2016 Revised Myrtle Creek Harvest Plan Environmental Assessment

DOI-BLM-OR-R050-2013-0003-EA
South River Field Office, Roseburg District

Finding of No Significant Impact

Overview

Northern spotted owl surveys have been ongoing since the Myrtle Creek Harvest Plan was released in 2014. The BLM has identified six new northern spotted owl sites in the analysis area. The 2016 Revised Myrtle Creek Harvest Plan Environmental Assessment incorporates analysis of the new sites, as does this 2016 Revised Finding of No Significant Impact (FONSI). The 2016 revised text is printed in blue Arial Bold font.

The **2016 Revised** Myrtle Creek Harvest Plan was designed to apply management direction from the 1995 Roseburg District *Record of Decision and Resource Management Plan* (ROD/RMP), which is tiered to the 1994 Roseburg District *Proposed Resource Management Plan/Environmental Impact statement* (PRMP/EIS).

The **2016 Revised** Myrtle Creek Harvest Plan Environmental Analysis (EA) considered a no action alternative (Alternative One) and two action alternatives. As described in the EA (pp. 21-25), **Alternative Two – Thinning and Variable Retention Harvest** applies uniformly spaced thinning to 529 acres, variable density thinning to 1,005 acres, and variable retention harvest to approximately 334 upland acres. **Alternative Three – Thinning Only** applies uniformly spaced thinning to 782 acres, and variable density thinning to 1,086 acres in the Matrix and Riparian Reserves land use allocations (EA, p. 31).

A combination of activities described in Alternatives Two and Three (**Alternative Two Modified**) in the **2016 Revised** Myrtle Creek Harvest Plan EA (pp. 18-35) was selected for implementation. The BLM made two notable changes to Alternative Two in response to public comments on the EA. The first change addresses concerns about the effects of variable retention harvest on suitable northern spotted owl habitat (stands 80 years of age or older). Alternative Two was modified by eliminating variable retention harvest in units 80 years of age and older. Upland treatments in units 80 years of age and older will include uniform commercial thinning and variable density thinning as described in Alternative Three of the EA. Units less than 80 years of age in 2015 will be treated as described in Alternative Two.

The second notable change pertains to expressed concerns about the effects of creating openings as large as one and a half acres in size within Riparian Reserves. To address concern about Riparian Reserve treatments, canopy gaps in Riparian Reserves will be no larger than 0.25 acres.

As a result of these changes, Alternative Two Modified includes approximately 1,014 acres of variable density thinning, 618 acres of uniform commercial thinning, 236 acres of variable retention harvest, and 236 acres of reforestation and stand maintenance. Forest management treatments will be conducted as described in the EA (pp. 21-25) with the exception of the gap size in Riparian Reserves. Road management, fuels management and subsoiling actions will be conducted as described in the EA (pp. 25-30). Because of the modifications to Alternative Two, the environmental effects of implementing Alternative Two Modified are anticipated to be less than those described for Alternative Two in the EA.

Appendix A – Maps of the **2016 Revised** Myrtle Creek Harvest Plan project displays unit locations and land use allocations. The location of prospective units, as indicated by individual unit identification numbers (i.e. Unit 28-8-5A is located in Section 5, T. 28 S., R. 8 W.), and land use allocations are illustrated in Tables 2-1 and 2-2 (EA, pp. 19 and 20).

Both context and intensity must be considered in determining significance of the environmental effects of agency action (40 CFR 1508.27):

Context

The project area is set in the Myrtle Creek 10th-field watershed[1], as well as the Upper Deer Creek, Days Creek, and Roberts Creek 12th-field subwatersheds, which collectively drain an area of approximately 144,230 acres. Approximately 42,800 acres or 30 percent of the area is administered by the Bureau of Land Management (BLM) Roseburg District (EA, p. 1).

Alternative Two Modified, the selected alternative, will treat an estimated 1,868 acres; as described above. These acres represent approximately 1.3 percent of all lands and 4.4 percent of BLM-administered lands in the project watersheds. The scope of the project is not considered to have any regional, statewide, national or international importance.

Stands proposed for variable retention harvest range in age, by 10-year age class, from 60 to 130 years old. The proposed treatment of stands 80 years of age or older that were identified as candidates for variable retention harvest has been modified. These stands will be thinned as provided for under Alternative Three, or dropped altogether.

Intensity

The Council on Environmental Quality includes the following ten considerations for evaluating intensity.

1. *Impacts may be both beneficial and adverse. - 40 CFR 1508.27(b)(1)*

   Alternative Two Modified could potentially have impacts that are both beneficial and adverse, but which are not considered significant as they will be within the range and scope of those effects of timber management analyzed in the 1994 Roseburg PRMP/EIS, to which the EA is tiered, and adopted by the 1995 Roseburg ROD/RMP.

   The application of uniformly spaced and variable density thinning to 1,534 acres of densely stocked forest stands, approximately 40 to 126 years of age in 2015, will improve the health and vigor of individual trees and the stands they comprise. Thinning will enhance the commercial value of timber in the Matrix land use allocations, and accelerate attainment of Aquatic Conservation Strategy objectives in the Riparian Reserves land use allocations (EA, pp. 48-60). Thinning will benefit Riparian Reserves by increasing light infiltration, because when a stream is enclosed by a conifer canopy, the ecosystem shifts to a low-quality food base whereas a more open canopy provides greater diversity of nutrient inputs (EA, p. 105). A variety of land birds will also benefit from the establishment of diverse understory conditions (EA, pp. 84-85 and Table C-1).

