AMERICAN FOREST RESOURCE COUNCIL

December 3, 2018

Jen Smith
Grants Pass Field Manager
Medford District
2164 NE Spalding Avenue
Grants Pass, OR 97526

In Reply To: Poor Windy Forest Management Project Scoping Letter

Dear Ms. Smith:

Introduction

The American Forest Resource Council (AFRC) is a regional trade association whose purpose is to advocate for sustained yield timber harvests on public timberlands throughout the West to enhance forest health and resistance to fire, insects, and disease. We do this by promoting active management to attain productive public forests, protect adjoining private forests, and assure community stability. We work to improve federal and state laws, regulations, policies and decisions regarding access to and management of public forest lands and protection of all forest lands. AFRC represents over 50 forest product businesses and forest landowners throughout the West. Many of our members have their operations in communities adjacent to the Grants Pass Field Office, and the management on these lands ultimately dictates not only the viability of their businesses, but also the economic health of the communities themselves. The state of Oregon forest sector employs approximately 76,000 Oregonians, with AFRC's membership directly and indirectly constituting a significant percentage of those jobs. Rural communities, such as the ones affected by this project, are particularly sensitive to the forest product sector in that more than 50% of all manufacturing jobs are in wood manufacturing.

AFRC has been advocating for sustainable timber management on O&C Lands for well over a decade. Our membership depends on a BLM timber program that is designed to sustain itself in perpetuity into the future. We have expressed our concerns with how the past management paradigm under the Northwest Forest Plan of exclusive thinning impacted the BLM's ability to achieve this sustainability. When that plan was conceived in 1994, the BLM assured the public that the timber resources on O&C Lands would be managed based on the principles of sustained yield. This assurance was based on a carefully crafted harvest plan that included both regeneration and thinning treatments directed by a detailed modeling effort. Those models, and particularly the regeneration harvest, were largely ignored during the 20 years following completion of the plan—regeneration harvest was deferred in favor of a management scheme based solely on thinning.

The BLM recognized this fact in a 2012 RMP Evaluation Report on the implementation of what then was their current Resource Management Plan (RMP). Among other findings, this report led the BLM to the following two realizations:

- The determination of the ASQ is based upon an assumed; mix, intensity and cycle of regeneration and thinning harvest. Adherence to the principles of sustained yield, at the declared ASQ harvest level, is based on implementation of these assumptions.
- Accelerated rates of thinning without replenishment of younger forest stands through regeneration harvest means that opportunities for thinning will eventually be exhausted. The current approach to a forest management regime that deviates so considerably from the RMP assumptions used in determination of the ASQ is **not sustainable** at the declared ASQ level.

A similar modeling effort was completed again for the 2016 RMPs, published by the BLM last summer. Once again, the BLM assured that their timber resources would be managed based on the principles of sustained yield as directed by the O&C Act, and this assurance was once again supported by a carefully crafted set of models that included a combination of regeneration harvest and thinning. AFRC wants to ensure that the implementation failures of the Northwest Forest Plan validated in the 2012 RMP Evaluation Report are not replicated under the current RMP. A failure to implement would be characterized by the BLM ignoring the sustained yield models and proposing treatments in conflict with those models.

The 2016 RMPs state that O&C Lands must be managed "in conformity with the principles of sustained yield." These sustained yield levels, and the subsequent Allowable Sale Quantities (ASQ), were calculated through models that indicated what level of regeneration, commercial thinning, and integrated vegetation management (selection harvest) would occur on each sustained yield unit by age-class. We urge the Grants Pass Field Office to recognize these models in the ensuing Poor Windy NEPA document in order to justify and defend the actions being proposed. The answer to the question of "why is the BLM harvesting XX acres of 110 year old stands in the UTA" should be— "because that's what our models direct us to do and adhering to those models is the only way that the BLM can be assured that it is managing it's Harvestable Land Base (HLB) under the principles of sustained yield." Below is a table compiled from BLM source databases used in the modeling for the Proposed Resource Management Plan (PRMP) and we urge the Grants Pass Field Office to consider including it in the Poor Windy NEPA document.

The sustained yield treatments directed under the 2016 SWO ROD/RMP for the HLB Uneven Aged Allocation (UTA) are extremely important. The Grants Pass Field Office is directed to treat 11,631 acres of stands in the UTA in the first decade of implementation, and those treatments will have significant impacts on the District's yearly timber sale program during that decade.

