings, field visits) since the project was published in the Roseburg District Quarterly Planning Update on December 4, 2012. The

REA specifically addressed the comments provided by the referenced family in the REA (pp. 6-8). The REA states the project will protect water quality and quantity, and the existing waterline (p. 7) and recognizes that there are 22 domestic water rights issued by the Oregon Department of Water Resources located within one mile of areas where timber harvest and road work are proposed (p. 94). Beneficial uses of water and drinking water sources will not be affected, and there will be no cumulative degradation of water quality in the analysis area (REA, pp. 104, 107, 134). Furthermore, BLM modified the boundary of Unit 29-3-3A and tailored the tree marking to protect the waterline and property boundary with the landowners' participation. See BLM Response 6b.

Comment 6h:

> ***"****In a meeting with the BLM, the family was told that 1800 feet of their waterline (which is over ½ mile long and is their primary water source) is in the unit the BLM wants to log. The family has legal water rights and a right-of-way through the BLM property (including unit 29-3-03A). The family was told that the BLM would have to remove their waterline during logging operations but the BLM would supply them with alternate water during the interruption.*
>
> *When the BLM was surveying unit 03A, someone turned off a valve in this waterline, depriving this family of water for a significant period of time, until they could find the source of the problem. The family has never received an explanation from the BLM about why this happened. Was it malicious? Will it happen again?"*

BLM Response 6h: It is unfortunate that the landowners' water was turned off once during their 40-year history at their present location. However, there is no evidence that suggests that BLM employees maliciously turned off the landowners' water; the commenter's accusation is unfounded. Based on information from the landowners, the water valve event was not associated with preparation of this project as it occurred prior to project initiation. See also BLM Response 6b

Comment 6i: "*The BLM sale cruisers also got lost, and sprayed paint, unremovable paint onto trees on the family's land, visually degrading their beloved forest. The BLM also had no response to this obvious mistake, did not offer to remove the paint, and in the EA, failed to consider these cumulative impacts to their human environment."*

BLM Response 6i: At the time of this comment letter, the boundary of the referenced unit (29-3-3A) had not been painted nor had BLM employees cruised the unit. Cadastral surveyors had surveyed the property lines adjacent to Unit 29-3-3A, which includes blazing and spraying red paint on both BLM and private trees within an arm's length of the property line. The unit prescription marking/painting occurred with the landowners present on September 29, 2014.

Comment 6j: "*The BLM has told these elderly residents that the BLM must remove their water line through the unit for the duration of the contract, the line that has been delivering spring water for their household and farm/garden use. Could this be up to 3 years? Since the EA never considered the impacts to the human environment, or alternatives to removing their waterline, the family still doesn't know the scope of this action or the extent of impacts to their human environment."*

BLM Response 6j: In a March 14, 2013 meeting with Ms. Gwynn and Ms. Blumenthal, the BLM discussed multiple methods of addressing the landowners' concern about maintaining their primary water supply during logging. One of many options discussed was temporary removal of the waterline and providing water via a potable water truck. The viability of this option was not assessed at the time. The BLM contract provisions will require protection of the waterline. How the waterline is protected will

ultimately be determined by the timber sale purchaser. The BLM will strongly emphasize the importance of the waterline to the purchaser during the pre-work meeting as to prevent any disruption of the landowners' water supply.

In response to the landowners' concerns, Unit 29-3-3A was designed to minimize risk to the waterline. First, the BLM reduced the amount of logging requiring yarding across the waterline from approximately 16 acres to approximately 5 acres. Then BLM worked with the landowners to mark no harvest aggregate retention areas along 1200 feet of the 1800 foot waterline to reduce the vulnerability of damage to the waterline from logging; minimizing the length of the waterline exposed to logging to approximately 600 feet. Although it is within the purchasers contractual authority to take all three years of a typical contract to log the portion of Unit 29-3-3A (approximately 5 acres) east of the waterline, BLM estimates it would take approximately 30 days to log the area east of the waterline, not the duration of the timber sale contract. The Draft FONSI was published concurrent with the REA and indicates there would be no significant impacts to the human environment and the final FONSI concludes the same.

The BLM addressed the landowners' specific concerns in the REA (pp. 6-8).