   In 2013 the age class distribution of BLM forest lands analyzed was approximately 20 percent of early-seral forest, 29 percent of mid-seral forest, and 50 percent late-seral forest (EA, pp. 39 and 60). Due to fire exclusion and the limited amount of regeneration harvest (approximately 525 acres) in the analysis area over the past two decades, there has been an overall decline in the abundance of early-seral forest with legacies (i.e. large down wood, snags and green tree retention) created by NWFP regeneration harvest that provides complex early-successional habitat with a roughly equal increase in mid-seral forest and a gradual increase in mature and late-seral forest (EA, p. 59).

1The 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.

The desired age-class distribution for lands managed by the Roseburg District depicted in the PRMP/EIS (Chapter 4-26 & 27) reflects the entire land base managed by the District. As no regeneration harvest is scheduled or authorized in Riparian Reserves and Late-Successional Reserves, only regeneration harvest in the Matrix Allocations and the Little River Adaptive Management Area provide the opportunity to create early (0-10 years) and mid (20-40 years) stages of forest succession.

Variable retention harvest, under Alternative Two Modified will create up to 334 acres of complex early-successional habitat in the analysis area. This shift in age class distribution represents a small contribution toward achieving the desired age class distribution on the landscape while promoting development of early-successional forest habitat for pollinators, resident and migratory bird species, small mammals (EA, pp. 80, 84-85 and Table C-1), and large mammals (EA, Table C-1) dependent upon or associated with this successional stage of forest development.

Thinning and variable retention harvest will provide timber for manufacturing that will include a wider range of log sizes and grades that will allow for manufacture of specialty timber products. This will, in turn, provide a diversity of employment opportunities which will provide wages to timber workers and employees in associated industries, and generate tax revenues for local, state and federal governments.

Potential beneficial or adverse effects to species listed under the Endangered Species Act, and critical habitat designated for their survival and recovery are addressed below at consideration *9.*

2. *The degree to which the proposed action affects public health or safety. - 40 CFR 1508.27(b)(2)*

The project involves timber harvest in a rural setting, removed from urban and metropolitan areas, on a landscape of Federal and private lands principally managed for timber production, and as such is not expected to have any demonstrable effects on public health and safety.

As described (EA, p. 116), nineteen harvest units are located in the Wildland Urban Interface as defined by the Douglas County Community Wildfire Protection Plans. Fuels reduction actions will be taken to reduce fire risk within these areas (EA, pp. 29-30 and 36).

There will be no cumulative or long-term effects on air quality resulting from prescribed burning. Smoke management from pile burning would adhere to the Oregon Smoke Management Plan (EA, 29). As described in the EA (pp. 29 and 119), pile burning will be accomplished in the autumn or winter months during unstable weather conditions when winds and atmospheric instability favor rapid smoke dispersion, and precipitation washes particulates from the air. Burning under an inversion or otherwise very stable conditions will be avoided to minimize the risk of smoke settling into the valleys or along roadways and persisting for an extended period of time. Potential impacts to air quality within one-quarter to one mile of units are expected to persist for one to three days and will be characterized by some haziness.

Jackpot burning in variable retention harvest units may result in longer burning phases exceeding 15-20 hours. However, burning when winds and atmospheric instability favor rapid smoke dispersion will limit the duration and extent of impacts to air quality. In the event of a forecast inversion, aggressive mop-up will be employed to reduce the risk of an extended period of impacts to the local airshed (EA, p. 119).

Project location and design criteria will ensure there are no impacts on water quality or quantity, thus protecting 22 domestic water rights issued by Oregon Department of Water Resources that are located within one mile of areas where timber harvest and road work will occur (EA, pp. 7, 93, 104-106). A domestic water supply line is located in Unit 29-3-3A, originating at a spring that is uphill and outside of the harvest unit. In response to the residence's concerns about the quality and quantity of their domestic water, Unit 29-3-3A was designed to minimize risk to the waterline[2]. 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 waterline will be protected through contract stipulations and administration. 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 fixed. The existing access path adjacent to the waterline will be maintained during and upon completion of harvest operations. 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 by harvest operations.

Herbicide use is not proposed in the Myrtle Creek Harvest Plan EA. The BLM uses herbicides addressed by the *Roseburg District Integrated Weed Control Plan* (USDI/BLM 1995b). The BLM is only authorized to use herbicides for noxious weed control that generally involves the treatment of individual plants, does not allow for aerial application, and employs additional protective measures in proximity to bodies of water (EA, p. 7). The time and location of herbicide 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 (EA, p. 14). For these reasons, herbicide use would not be a public health or safety issue associated with this project.

3 Unique characteristics such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. - 40 CFR 1508.27(b)(3)

Cultural resource inventories within proposed harvest units and locations of proposed road construction are complete (CRS Nos. SR1302, SR1303, and SR1411). One documented site (35DO86) and two previously undocumented sites (OR-10-317 and 35DO1457) are present. Sites 35DO86 and OR-10-317 will be excluded from harvest units and road location will avoid the sites. Site 35DO1457 was recently evaluated and determined to be ineligible for listing in the National Register of Historic Places, and does not require any future management for the purposes of this project.

If any objects of cultural value (e.g. historic or prehistoric ruins, graves, fossils, or artifacts) are found during the implementation, operations will be suspended until the materials and site(s) have been evaluated to determine any appropriate mitigation action. In this way, no cultural or historic resources will be affected by this project (EA, p. 15).

As discussed in the EA (p. 36), the project area does not contain any **parklands or prime farmlands**. There are no **Wild and Scenic River** segments, either designated or proposed, in the project watersheds. **Wetlands** will be protected by establishment of Riparian Reserves, at a minimum, or by exclusion from the project. No ecologically critical areas exist in proximity to any proposed harvest units.

[2] The terms and conditions of the residents' rights-of-way grant (OR 53427) 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 the result of fire, wind, or the natural disasters or as a result of silvicultural practices, timber harvest operations, or other actions stemming from the normal land management activities of the Bureau of Land Management."