Grants Pass

		Selection
Uneven Aged	1) 0-30	539
	2) 40-70	1,333
	3) 80-110	2,060
	4) 120-150	2,094
	5) 160-190	2,233
	6) 200+	3,372
Total Uneven Aged		**11,631**

Medford SYU

		Selection
Uneven Aged	1) 0-30	3,498
	2) 40-70	2,288
	3) 80-110	6,321
	4) 120-150	3,979
	5) 160-190	4,480
	6) 200+	7,606
Total Uneven Aged		**28,172**

The concept of uneven-aged management in the 2016 SWO ROD/RMP is based on the implementation of group selection harvests and thinning. It is through these group selections that multiple aged cohorts will develop, thus creating an uneven-aged stand. The RMP provides parameters from which to base silvicultural prescriptions in the UTA including the group selections. Page 68 of the RMP directs group selections to be *up to 4 acres in size* and comprising *up to 30% of the stand area.* In the context of group selections, the RMP also directs that *at least 10% of the stand area be left as skips.* It's unfortunate that the RMP created a "maximum" parameter for openings and a "minimum" parameter for skips. When developing prescriptions in the UTA based on these parameters we would ask the BLM to consider their entire land base in proper proportion. The BLM has 77% of the westside lands of the Southwestern Oregon RMP in some type of reserve land allocation where sustainable timber production is not permitted; that adds up to 822,235 acres. One way of looking at this breakdown is that 822,235 acres are in "skips." The remaining 23% is in lands designated for either even-aged timber management or uneven aged timber management. **In light of these disproportionate numbers, we urge the Grants Pass Field Office to develop an alternative that creates the minimum number of "skips" (10%) and the maximum amount of group selections (30%) in their uneven aged treatment units.** The 2016 RMP also provides a range of desired Residual Density (RD) for UTA treatment acres. This range is 20-45. **We also would like the BLM to consider an action alternative that treats UTA stands to the lowest RD allowed by the RMP.**

There is also a small proportion of Low Intensity Treatment Area (LITA) HLB within the project area. According to the 2016 SWO ROD/RMP models the Grants Pass Field Office should be regenerating and thinning its land according to the table below. The Medford SYU has also been included for reference. As shown, the Medford SYU has not been modeled to thin any stands in the 120+ age group, yet it has modeled regeneration in these stands. If the Medford BLM chooses to treat any stands in these age classes within the LITA, it must regenerate these stands to be in conformance with the 2016 SWO ROD/RMP.

Grants Pass

		First Decade Regen	First Decade Thinning
Low Intensity	1) 0-30		
	2) 40-70	7	311
	3) 80-110	33	36
	4) 120-150	35	
	5) 160-190	66	
	6) 200+	105	
Total Low Inten		**246**	**347**

Medford SYU

HMP Desc	Age Grp 2013	Regen	Thinning
Low Intensity	1) 0-30		
	2) 40-70	192	595
	3) 80-110	322	819
	4) 120-150	208	
	5) 160-190	553	
	6) 200+	1,318	
Total Low Intensity		**2,593**	**1,414**

AFRC monitors the progress each SYU makes on the modeled outputs with the intent to help the BLM maintain conformity with the 2016 SWO ROD/RMP. Below are the current estimated UTA attainment numbers from sales already offered under the 2016 RMP for the Medford SYU.

Without Poor Windy

Total Decadal Attainment	
Age Groups	Selection Harvest
1) 0-30	0.57%
2) 40-70	5.11%
3) 80-110	6.39%
4) 120-150	11.56%
5) 160-190	4.00%
6) 200+	0.00%
Total	**4.19%**

Below are the current estimated LITA attainment numbers from sales already offered under the 2016 RMP for the Medford SYU. As stated above, in order for the Grants Pass Field Office to manage their HLB in accordance with the principles of sustained yield, they must regenerate the LITA stands within the Poor Windy Project Area when their age is 120+ years.

Without Poor Windy

Total Decadal Attainment		
Age Groups	Regen	Thinning
1) 0-30	-	-
2) 40-70	0.00%	0.00%
3) 80-110	167.08%	30.04%
4) 120-150	107.21%	-
5) 160-190	26.04%	-
6) 200+	0.00%	-
Total	**34.90%**	**24.61%**

In addition to the HLB being proposed for treatment, many of the identified stands also contain Late Successional Reserve (LSR), Riparian Reserve (RR), and District Designated Reserve (DDR) lands. According to the 2016 SWO ROD/RMP 17,000 acres of LSR-Dry selection harvest or commercial thinning must occur per decade in the Medford District (pg. 74). A generous proportion of acres occur in the LSR. AFRC would like to remind the Grants Pass Field Office of the importance and necessity in treating these areas according to the new RMP. We would also like to remind the BLM that the 2016 RMPs *require* you to apply selection harvest or commercial thinning treatments to *at least* 17,000 acres per decade in the Medford District.