Comment 6k:

> *"The ½+ mile long waterline IS the holding tank for the family; there is no additional holding tank. The BLM told the family they will provide an alternative source of water, but did not describe how this would be done. Would the BLM provide a tank to be refilled continually with imported water? The BLM should have considered in the EA how this would disrupt the lives of this family, causing impacts to their privacy, concerns about running out of water, and even contaminants in their water, such as chlorine or fluoride, that have not been in their spring water.*
>
> *The existing water line that the BLM insists must be removed was originally installed by engineering it so that it provides a constant downward flow, with sufficient water pressure for all domestic needs, including irrigation of their gardens and orchard. The BLM has not described how installing a holding tank, if that is what is planned, will provide the same water pressure without the same elevation. The BLM has not described how the replaced water will be plumbed to feed into their existing water system. Finally the BLM has not described who will reinstall the waterline after logging is complete. This must be done professionally so that the original engineered route and water pressure is restored.*
>
> *There are many issues involved in removing and replacing this water line. The BLM should have considered the problems in the EA, with alternatives or mitigations proposed, and before a final decision is made to log unit 3A. For instance, the BLM would only have to move the unit boundary a few yards west to eliminate most of the waterline problems. This would have been a reasonable alternative to disturbing this family's water source that should have been considered in the EA. The family requested this alternative during scoping, but the BLM never mentioned it in the EA."*

BLM Response 6k: See Response 6j. The REA analyzed three alternative treatments for Unit 29-3-3A: no action, variable retention harvest, and variable density thinning. The BLM has been communicating (web postings, meetings, mail, e-mail, phone calls) with the landowners regularly since December of 2012. To address the adjacent landowners concerns, the BLM modified the unit boundary which reduced the amount of harvest requiring yarding across the waterline from approximately 16 acres to 5 acres. In addition, vulnerability of the waterline to damage during harvest was reduced by tailored marking in the unit. The BLM, with the participation of the landowners, marked retention trees along all but approximately 600 feet of the 1800-foot waterline.

The proposed action will not introduced contaminants such as fluoride and chlorine into the landowners' water supply. We assume the commenter is referring to a suggestion that a potable water truck be provided to ensure the landowners have an uninterrupted water supply during logging. Implementing this option is at the purchaser's discretion. If the purchaser chooses to make these arrangements with the landowners, then, at that time, the landowners can discuss the source of the water used to fill the truck as to avoid water with additives such as fluoride and chlorine along with logistical considerations/requirements pertaining to reinstalling the waterline if the purchaser chooses to remove it during the logging operation.

Comment 6l:

> ***"****Adding to these problems is the family's secondary water source. This seasonal source provides a marginal amount of water during times their water line is frozen, broken, or has a water valve mysteriously turned off by the BLM surveyors.*
>
> *The secondary water source is located on their property, but it is fed from a draw through the BLM unit to be clearcut. The family brought this to the attention of the BLM, gave them a map, and pointed to the location where they collect the water. They made it clear at a meeting that their water collection area was below the proposed clearcut. A BLM soil scientist said at the meeting that logging above that collection source would impact it. Also, the new road construction in 3A, and the herbicides being spraying on the new road, is in the upper watershed that feeds the secondary water source."*

BLM Response 6l: Prior to conducting any analysis, in a March 14, 2013 meeting with the landowners, a BLM Hydrologist indicated harvest *could* affect the secondary water supply depending on intensity of harvest. The REA (pp. 7, 95, 98, 104, 107, 108) presents analysis for water quantity and water quantity, and discloses there will be no effect to water quantity or quality from proposed actions. Bosch and Hewlett (1982)[6] state an *increase* in water yield is observed following complete vegetation removal. Although variable retention harvest does not completely remove all vegetation, a *reduction* in water yield (the landowners' concern) is not expected as a result of variable retention harvest proposed in Unit 29-3-3A. There will be no effect on water temperature or sediment as "no-treatment" buffers in Riparian Reserves will maintain shade and filter sediment (REA, pp. 104 and 105).

It is unfortunate that the landowners' water was turned off once during their 40-year history at their present location. However, there is no evidence that suggests that BLM employees maliciously turned off the landowners' water; the commenter's accusation is unfounded. Based on information from the landowners, the water valve event was not associated with preparation of this project as it occurred prior to project initiation.