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)*

The BLM has conducted timber management across western Oregon for decades. The environmental effects from implementation of Alternative Two Modified are expected to be consistent with those of the published literature cited in the EA, and the scope of effects considered and analyzed the 1994 Roseburg District PRMP/EIS, and adopted by the 1995 Roseburg District ROD/RMP. These effects are not expected to be highly controversial, in a scientific sense. However, the Roseburg District BLM acknowledges that there may be social controversy or differences of opinion regarding the proposed action, but this does not equate to scientific controversy over the nature of effects of the proposal. No unique, appreciable, or serious questions regarding scientific controversy have been identified regarding the effects of the proposed action. The BLM is aware that the fundamental nature of science requires disagreement and vigorous debate, and as a result some disagreement will always be present in any scientific discussion.

The public was afforded multiple opportunities to comment on this project. A notice of project initiation was published in the Roseburg District Quarterly Planning Update (Winter 2012), informing the general public of the nature of the proposed action. 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. They were encouraged to share any concerns or special knowledge of the project area that they may have (EA, p. 5).

Letters were sent to the Confederated Tribes of Grande Ronde, Confederated Tribes of Siletz Indians and Cow Creek Band of Umpqua Indians requesting identification of any special interests or legal rights in the lands in question. No responses were received (EA, p. 5).

Although formal scoping for an environmental assessment is not required, the South River Field Office accepted informal scoping comments over the course of the project analysis. Three sets of comments were received from one organization, and a single set of comments was received by a second organization. The comments were given due consideration (EA, pp. 6-10). Some expressed disagreement with the BLM timber management program, but none established scientific controversy.

The CEQ guidelines related to controversy refer not to the amount of public opposition or support for a project, but to a substantial dispute as to the size, nature, or effect of the action. The 1994 Roseburg District Proposed Resource Management Plan Environmental Impact Statements (PRMP/EIS; USDI/BLM 1994; p. Appendices 233) projected effects for 11,875 acres of regeneration harvest in the first decade (1995-2004) and 11,193 acres of regeneration harvest in the second decade (2005-2014). In actuality, the Roseburg District offered and harvested 1,825 acres of regeneration harvest (15 percent of the projected amount of regeneration harvest) in the first decade and 194 acres of regeneration harvest (1.7 percent of the projected amount of regeneration harvest) in the second decade. Under the PRMP/EIS, the projected effects in the third decade (2015-2024) were based upon 9,808 acres of regeneration harvest. The Myrtle Creek Harvest Plan project is one of the first projects in the third decade, and includes 2.4 percent of the projected decadal regeneration harvest. Given the discrepancy between the acreage of regeneration harvest assumed within the effects analysis of PRMP/EIS and what the Roseburg District has actually implemented, it is clear that the incremental effects of the harvest proposed in the Myrtle Creek Harvest Plan project are well within the effects of the total regeneration harvest projected in the Roseburg District PRMP/EIS.

The EA contains analysis of effects on relevant elements of the human environment. The BLM will apply variable retention harvest to 236 acres of forest less than 80 years old, 98 acres fewer than was analyzed under Alternative Two in the EA. The effects associated with this project are described at the site-specific level in the EA and the magnitude of those effects is less than described for Alternative Two because the intensity of harvest on 103 acres was reduced. The effects are not scientifically controversial because these stands are structurally simple and less than 80 years old. Project activities will not occur in highly complex northern spotted owl habitat (EA, p. 2). Seasonal restriction will prevent potential disturbance to nesting northern spotted owls (EA, pp. 33). Therefore, the proposed action is consistent with the Revised Recovery Plan for the Northern Spotted Owl (2011 Recovery Plan; USDA/FWS 2011) recommendations for active management and application of disturbance based principles to promote ecological goals (EA, p. 81).

The BLM is also aware that the 2011 Recovery Plan uses the word 'controversy' in its discussion of northern spotted owls and ecological forestry (p. III-11). A thorough reading of the full discussion in the 2011 Recovery Plan, however, reveals that the controversy is not related to the size, nature, or effect of ecological forestry, but instead to the ongoing societal controversy over managing Pacific Northwest forests. Correspondingly, the 2011 Recovery Plan identified that:

> The [U.S. Fish and Wildlife] Service continues to recommend that active forest management and disturbance-based principles be applied throughout the range of the spotted owl with the goal of maintaining or restoring forest ecosystem structure, composition and processes so they are sustainable and resilient under current and future climate conditions in order to provide for long-term conservation of the species. The majority of published studies support this general approach for Pacific Northwest forests, although there is some disagreement regarding how best to achieve it. We received widely varying recommendations for meeting this goal from knowledgeable scientists. Most of this variance in opinion is due to the scientific uncertainty in: (1) accurately describing the ecological "reference condition" or the "natural range of variability" in historical ecological processes, such as fire and insect outbreaks across the varied forest landscape within the range of the spotted owl (e.g., see Hessburg et al. 2005, and Keane et al. 2002, 2009); and (2) confidently predicting future ecological outcomes on this landscape due to rapid, climate-driven changes in these natural processes, with little precedent in the historical (or prehistoric) record (Drever et al. 2006, Millar et al. 2007, Long 2009, Littell et al. 2010). These are very real problems that should be addressed with more research (Strittholt et al. 2006, Kennedy and Wimberly 2009). In the meantime, addressing this uncertainty in a careful but active manner is the challenge of this Revised Recovery Plan and of forest management in general (See 2011 Recovery Plan at III-13).