In an effort to accurately monitor the work of the BLM, please include at least LUA, acreage, and age within any treatment tables created for the ensuing NEPA document. AFRC would like to give the appropriate credit where credit is due for management projects that successfully offer and award timber volume.

Purpose and Need

AFRC is glad to see the Grants Pass Field Office proposing vegetation management on their UTA and LITA HLB, LSR, RR, and DDR lands that will likely provide useful timber products to our membership. Our members depend on a predictable and economical supply of timber products off BLM land to run their businesses and to provide useful wood products to the American public. The treatments on the Poor Windy project will likely provide short-term products for the local industry and we want to ensure that this provision is an important consideration for the decisionmaker as the project progresses. As we will discuss later in this letter the importance of our members' ability to harvest and remove these timber products from the timber sales generated off this project is paramount. We would like the BLM to recognize this importance by **adding economic viability & support to the local infrastructure to the purpose and need** of the Poor Windy project. Supporting local industry and providing useful raw materials to maintain a robust manufacturing sector should be a principal objective to any project proposed on BLM land, particularly those lands designated as HLB, but also on land designated as LSR.

NEPA is a procedural statute. It requires only that environmental consequences of an action be analyzed and disclosed. A project designed to produce timber production is entirely consistent with NEPA.

Maximizing Treatment Area

The consideration of active management on every acre of appropriate land, regardless of its land allocation, is important to our membership as each year's timber sale program is a function of the treatment of aggregate forested stands across the landscape. Based on the scoping notice, it appears that the Grants Pass Field Office is proposing treatment on less than 10% of the project area. This percentage is typical of many Medford BLM vegetation management projects.

AFRC is happy to see many contiguous areas proposed in this project. There are additional stands adjacent to proposed units which are viable as well. For instance, T34S, R07W, Sec.18 is split between UTA and LSR. Figure 1 depicts 4 units that could have been and should be included in the analysis for this project area. The red polygons fall within UTA where the one to the west is between 121-160 years of age and the polygon to the east is between 41-80 years of age. The purple polygons represent stands within LSR. These stands are between 121-160 years of age. This is but one example where the BLM has failed to identify all of the units in need of management within the extremely large project area.

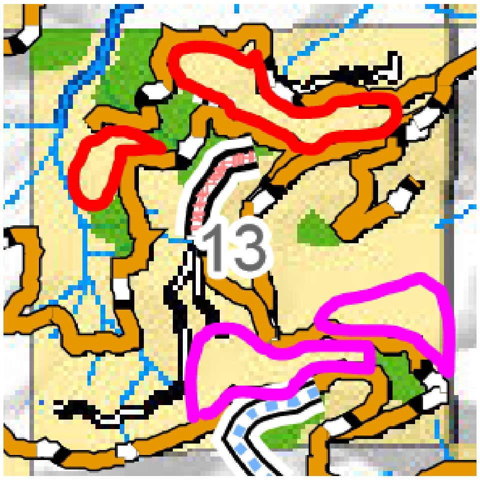

Figure 1: Section 13 showing 4 units that should be included in the analysis for Poor Windy

AFRC would like to help create more opportunities for Grants Pass and the Medford District at large to obtain their ASQ each year through identification of potential harvest units early in the process. NEPA takes time and it is understood that surveys and other field work are required for a few years before a project can be fully analyzed. Maximizing treatment acres in any proposed project area is the best way for the BLM to increase its efficient delivery of timber products, and AFRC will continue to advocate for this practice. This is particularly relevant to the Medford District, which has not established a pattern of regularly achieving their calculated ASQ. **Until the District can establish a program that delivers its assigned ASQ there is no reason not to be maximizing the treatment acres on every project considered.**

AFRC urges the Grants Pass Field Office to look for ways to maximize treatment where it is proposed and to avoid deferring units or setting aside portions of units for what is often referred to as "skips" (please consider the fact that all of the acres of the project area void of treatment proposal will essentially be "skipped"). Skips within the watershed are plentiful, what is not plentiful are openings.