Comment 6m: "*The EA failed to describe how the BLM would protect families with water rights in the project area, as well as people just walking along BLM roads that are subject to herbicide spraying."*

BLM Response 6m: The REA explains that herbicide application is ongoing with implementation of the Roseburg District Integrated Weed Control Plan (USDI/BLM 1995b, DOI-BLM-OR-R000-2013-0003-DNA and referenced NEPA documents within). The effects of implementing the District Integrated Weed Control Plan on drinking water supplies and human safety are addressed in the Roseburg District Integrated Weed Control Plan EA (USDI/BLM 1995b). BLM herbicide application treats individual plants. Application methods are limited to truck-mounted sprayers, backpack and hand sprayers, and

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[6] Bosch, J.M. and Hewlett, J.D., 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. J. Hydrol., 55:3-23.

wick wipers. Time and location of application is restricted based upon forecast weather conditions, proximity to live water and riparian areas, and proximity to residences or other places of human occupation (REA, p. 14). Additional, information on the impacts to drinking water and human health have been analyzed at the programmatic level at the national level in the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (USDI/BLM 2007) and at the state level within the Vegetation Treatments Using Herbicides on BLM Lands in Oregon (USDI/BLM 2010). Based on the risk assessments, there is no risk to human health at typical or maximum rates of the three chemicals currently approved for use within the Roseburg District due to dermal exposure of contaminated vegetation or the consumption of contaminated ambient stream water (USDI/BLM 2010, p. 103).

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."*
>
> **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 (see response to comments 6j, 6k, and 6m) and disruption of drinking water supply to the referenced landowners will be avoided to the greatest extent practicable via contract stipulations and administration. The referenced road segment (0.22 miles) near the landowners' home is approximately 0.33 miles from their home and will be decommissioned after use, which will include taking reasonable measures to discourage unauthorized use (REA, p. 8).

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.

Northern spotted owl habitat is not being removed to create early-seral habitat (see response to comments 10c, 17b, 19d, and 19f). Thinning will occur in forests that will benefit from treatment (see response to comments 9a and 9b). No variable retention harvest will occur in stands less than 60 years old (see response to comments 1a). 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 known to occur in the analysis area (See BLM Response 19e).

8. Regeneration Harvest

Comment 8a: *"The REA fails to closely examine the rationale for regen logging, or consider the significant adverse effects of regen logging, nor does the REA consider alternative ways to enhance early seral habitat that do not require sacrificing mature forests."*

BLM Response 8a: The BLM has not identified development of early seral habitat as a purpose or need of this project. Five purposes and needs for the proposed action are clearly described in the REA (p. 2): 1) produce forest products from the Matrix, 2) promote tree survival, tree growth and forest health in the Matrix, 3) promote habitat diversity in Matrix, 4) manage the GFMA for a balanced distribution of age classes, and 5) increase habitat diversity in Riparian Reserves.

Contrary to the commenter's intimation, the proposed action does not include any harvest in Late-Successional Reserves (REA, p. 19 and 20) so there will be no direct effects to Late-Successional Reserves. Green tree and snag retention are described in Chapter Two (REA, 23-24) and will comply with the ROD/RMP direction (pp. 38, 64-65). The proposed action addresses the purposes and needs listed in the REA, and the effects of implementing the proposed action and alternatives to the proposed action are described in Chapter Three of the REA. The Draft FONSI indicates no significant impacts were identified as does the final FONSI.

Comment 8b: *"The effects of regen harvest are more significant than thinning (or no action/conservation) in terms of: habitat destruction and fragmentation, soil erosion, soil compaction, degraded soil foodweb, degraded water quality, future snag recruitment, edge effects including blowdown, rain-on-snow effects including peak flows, degraded scenic values, release of sequestered carbon pools, lost wilderness potential, and increased fire hazard."*

BLM Response 8b: Chapter Three discloses the effects of three analyzed alternatives on vegetation, wildlife species and habitat, aquatic resources, soils, fuels/air, and carbon storage and release (REA, pp. 38-136). Botanical resources, cultural resources, recreation resources, visual resources were addressed in Chapter One (REA, pp. 11-15).

The REA (p. 23-25) describes the harvest prescription for variable retention harvest and indicates 20-30 percent of the pre-harvest basal area would be retained. Areas of high biodiversity will be candidates for aggregate retention (REA, p. 23 and 24).