While the U.S. Fish and Wildlife Service (Service) in the 2011 Recovery Plan identified differences of scientific opinion regarding the informational needs for active forest management to achieve the goals of forest restoration for achieving northern spotted owl recovery, this difference in scientific opinion does not rise to the level of a highly controversial scientific debate that requires an EIS for this project. The difference of opinion on informational needs does not demonstrate a scientific controversy over using active forest management to restore ecological processes. As the 2011 Recovery Plan stated: "There is a scientific and social consensus emerging that land managers must restore more sustainable (resistant and resilient) ecological processes to forests at various landscape scales (Hessburg et al. 2004, Millar et al. 2007, Long 2009, Moritz et al. 2011) (See RPNSO at III-12)." The Service's 2011 Recovery Plan identification of "consensus" on this issue demonstrates that there is no serious question on whether scientific controversy exists over the use of active forest management through projects

like the proposed action to achieve long-term northern spotted owl recovery. This kind of policy debate is a sign of healthy discussion, but not of controversy as NEPA uses the term, and thus is not evidence of a substantial dispute over the size or nature of proposed action effects. The 2011 Recovery Plan goes on to state that:

> Federal land managers should apply ecological forestry principles where long-term spotted owl recovery will benefit, even if short-term impacts to spotted owls may occur (Franklin et al. 2006) to improve the resiliency of the landscape in light of threats to spotted owl habitat from climate change and other disturbances. This includes early-successional ecosystems on some forest sites (Swanson et al. 2010, Perry et al. 2011) (See 2100 Recovery Plan at III-14, EA p. 2).
>
> [M]anagement designed under an ecological forestry framework should avoid existing high value habitat, if possible, while meeting long-term restoration goals. Within provincial home ranges but outside core-use areas, opportunities exist to conduct vegetation management to enhance development of late-successional characteristics or meet other restoration goals in a manner compatible with retaining resident spotted owls. Restoration activities conducted near spotted owl sites should first focus on areas of younger forest less likely to be used by spotted owls and less likely to develop late-successional forest characteristics without vegetation management. Vegetation management should be designed to include a mix of disturbed and undisturbed areas, retention of woody debris and development of understory structural diversity to maintain small mammal populations across the landscape (See 2011 Recovery Plan at III-17).

Thus, the reasoning of the 2011 Recovery Plan supporting management action defines the low level of controversy connected to the proposed action. Again, the controversy referenced in the 2011 Recovery Plan reveals that references to "controversy" are largely referring to the social controversy of implementing active forest management to achieve restoration goals. The 2011 Recovery Plan does identify differences in scientific opinion about information needs associated with implementing such actions, but not whether such actions should be undertaken; particularly in younger stands outside of northern spotted owl core areas, which is generally (73% <80 years old; 23 percent >80 years old) the case of the proposed action.

While public comments generally expressed disagreement with the proposed action, none of the comments established a scientific basis for disagreement about the nature of effects that have not been analyzed within the EA and/or Biological Assessment. Comments generally centered on rhetorical questions or subjective assessments; such as the ecological need for early seral habitat, quality of habitat for the northern spotted owl, or the alternatives' connection to global climate change. These comments have been considered, and analyzed within the EA (EA pp. 5-10). The BLM is aware that social controversy is ongoing over the existence and practices of timber harvest on public lands across western Oregon. This societal debate, reflected in the comments received by the BLM and addressed as applicable in the EA (EA pp. 5-10), is precisely the public position that the CEQ guidelines have identified as not relevant to the term 'controversy' as applied to NEPA. The BLM has found that none of the comments received from the public establish a dispute over the size, nature, or effects of the action. Because those comments do not establish such a dispute, the proposed action is not controversial under NEPA.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. - 40 CFR 1508.27(b) (5)*

The effects on the human environment are not highly uncertain and this project does not involve unique or unknown risks as the BLM has been conducting timber management for many decades. When professional experience is paired with the substantial body of literature on the subject, there is little uncertainty regarding the effects. None of the public comments received indicate unique or unknown risks to the human environment. The environmental effects are fully analyzed in Chapter Three of the EA.

The 2011 Northern Spotted Owl Recovery Plan discusses scientific uncertainty regarding the informational needs for active forest management to achieve the goals of forest restoration for achieving northern spotted owl recovery, specifically (1) accurate ecological baseline information, and (2) confident predictions of outcomes of actions to restore conditions, given uncertainty in climate conditions. The 2011 Recovery Plan did not state that ecological forestry should be "tested" as a way of addressing these uncertainties, but rather these uncertainties were the reason for recommending *application* of ecological forestry (See RPNSO at II-11, III-18) as a solution for addressing those uncertainties and as a part of ensuring the best available science (which includes the recommended practice of ecological forestry) is used to benefit ecosystems and northern spotted owls in the long term. As discussed in more detail below, this project presents no serious question as to uncertain effects regarding the use of ecological forestry within the stands included in the proposed action to benefit northern spotted owls in the long-term.

The proposed action accounts for 1.3 percent of lands in the affected watersheds. Recent stand exams have been completed on all of the harvest areas and are included in the project record, so information about existing conditions in the action area is certain.

The BLM has used the best available scientific information regarding project effects and outcomes on carbon storage and release and based on that science the BLM's professional judgment and expertise. Any uncertainty in local climate conditions, or even regional or global climatic conditions, does not suggest the effects, specifically, the restorative outcomes for northern spotted owls from implementing the action, are highly uncertain, or that there is a serious question on such issues because BLM has a high degree of confidence in its prediction that the proposed action will improve long-term habitat quality, complexity, and resilience to support northern spotted owl recovery due to several factors in harvest prescriptions and unit design (EA, pp. 21-25, 32-34).