On HLB land, large group selection openings could be implemented to provide early seral habitat (an objective exclusive to HLB land), provide timber products (also exclusive to HLB land), and diversify the vegetation type on the landscape. On LSR and RR land, small and medium sized group selection openings can be implemented to provide species and structural diversity at the stand level in otherwise uniform plantations of primarily Douglas-fir.

Economics and Operating Restrictions

The timber products provided by the BLM are crucial to the health of our membership and local economy. Without the raw material sold by the BLM, these mills would be unable to produce the amount of wood products that the citizens of this country demand. Without this material, our members would also be unable to run their mills at capacities that keep their employees working, which is crucial to the health of the communities that they operate in. These benefits can only be realized if the BLM sells their timber products through sales that are economically viable. This viability is tied to both the volume and type of timber products sold and the manner in which these products are permitted to be delivered from the forest to the mills. There are many ways to design a timber sale that allows a purchaser the ability to deliver logs to their mill in an efficient manner while also adhering to the necessary practices that are designed to protect the environmental resources present on BLM forestland. To be clear, we are advocating that you consider the economic viability of the project and make sure that it is designed in a way that makes sense for the market. This is not the same thing as maximizing economic value of the project.

In addition, we urge the BLM analyze the economic effect of a "No Action" alternative. Stressing the importance of timber harvest on local economies and the need for industry to stay vibrant to fund other work in the woods. Please help us tell the sustainability story of conscious timber harvest across landscapes. The "what would happen if industry went away" story that often is neglected in the No Action alternative.

The primary issues affecting the ability of our members to feasibly deliver logs to their mills are firm operating restrictions. As stated above, we understand that the BLM must take necessary precautions to manage their resources; however, we believe that in many cases there are conditions that exist on the ground that are not in step with many of the restrictions described in BLM's Environmental Assessment (EA) and contracts (i.e. dry conditions during wet season, wet conditions during dry season). We are glad to see that the BLM is shifting their methods for protecting resources from that of firm prescriptive restrictions to one that focuses on descriptive end-results. There are a variety of operators that work in the Grants Pass Field Office market area with a variety of skills and equipment. Developing an EA and contract that firmly describes how any given unit shall be logged may inherently limit the abilities of certain operators.

For example, restricting certain types of ground-based equipment rather than describing what condition the soils should be at the end of the contract period unnecessarily limits the ability of certain operators to complete a sale in an appropriate manner with the proper and cautious use of their equipment. We feel that there are several ways to properly harvest any piece of ground, and certain restrictive language can limit some potential operators. Though some of the proposed area is planned for cable harvest, there are opportunities to use certain ground equipment such as fellerbunchers and processors in the units to make cable yarding more efficient. Allowing the use of processors and fellerbunchers throughout these units can greatly increase its economic viability, and in some cases decrease disturbance by decreasing the amount of cable corridors, reduce damage to the residual stand, and provide a more even distribution of woody debris following harvest.

The newest operating system is cable assisted logging. This system allows ground based equipment to operate on slopes greater than 35% by decreasing the PSI of the machine and therefore the ground disturbance. This system can be utilized in conjunction with a traditional cable system where the cable assisted machine is utilized to fell the trees and a carriage is utilized to skid the trees to the landing. Few operators in southern Oregon have a forwarder for skidding using the cable assist method and this type of equipment produces a log many purchasers deem as inferior (short log), so a traditional cable system would be optimal on steep slopes for skidding when a cable assist system is utilized for the felling. Please do not write yourself out of using this innovative technology. **We recommend phrasing the language in your ensuing NEPA document to focus on desired end results for soil conditions rather than prescribing the type of equipment necessary to meet those conditions.**

Roads

Constructing forest roads is essential if active management is desired, and we are glad that the BLM is proposing the roads that are needed to access and treat as much as the project area as possible in an economically feasible way. Proper road design and layout should pose little to no negative impacts on water quality or slope stability. Consistent and steady operation time throughout the year is important for our members not only to supply a steady source of timber for their mills, but also to keep their employees working. These two values are intangible and hard to quantify as dollar figures in a graph or table, but they are key factors to consider. The ability to yard and haul timber in the winter months will often make the difference between a sale selling and not, and we are glad the BLM is working to accommodate this by proposing rock application to roads that include cable yarding systems.

Because there is a significant amount of work proposed within the Poor Windy project, AFRC would like the Grants Pass Field Office to simply use words such as “approximately” or “roughly” when disclosing road lengths in the project area. In other words, if you cannot determine the exact amount of road miles to be constructed during the analysis process, do not explicitly define an exact amount of road miles in the analysis document.