The "no-treatment" areas would continue to prevent sediment from reaching streams, and would maintain streamside shade (REA, p. 99). Variable retention harvest in the uplands would have no effects on Riparian Reserves and "no-treatment" areas within them would prevent effects to fish (REA, p. 99). Alternative Two variable retention harvest would have no effects to any fish species (REA, p. 99). The combination of an improved road system, vegetated ditchlines, and project design features is expected to prevent detectable quantities of sediment delivery to the aquatic system (REA, p. 101). There would be no adverse effects anticipated to critical habitat (REA, p. 104).

Existing unstable areas and areas with a high potential of instability have been excluded from harvest and road construction, or tree retention would be implemented to help minimize soil disturbance and maintain slope stability or unit-specific design features (REA, p. 35) would be used to maintain soil stability in areas known to be unstable (REA, p. 111). Identified unstable areas within units would be avoided during harvest by excluding them from harvest (REA, p. 112). Project Design Features (REA Chapter Two) and Best Management Practices would help maintain slope stability, minimize surface disturbance, minimize soil displacement and erosion, and protect soils/growing sites, therefore the risk of slope failure and landslides in proposed harvest areas would be low (REA, p. 112). Steeply incised and seasonally saturated slopes would be protected in established Riparian Reserves (REA, p. 112).

Peak flows were discussed in REA (p. 98, 107-108) and the analysis shows implementing an action alternative will not exceed thresholds for road density or clearcut area in the analysis area. Most in-stream wood comes from within one site potential tree height of the channel (Naiman et al. 2002) (REA, p. 102). Thinning would, over time, accelerate growth and development of larger trees close to stream channels with the potential to contribute habitat forming in-stream wood. Trees within the "no-treatment" areas would continue to provide adequate small wood as large trees develop in treated areas. Gaps and openings created in riparian stands outside of the "no-treatment" areas would mimic natural disturbance events, favor development of large trees, and allow development of understory vegetation that would provide deciduous leaf litter for stream invertebrates. (REA, p. 102-103).

Soil displacement and/or compaction in ground-based variable retention harvest units would be less than 10 percent of each unit, within the ROD/RMP guideline (REA, p. 122). Identified native-surface landings and compacted equipment areas free of logging slash, heavily compacted skid trails, and road segments designated for decommissioning would be subsoiled to reduce compaction (REA, p. 114). In areas to be cable yarded, one-end log suspension will help minimize surface and soil disturbance (REA, p. 114). Variable retention harvest would primarily utilize cable yarding (approximately 287 acres). Implementation, as described in Chapter Two of the REA, would result in less than four percent detrimental disturbance in cable yarded areas (REA, p. 114). They would revegetate fairly rapidly. Any erosion of exposed soils that occurs will principally remain within the boundaries of the units (REA, p. 115).

The Myrtle Creek Harvest Plan does not propose any use of chemicals (i.e. herbicides). When the BLM does use herbicides, use is specifically targeted at noxious weeds; individual plants are treated as opposed to broadcast applications (REA, p. 7 and 14).

In the short-term, harvested units would store less carbon than untreated areas (REA, p. 124). In the first 50 years post-harvest, the active forest management proposed under Alternative Two makes a positive contribution to CO_2 sequestration compared to the current condition, as described in the REA. Carbon storage will increase 83 to 104 percent over the current condition (REA, p. 124).

Proposed activities would not measurably impair or interfere with the recreation opportunities in the analysis area because no changes to the recreation objectives and opportunities detailed on pages 55 and 56 in the 1995 ROD/RMP are proposed by this REA (p. 12).