While variable retention harvest will remove approximately 53 acres of northern spotted owl dispersal-only habitat and 55 acres of suitable habitat from the landscape, project design features minimize the short-term effects to northern spotted owls. The action will improve long-term habitat quality, complexity, and resilience to support northern spotted owl recovery due to several factors in harvest prescriptions and unit design (EA, p. 77). Excluding dispersed retention trees, approximately 19 percent of the VRH units will be retained in "no treatment" Riparian Reserves and aggregates. These untreated areas along with dispersed retention trees will accelerate development of future complex habitat that will assist northern spotted owl survival in the long-term. The treated area is likely to support higher quality northern spotted owl habitat in the future because planting and in-growth will promote the development of trees with structural features that are beneficial to northern spotted owls, especially in combination with the continued presence of older trees in untreated areas (EA p. 77). In this way the proposed action would accelerate development of structurally complex forests compared to leaving the stands untreated; which barring major disturbance, the untreated stand would unlikely provide understory tree development sufficient to provide suitable two-storied or multi-layered habitat in the future (EA p. 77). In conclusion, the effects of the proposed action are not highly uncertain and do not present unique or unknown risks with regard to stand or habitat development.

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 (EA, p. 120). At the scale of western Oregon, carbon stores are predicted to increase by 169 million megagrams under the NWFP by 2106 (USDI 2008) because growth is expected to exceed harvest removals. Action area carbon flux estimates are quantified and described fully in the EA (pp. 120-124 and Appendix E). However, it is not possible with current science to estimate the effects of these greenhouse gas fluxes on the local affected environment. The U.S. Geological Survey, in a May 14, 2008 memorandum (USDI USGS 2008) to the U.S. Fish and Wildlife Service, summarized the latest science on greenhouse gas emissions and concluded, "Difficulties remain in simulating and attributing observed temperature changes at smaller than continental scales…It is currently beyond the scope of existing science to identify a specific source of CO_2 emissions and designate it as the cause of specific climate impacts at an exact location" (EA, p. 120). However, to make informed decisions, the EA includes estimates of carbon storage and release to the analysis area. Estimates of the magnitude and direction in carbon response are probably accurate, and these results may be instructive for comparing the effects of the alternatives on local (watershed-scale) carbon stores (EA p. 120-124). The effects of the action are not highly uncertain and do not present unique or unknown risks with regard to carbon storage and release.

Federal thresholds for carbon storage and release related to individual actions have not been established. Uncertainty associated with all estimates of carbon storage and release in this analysis is predicted to be circa 30 percent (2008 RMP FEIS, pg. 538). The direct release of carbon will be too small to lead to a detectable change in global carbon storage, and existing climate models do not have sufficient precision to reflect the effects on climate from such a small fractional change in global carbon storage (EA pp. 122). Alternative Two Modified will result in the direct release of carbon that is between the estimated carbon release for Alternative Two and Alternative Three; an estimated 0.0004 to 0.0006 percent of annual U.S. emissions and 0.0001 to 0.0002 percent of annual global emissions (EA, p. 122 and 124).

Taking into account the continued sequestration of carbon by trees retained in thinning units, and dispersed and aggregate retention in variable retention harvest units, re-sequestration of carbon released by harvest will occur in approximately one to eight years. In the first 50 years, post-harvest, carbon storage will increase between 256,384 and 408,436 tonnes, an increase of between 83 to 123 percent over the current condition (EA, p. 12 and 124).

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. - 40 CFR 1508.27(b)(6)*

Alternative Two Modified implements the plan-level decision made in the ROD/RMP to manage lands in the Matrix for sustainable timber production (pp. 1 and 3), and does not establish precedent or a decision in principle about future actions.

All of the alternatives described in the EA were subject to a rigorous analysis of potential environmental consequences. The future preparation, auction and award of timber sale contracts associated with Alternative Two Modified does not set a precedent or represent a decision in principle about future actions or considerations, as any new proposals for timber management will be subject to site-specific evaluation and analysis, consistent with the management direction in effect at the time.

7. *Whether the action is related to other actions with individually insignificant impacts but cumulatively significant impacts. - 40 CFR 1508.27(b)(7)*

   The interdisciplinary team considered and analyzed the alternatives in the context of past, present, and reasonably foreseeable actions. No cumulatively significant effects to the following resources are predicted from implementation of the alternatives: Recreation and Off-Highway Vehicle Use, and Visual Resources (EA, p. 12); Botany (EA, p. 13); Noxious Weeds and Non-Native Invasive Plants (p. 14); Cultural and Historical Resources (p. 15);Timber Resources (pp. 125-126); Wildlife (pp. 126-131); Fish, Aquatic Habitat and Water Resources (pp. 132-133), Soils (pp. 133-134); Fuels Management (p. 134); and Carbon Storage and Sequestration (pp. 135-136).

   As stated previously, the 1994 PRMP/EIS and 1995 ROD/RMP predicted the amount of regeneration harvest that would occur each decade, and given that less than ten percent has been implemented to date we are well below the amount of harvest authorized under the RMP, hence we are below the thresholds of significance set forth in those documents.

8. *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Historic Register or may cause loss or destruction of significant scientific, cultural, or historical resources. - 40 CFR 1508.27(b)(8)*

   As discussed above at *3*, cultural resource inventories have been completed. One documented site (35DO86) and two previously undocumented sites (OR-10-317 and 35DO1457) are present. Sites 35DO86 and OR-10-317 will be excluded from harvest units and road location will avoid the sites. Site 35DO1457 was recently evaluated and determined to be ineligible for listing in the National Register of Historic Places.

   If any objects of cultural value (e.g. historic or prehistoric ruins, graves, fossils, or artifacts) are found during the implementation, operations will be suspended until the materials and site(s) have been evaluated to determine any appropriate mitigation action. In this way, no cultural or historic resources will be affected by this project (EA, p. 15).

9. *The degree to which an action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. - 40 CFR 1508.27(b)(9)*

   There are no Threatened or Endangered **botanical species** that will be affected, as none were identified where suitable habitat exists (EA, p. 13).

   As described in the EA (p. 77), there will be no effect to the **northern spotted owl** from disturbance as seasonal restrictions will be applied as described in Chapter Two of the EA (p. 33). Alternative Two Modified will not remove any northern spotted owl habitat 80 years of age and older. Effects to the northern spotted owl will be solely associated with the modification or removal of dispersal-only habitat and modification of suitable habitat. The effects of Alternative Two Modified will be consistent with those described in the PRMP/EIS (Chapter 4-62 to 65).

   In the mid- to long-term, effects of the project are likely to enhance the quantity and quality of suitable habitat in the action area by accelerating the development of older forest with structural characteristics that should support adequate levels of northern spotted owl prey as well as provide improved habitat for nesting and roosting (EA, pp. 51-52 and 76-77).

The 42,800-acre analysis area contains 23,734 acres (55 percent) of northern spotted owl suitable habitat (EA, p. 62). Application of variable retention harvest in Alternative Two Modified will remove 97 acres of suitable habitat that is outside of critical habitat and in the Matrix land use allocations, which represents 0.4 percent of the suitable habitat in the analysis area. Additionally, under Alternative Two Modified, application of variable density thinning will downgrade 235 acres of suitable habitat to dispersal-only habitat, which is approximately 0.5 percent of the suitable habitat in the analysis area. Post- harvest, the analysis area will have approximately 23,444 acres (55 percent) of suitable habitat to support northern spotted owl use of the area.

The analysis area contains 7,619 acres (18 percent) of northern spotted owl dispersal-only habitat (EA, p. 62). Alternative Two Modified will remove 139 acres of dispersal-only habitat which represents 1.8 percent of the dispersal-only habitat in the analysis area (EA pp. 1 and 62). Approximately 235 acres of dispersal-only habitat will be produced from thinning in suitable habitat. Post- harvest, the analysis area will have approximately 7,715 acres (18 percent) of dispersal-only habitat to support northern spotted owl use of the area.

The action will improve long-term habitat quality, complexity, and resilience to support northern spotted owl recovery due to several factors in harvest prescriptions and unit design, including the fact that 20 to 30 percent of the basal area in variable retention harvest units will be retained (EA, p. 23). Untreated areas (approximately 18 percent on a unit basis) in addition to dispersed retention trees will provide dispersal connectivity. The long-term creation of complex habitat will provide higher quality habitat conditions sooner than leaving the stands untreated (EA p. 58). Planting and maintenance of in-growth at lower stocking levels will more effectively promote the development of trees with structural features that are beneficial to northern spotted owl, especially in combination with the continued presence of older trees in untreated areas and the dispersed retention trees (EA p. 21-25, 51-52, 76-77).

Uniform thinning (618 acres) will result in more uniform growth at the stand level, with little height and diameter differentiation among the dominant and co-dominant canopy classes. It will promote some growth of grasses, forbs, shrubs, and hardwoods in the understory, but this will be of limited duration persisting for five to ten years before full canopy closure is reached again and the understory is again suppressed. This period of understory response to available light, water and nutrients will provide habitat for prey species. Development of habitat components providing for nesting, roosting and foraging habitat is expected to occur in 30 to 50 years (EA, p. 76).

Variable density thinning (1,014 acres) with gaps and openings focuses on the growth of selected trees, rather than on uniform growth across a stand, leading to crown expansion and differentiation in dominant trees, release of shade tolerant species, and development of multi-layered, multi-species stand configurations, accelerating the development of suitable habitat characteristics by up to 20 years. The increase in vegetative diversity, structural heterogeneity and fine scale variation will promote development of high quality dispersal and suitable habitat. Treated dispersal-only habitat will develop into suitable habitat as canopy closure surpasses 60 percent (EA, p. 76-77). Variable density thinning will benefit northern spotted owls by increasing the abundance of some prey species and accelerating the development of suitable habitat for other prey species (EA, p. 80).

Variable density thinning and the creation of gaps will also foster understory development that will persist for up to 20 years as a result of greater levels of sunlight reaching the forest floor and a longer period of time until full canopy closure is reached again. This will accentuate habitat conditions by increasing tree growth, fostering understory flower and fruit production for prey species, maintaining more canopy connectivity, increasing woody plant diversity, and creating spatial variability (EA, p. 77).

In more heavily thinned stands, northern spotted owl use may shift to untreated areas, leading to expansion of nonbreeding home range size, reduced use of thinned areas, and a shift in foraging and roosting areas away from thinned areas near the nest tree. Expanding the home range size will require northern spotted owls to expend greater amounts of energy in foraging, as they travel longer distances in search of prey, reducing reproductive fitness (EA, p. 75).

To accelerate development of suitable habitat, 35 acres of dispersal habitat would be modified by thinning (units 28-3-17B, 29-4-11A, 29-4-11B) within the nest patch of sites 0292O and 0362D. Canopy cover in units 28-3-17B and 29-4-11B would remain above 60 percent, as described in Chapter Two (p. 21), which would maintain habitat function. Although habitat function will be maintained because 60 percent canopy cover will be retained, modification of dispersal-only habitat within the nest patch will impair its ability to contribute the amount and quality of habitat necessary to meet the nesting and reproduction requirements of the northern spotted owl (EA, p. 79). Occupancy records indicate site **0292O has been** unoccupied in 2008, 2009, 2011, 2012, and 2015. In 2010 a pair was identified at the site (no reproduction occurred); in 2013 a resident bird (pair status unknown) was identified (EA, p. 64); and in 2014 a pair was identified (no reproduction occurred). The last year of reproduction was in 2003. **Site 0362D is one of six new sites located since 2013. The site has been occupied by a pair of northern spotted owls since 2014.**

Thinning (approximately 301 acres) will occur in the core areas of **14** sites, **ten** of which are below the core area minimum suitable habitat viability threshold (EA, Table 3-20). Northern spotted owls at these sites will be most vulnerable to effects from thinning (EA, p. 78). Thinning may reduce use of the stands by northern spotted owls because of increased exposure to weather and increased risk of predation from other raptors as they move across the landscape, which will persist until the stands return to pre-thinning levels of canopy cover (EA, p. 75).