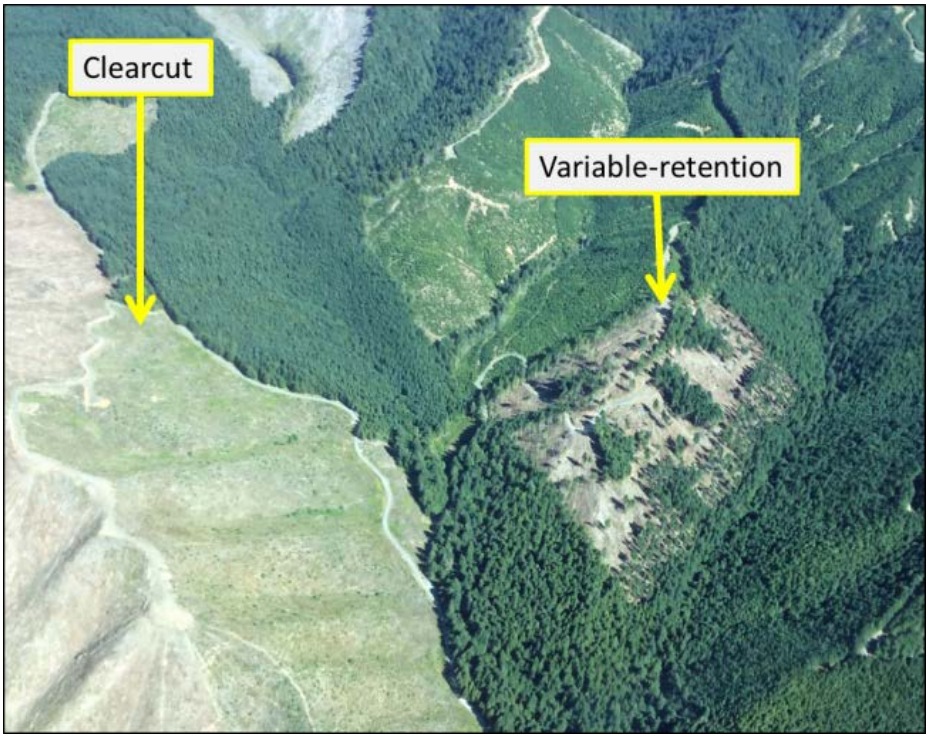
Visual quality was addressed in the REA (p. 12). All of the units in this analysis area are rated VRM Class IV. None of the alternatives would impact VRM Class IV visual (scenic) values due to the acceptably high levels of visual modification allowed in BLM-managed lands ranked as Class IV.

Comment 8c: "*Alternative 2 should not be chosen because it includes Variable Retention Harvests, similar to clearcutting, in 434 acres. Roseburg BLM has already clearcut over half of the public forests it manages, and now has an abundance of managed plantations. The BLM should not clearcut any more forests, including using VRH."*

BLM Response 8c: The *gross* acreage of the 14 variable retention harvest units in Alterative Two is 434 acres (REA, p. 2). However, this includes 73 acres of variable density thinning and 24 acres of untreated areas within associated Riparian Reserves (REA, Tables 2-1 and 2-2, pp. 19-20). Alternative Two includes 334 acres of upland variable retention harvest (REA, pp. 4 and 36). Within these 334 acres, 20-30 percent of the pre-harvest basal area will be retained in aggregate and dispersed retention (REA, p. 23). In response to EA/REA comments, the BLM reduced the amount of variable retention harvest in the selected alternative, Alternative Two Modified, which includes 236 acres of upland variable retention harvest with aggregate and dispersed retention in nine stands less than 80 years old.

Variable retention harvest is not clearcutting. Figure 3-18 of the REA (p. 57) clearly illustrates what representative variable retention harvest units will look like post-harvest. Figure 1 below shows a vivid contract between clearcutting and variable retention harvest.

Figure 1: Clearcut harvesting and variable retention harvesting are silvicultural prescriptions that clearly have stark differences.



Comment 8d: "The BLM has no business regenerating mature forest."

BLM Response 8d: The ROD/RMP establishes regeneration harvest as an appropriate silvicultural system for forests generally beginning between the ages of 80 and 110 years old in the GFMA (ROD/RMP, pp. 61, 147, and 151). Furthermore, the O&C Act Lands Act mandates management of suitable O&C timber lands for permanent forest production in accordance with the principles of sustained yield (REA, p. 1).

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 Wiley Turtle Timber Sale includes two of these units: 29-4-13B and 28-2-32A.

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[7] 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.*

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[7] 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)

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.

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

Comment 10a: *"The purpose and need for a "balanced distribution of age classes" is unsupported… BLM does not define what a balanced age-class distribution is..."*

BLM Response 10a: "…there are few young stands on BLM-administered lands resulting in an unbalanced age class distribution. The ROD/RMP (p. 61) specifies application of silvicultural systems that are planned to produce, over time, forests which have desired species composition, structural characteristics, and distribution of seral or age classes, as set forth in Appendix E of the ROD/RMP. Appendix E objectives include managing the GFMA for a balance of age classes (ROD/RMP, p. 150)." (REA, p. 3). Tables 3-4 and 3-12 (REA, pp. 39 and 60) clearly show the desired age class distribution in GFMA and that the current distribution is not balanced.