Under Alternative Two Modified, variable retention harvest (236 acres) will create areas of retention aggregates, interspersed with areas of concentrated harvest with dispersed retention. Existing levels of canopy closure will be maintained in retention aggregates, but the total basal are of the unit will be reduced to between 20 and 30 percent (EA, p. 23), which will downgrade habitat function from dispersal-only to capable.

In variable retention harvest units, 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. Development of suitable habitat will occur as the stands regenerate. Treated areas will begin functioning as dispersal-only habitat in approximately 40 years. Suitable habitat will develop in approximately 60-80 years (EA, p. 77).

Many prey species would benefit from a rapid increase in understory development resulting from proposed treatments. The increase in prey species associated with earl-successional habitats would benefit the northern spotted owl (EA, p. 80). Project implementation will affect some northern spotted owl prey species in the short-term. Retained habitat components and untreated areas (aggregates and "no treatment" Riparian Reserves) will aid in population restoration in harvested units, benefiting the northern spotted owl in the long-term (EA, p. 52 and 80).

The Roseburg District completed consultation with the U.S. Fish and Wildlife Service (Service) and the project complies with the Endangered Species Act. In two Biological Opinions (TAILS #: 01EOFW00-2013-F-0200, dated September 30, 2013 and TAILS #: 01EOFW00-2015-F-0229, dated August 5, 2015) the Service found the proposed actions will not jeopardize the continued existence of the northern spotted owl and will not adversely modify critical habitat for the northern spotted owl. **The 2016 Revised** Myrtle Creek Harvest Plan is entirely outside of marbled murrelet

management zones (EA, p. 188). These opinions cover all commercial and non-commercial treatments, and associated roadwork proposed in the Myrtle Creek Harvest Plan EA.

The BLM reinitiated consultation with the Service after recent surveys (2014 and 2015) showed six new northern spotted owl sites in the analysis area. Consultation reinitiation was completed on February 9, 2016 (#01EOFW00-2016-F-0065). The Service found that the proposed actions analyzed in the February 2016 Biological Opinion are: 1) not likely to jeopardize the spotted owl, 2) planned in a manner which incorporates recommendations of the Spotted Owl Revised Recovery Plan's Recovery Actions 10 and 32, and 3) not likely to adversely modify spotted owl critical habitat in the affected subunits (USDI/FWS 2015, pp. 1-2). The jeopardy analysis accounts for barred owl impacts on the spotted owl (USDI/FWS 2015, p. 1).

The analysis area is within the Klamath East Critical Habitat Subunit 2 (KLE-2), which is approximately 101,942 acres in size. The Roseburg District manages 69,552 acres (86 percent) of the KLE-2. Table 1 illustrates the minor changes in the distribution of northern spotted owl habitat managed by the Roseburg District in the KLE-2 following implementation of the action.

Under Alternative Two Modified, no suitable habitat will be removed or downgraded in the KLE-2. The habitat function of modified habitats (794 acres; 0.7 percent of KLE-2) will be maintained. Variable retention harvest will remove 99 acres (0.1 percent of KLE-2) of dispersal-only habitat within the KLE-2. Untreated and thinned areas on federally-administered lands will continue to provide for dispersal and connectivity between critical habitat subunits. The actions will not impair the function of the KLE-2 to facilitate movement between critical habitat units and provide demographic support because sufficient habitat will remain in the subunit and the function of modified habitats will be maintained (USDI-FWS 2013 and USDI-FWS 2015). Taking into account the current status of northern spotted owl habitat, the short-term effects of the proposed project are not likely to appreciably diminish the function of critical habitat at the provincial and range-wide scales primarily because the project impacts are relatively small in relation to the total amount of existing habitat at these scales.

Table 1: Northern Spotted Owl Habitat Managed by Roseburg District BLM in Klamath East Critical Habitat Subunit 2

	Northern Spotted Owl Habitat*			
	Suitable (%)	**Dispersal-Only (%)**	**Capable (%)**	**Non-Capable (%)**
Existing Conditions	40,993 (59%)	11,670 (17%)	15,244 (22%)	1,645 (2%)
Alternative Two Modified	40,993 (59%)	11,571 (17%)	15,343 (22%)	1,645 (2%)

*Roseburg District manages 69,552 acres (68%) of the 101,942-acre Klamath East Subunit 2

In the long-term, the treated area is likely to support higher quality northern spotted owl habitat because of managed in-growth at lower stocking levels that will more effectively promote the development of trees with structural features that are beneficial to northern spotted owl nesting, foraging, and roosting (EA, pp. 51-52, 76-77). In addition, habitat quality for some northern spotted owl prey species is expected to improve as creation of complex early-successional habitat would benefit prey species associated with the ecological edges, shrubs or hardwoods (EA p. 80).

Variable density thinning in critical habitat will accelerate development of nesting habitat and hardwoods that will support prey populations. Until canopy closure, created gaps will be large enough to allow growth of grass, forbs and shrubs used by prey species. Northern spotted owls may initially reduce use of thinned stands, but thinning will maintain habitat function and the critical habitat unit will continue to facilitate northern spotted owl movements between the western Cascades and coastal Oregon and the Klamath Mountains (EA, p. 81; USDI-FWS 2013, p. 104; USDI-FWS 2015, p. 70).

The fish-bearing portions of Myrtle Creek, Days Creek-South Umpqua and Deer Creek-South Umpqua watersheds within the analysis area are considered to be critical habitat and are occupied by **Oregon Coast coho salmon** (EA, *Appendix A – Maps*).

Variable density thinning in Riparian Reserves will have no direct effects to fish inhabiting streams adjacent to or downstream of harvest units because there will be no direct effects to the aquatic habitat (EA, p. 98). Many of the harvest units are located along ridges, well-removed from fish-bearing streams. On fish-bearing reaches bordering harvest units, a minimum 60-foot wide "no-treatment" area, measured from the edge of the stream, will be established on both sides of the streams. When taking into account changes in vegetation, or unstable soils and slopes, the "no-treatment" areas generally exceed 60 feet in width on larger perennial streams. The "no-treatment" areas will prevent sediment from reaching streams, and will maintain streamside shade.

Variable retention harvest will not be utilized adjacent to streams occupied by Oregon Coast coho salmon or other fish species. Variable retention harvest in the uplands will have no effect on the function of Riparian Reserves and "no-treatment" areas in preventing effects to fish (EA, p. 98).

The haul routes include approximately eight gravel-surfaced crossings on streams (Ben Branch, Rock, Weaver, Slide, Riser, and South Myrtle Creeks) inhabited by Oregon Coast coho salmon. Approximately 5.3 miles of gravel-surfaced haul route are located within Riparian Reserves. Any elevated stream turbidity associated with road use will be small in magnitude and short-term, not typically exceeding background turbidity levels during winter high flows (EA, p. 98)

No effects to the Oregon Coast coho salmon, critical habitat for the Oregon Coast coho salmon, or Essential Fish Habitat for the Oregon Coast coho and Chinook salmon are expected from thinning, variable retention harvest or pile burning in upland areas (EA, p. 99), although thinning in Riparian Reserves could reduce future availability of large wood as thinning will reduce the pool of trees available for future recruitment (EA, p. 99).

No discernable sedimentation is expected from road maintenance/renovation, construction, decommissioning and timber haul with application of Best Management Practices and project design features described in Chapter Two (EA, p. 99).

In order to further reduce the potential for these effects, the following project design features will be employed when and where it is deemed necessary.

- Use of native surfaced roads for timber hauling will be limited to the dry season, typically mid-May through mid-October (EA, p. 34).
- Ground covering vegetation in ditchlines in Riparian Reserves will be retained, except where sediment deposition or other obstructions require maintenance (EA, p. 34).
- Following road renovation actions, but prior to wet season haul, areas of potential sediment delivery (stream crossings) will be inspected by fisheries, hydrology, and/or engineering staff to determine if additional sediment control measures are warranted. These measures may include seasonal suspension of haul, or installation of such devices as silt fences, straw bales, or geofabric rolls (EA, pp. 34-35).
- Road conditions within Riparian Reserves and/or critical habitat for Oregon Coast coho salmon will be periodically inspected by a fisheries biologist, hydrologist, and/or engineer to evaluate the effectiveness of sediment control measures. If improvements are required to increase their effectiveness, these actions will be implemented as soon as practicable (EA, p. 35).

- The contract administrator will suspend operations before and after periods of rainfall that will result in road surface degradation or delivery of sediment generated from log haul to Riparian Reserves and/or critical habitat for Oregon coast coho salmon (EA, p. 35).

As a consequence, no effects to the Oregon Coast coho salmon, critical habitat for the Oregon Coast coho salmon, or Essential Fish Habitat for the Oregon Coast coho salmon are expected under Alternative Two Modified.

10. *Whether the action threatens a violation of Federal, State, or local law or requirement imposed for the protection of the environment. - 40 CFR 1508.27(b)(10)*

The action alternatives were designed in conformance with management direction from the Roseburg District Record of Decision and Resource Management Plan (ROD/RMP), which itself is in conformance with all applicable laws and regulations. Furthermore, the project design features described in the EA ensure that the proposed action complies with all applicable laws (ROD/RMP p. 5).

With respect to environmental justice, Alternative Two Modified is consistent with Executive Order 12898 which addresses Environmental Justice (EA, p. 11). No potential impacts to low-income or minority populations have been identified by the BLM internally or through public involvement. Employment associated with the timber sales will typically involve local contractors who engage in similar work throughout Douglas County.

Correspondence with local Native American tribal governments has not identified any known, unique, or special resources in the project areas which provide religious, employment, subsistence or recreation opportunities (EA p. 5 and 15).

As discussed in the EA (p. 14), implementation of the Roseburg District Integrated Weed Management Program, in association with project design and contract provisions is expected to minimize the risk of introduction or spread of noxious weeds in association with road construction and timber harvest. Measures to be implemented may include but not be limited to mulching disturbed areas and seeding with native grasses to discourage establishment of new weed populations, and pressure washing or steam cleaning logging and road construction equipment prior to move-in to avoid introducing weeds from outside the project area. These actions are consistent with the intent and requirements of the Lacey Act; the Federal Noxious Weed Act of 1974, as amended; and Executive Order 13112, Invasive Species.

Finding

Based on the analysis of potential environmental impacts contained in the EA, I have determined that Alternative Two Modified will not have any significant impact on the human environment within the meaning of Section 102(2) (c) of the National Environmental Policy Act of 1969, and an environmental impact statement is not required. I have further determined that Alternative Two Modified conforms to management direction from the Record of Decision and Resource Management Plan (ROD/RMP) for the Roseburg District, approved by the Oregon/Washington State Director on June 2, 1995.

Steven D. Lydick
Field Manager
South River Field Office

2/11/16
Date