Comment 10b: *"…there are currently large areas of early and mid seral forests adjacent to the project areas and there is no need to develop additional areas (as Alternative two would accomplish)."*
BLM Response 10b: The purposes and needs for the project are described in the REA (p. 2-4); developing additional areas of early and mid seral forests is not a purpose or need identified in the REA. The BLM identified a purpose and need to manage the GFMA land use allocation for a balanced age class distribution (REA, p. 2 and 3). Table 3-12 in the REA (p. 60) shows the distribution of seral stages for each alternative compared to the desired condition for each seral stage. Because of the reduction in the amount of variable retention harvest, the seral stage distribution will shift slightly less under Alternative Two Modified when compared to Alternative Two. Under Alternative Two Modified the Non-Forest (1.6 percent of the analysis area) and 90+ years (49.6 percent of the analysis area) age class would remain unchanged. Variable retention harvest in the 40-80 year age class will contribute approximately 236 acres to the 0-30 year age class which will help balance the distribution in the 0-30 year age class.

As noted in the REA (pg. 77) "Although important components of suitable habitat (snags, down wood, hardwood, legacy conifers and residual green trees) would be retained, variable retention harvest would create conditions that would not support northern spotted owl use. Variable retention harvest would create larger openings where northern spotted owls would be subject to a greater risk of predation from other raptors until the replacement stands begin to function as dispersal habitat in approximately 40 years.

Private land management emphasizes conifer dominance. For species dependent on early-successional habitat, private lands are not expected to provide quality habitat because of intensive management practices such as heavy replanting and repeated herbicide application that are intending to exclude competing vegetation including flowering plants, shrubs and hardwoods (REA, p. 72).

Comment 10c: "*The BLM claims they need to manage the GFMA for a balanced 10-year-age class distribution. However, the EA failed to explain how this fits into the overall need to promote diversity. There is already 21.6% of the BLM lands in early seral habitat within the project area, plus the 70% of the watershed that is privately held. The project area had many NWFP clearcuts in the mid-1990s, like Lean Louis and the Louis Weaver timber sales. These units, never herbicide sprayed, and some adjacent to units in this project, already provide high-quality early seral habitat. Clearly, the BLM needs more forests for the old-growth dependent species, not early-seral species. The EA failed to explain why the BLM wants more early seral habitat."*

BLM Response 10c: The REA does not state a need to manage the GFMA land use allocation for a balanced 10-year age class distribution to promote diversity nor does the project have a purpose and need to create early-seral habitat; the BLM did not analyze a purpose and need that does not apply to this project.

The REA explains there is a need to promote diversity in the Matrix to meet ROD/RMP objectives (REA, p. 3). Under Alternative Two and Alternative Two Modified (the selected alternative), diversity will be promoted in the Matrix by applying variable density thinning and variable retention harvest. Diversity will be at the landscape scale and at the stand scale. Management of within stand diversity is described in the harvest prescriptions in the REA (pp. 21-25).

The REA also explains there is a need to manage the GFMA land use allocation for a balanced age class distribution as directed in the ROD/RMP (REA, p. 3). Additionally, Figures 4-4 and 4-5 of the PRMP/EIS (pp. 4-26 and 4-27) show the short-term and long-term early seral stage (0-10 year age class) would represent approximately 15 percent and 5 percent of the BLM-administered lands, respectively. Since there are no objectives related to early seral habitat creation related to the Riparian Reserves and Late-successional Reserves land use allocations, the burden of providing early seral habitat is on the Matrix land use allocations. Table 3-2 of the REA shows only two percent of the BLM-administered lands in the analysis area are in the 0-10 year age class. Variable retention harvest in Alternative Two makes a modest (1.4 percent and) step toward achieving a balanced age class distribution in the GFMA land use allocation (REA, p. 4) and contributes to the creation of early seral conditions as analyzed and depicted in the PRMP/EIS. Alternative Two Modified, the selected alternative, will contribute to the creation of early seral conditions in the GFMA land use allocation even though the BLM reduced variable retention harvest by 98 acres when compared to Alternative Two.

The referenced timber sales, now approaching 20 years old, were the only Northwest Forest Plan regeneration harvests conducted in the watershed and the 375 acres harvested in these two sales represents only 1.2 percent of BLM-administered lands in the watershed.

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 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."*[8] *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.

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[8] EA page 65

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 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."

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 paragraph 7 of UW comments). 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 general forest management area (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 <u>Intensity</u> 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 <u>stands will likely remain in early- and mid-seral stages across the landscape</u>" (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. The NEPA: 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).

S&M is a BLM policy, not a statutory requirement. The 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 Wiley Turtle 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 regeneration 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).

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 has been provided so the public can submit comments. The Wiley Turtle Timber Sale has no RTV suitable habitat.

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 feasible 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);. Over 40 percent green tree canopy cover would be retained in thinned units (REA, pp. 21, 22). Green tree retention in variable retention harvest units would be 20-30 percent of the pre-harvest stand basal area (REA, p. 23). 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: *"Clearcutting forests harm wildlife, especially the spotted owl since the BLM is proposing to log in its critical habitat. This project will clearcut up to 202 acres of spotted owl suitable habitat. All of these older forests should be dropped from the project."*

BLM Response 17a: Clearcutting is not proposed in the Myrtle Creek Harvest Plan. The REA analyzes the effects associated with 202 acres of variable retention harvests within suitable northern spotted owl habitat (REA, pp. 75-80). Alternative Two Modified, the selected alternative, includes 99 acres of variable retention harvest in suitable habitat.

Comment 17b: "*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 17b: 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" stream buffers are explained in the REA (p. 32). Passive management will occur in the "no-treatment" buffer 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).

There is one road segment (28-2-31.B; 0.01 miles) to be constructed and retained within Riparian Reserves, outside of the "no-treatment" area. No discernable sedimentation would be expected from road construction with the application of Best Management Practices and project design features (REA, p. 99). Road construction will not affect recruitment of large wood to streams (REA, p. 102). There will be no change in pool availability as road construction will not remove trees that will affect recruitment of pool-forming wood or impact the capacity of stands adjacent to stream to contribute large wood or small functional wood in the future (REA, p. 103). Proposed road construction will not affect fish passage (REA, p. 103). No adverse effects to coho salmon critical habitat or essential fish habitat are anticipated (REA, 103).

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 that concerns about "high-road-density problems" refer to increases in peak flow. From a peak flow perspective, there is not a 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

harvest buffers 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 t 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 are" 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).

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: 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[9], 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).

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).

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[9]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 19e: "*The EA failed to consider the impacts of this project on that endangered species. 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) was entirely outside of the Roseburg District BLM-administered lands in 2014 and is entirely off of the Roseburg District in 2015[10]. The proposed actions will have no effect on the referenced wolf pack.

Comment 19f: "*If the BLM wants even more high-quality early-seral habitat for wildlife, there are other alternatives for providing that that should have been considered, such as VDT with openings, or better, modifying practices on non-federal lands to reduce herbicide use.*"

BLM Response 19f: The Myrtle Creek project was not designed to create high quality early-seral habitat for wildlife. As suggested by the commenter, Alternative Two includes 1,005 acres of variable density thinning which accounts for over 50 percent of the proposed treatments. Alternative Two Modified, the selected alternative, includes 1,014 acres of variable density thinning, which represent 54 percent of the proposed treatments. Modifying how non-federal lands are managed is beyond the scope of this analysis and beyond the authority of this agency.

Comment 19g: "*The odd timing of this NEPA process highlights the importance of the NEPA requirement to collect and analyze relevant environmental information "before decisions are made and before actions are taken." 40 CFR 1500.1(b)*"

BLM Response 19g: The BLM complied with 40 CFR 1500.1(b) by updating the EA to inform the public of new information collected since the release of the EA in 2014 and allowing the public the opportunity to comment on the revised portions of the EA prior to making a decision. As explained in the 2016 Revised Myrtle Creek EA (p. i), the BLM has made two revisions to the original EA. The first revision (2015) shared new information pertaining to red tree voles and the second revision (2016) shared new information pertaining to northern spotted owls, including the conclusion of reinitiated consultation with the USFWS (2016).

The original Wiley Turtle Decision was issued September 3, 2015, after the release of the 2015 REA. In winter of 2015 the BLM reinitiated consultation with the USFWS. The BLM received a Biological Opinion from the USFWS on February 9, 2016. On February 11, 2016, the BLM issued the 2016 REA to share updated northern spotted owl survey information. Now, the BLM is issuing a Revised Wiley Turtle Decision.

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