We see in the scoping notice that several roads are being proposed for decommissioning, however, these roads are not identified on the attached scoping notice map. We would still like the district to identify these roads so that the public can have a chance to review the location of these roads. AFRC is particularly concerned about an in-tact road system that facilitates the active management on appropriate lands, specifically those lands designated as Matrix where sustainable timber management is required. Sustainable timber management is unlikely to occur in an economical manner without a quality road system in place. We would like the BLM to closely consider each road proposed for decommissioning from the perspective of future management needs.

Riparian Area Treatment

AFRC urges the BLM to consider taking a proactive approach to treating RRs. We are glad to see that some units have started incorporating this into their projects. After visiting several stands proposed for treatment it’s clear that the undesired forest conditions (overly dense and uniform stands) that exist in the uplands also exist in the RRs. The forest health benefits that you expect to attain through upland thinning treatments can therefore also be achieved in riparian areas with similar active management prescriptions, and so we urge the BLM to strive toward maximizing the acres of riparian reserve treated to meet those objectives. It has been well documented that thinning in dense, uniform forest stands accelerates the stand's trajectory to produce large conifer trees, vertical diversity, and tree-species diversity (Garman, Steven L.; Cissel, John H.; Mayo, James H. 2003.); all characteristics that we assume are desirable in riparian areas as much as they are desirable in the uplands.

The tradeoffs that the BLM will likely be considering through the ensuing environmental analysis will be between achieving these forest health benefits and potentially having adverse impacts to streams. These impacts to streams typically include stream temperature, wood recruitment, and sedimentation associated with active management. We would like the BLM to review the literature cited below and incorporate its findings into your environmental analysis that will shape the level of management permitted to occur in RRs.

<u>*Stream temperature*</u>

Janisch, Jack E, Wondzell, Steven M., Ehinger, William J. 2012. Headwater stream temperature: Interpreting response after logging, with and without riparian buffers, Washington, USA. *Forest Ecology and Management*, 270, 302-313.

Key points of the Janisch paper include:

- The amount of canopy cover retained in the riparian buffer was not a strong explanatory variable to stream temperature.
- Very small headwater streams may be fundamentally different than many larger streams because factors other than shade from the overstory tree canopy can have sufficient influence on stream temperature.

Anderson P.D., Larson D.J., Chan, S.S. 2007 Riparian Buffer and Density Management Influences on Microclimate of Young Headwater Forests of Western Oregon. *Forest Science*, 53(2):254-269.

Key points of the Anderson paper include:

- With no-harvest buffers of 15 meters (49 feet), maximum air temperature above stream centers was less than one-degree Celsius greater than for un-thinned stands.

<u>*Riparian reserve gaps*</u>

Warren, Dana R., Keeton, William S., Bechtold, Heather A., Rosi-Marshall, Emma J. 2013. Comparing streambed light availability and canopy cover in streams with old-growth versus early-mature riparian forests in western Oregon. *Aquatic Sciences* 75:547-558.

Key points of the Warren paper include:

- Canopy gaps were particularly important in creating variable light within and between reaches.

- Reaches with complex old growth riparian forests had frequent canopy gaps which led to greater stream light availability compared to adjacent reaches with simpler second-growth riparian forests.

Wood Recruitment

Burton, Julia I., Olson, Deanna H., and Puettmann, Klaus J. 2016. Effects of riparian buffer width on wood loading in headwater streams after repeated forest thinning. *Forest Ecology and Management*. 372 (2016) 247-257.

Key points of the Burton paper include:

- Wood volume in early stages of decay was higher in stream reaches with a narrow 6-meter buffer than in stream reaches with larger 15- and 70-meter buffers and in un-thinned reference units.
- 82% of sourced wood in early stages of decay originated from within 15 meters of streams.

Benda, L.D. Litschert, S.E., Reeves, G. and R. Pabst. 2015. Thinning and in-stream wood recruitment in riparian second growth forests in coastal Oregon and the use of buffers and tree tipping as mitigation. *Journal of Forestry Research.*

Key points of the Benda paper include:

- 10-meter no-cut buffers maintained 93% of the in-stream wood in comparison to no treatment.

Sedimentation

Rashin, E., C. Clishe, A. Loch and J. Bell. 2006. Effectiveness of timber harvest practices for controlling sediment related water quality impacts. *Journal of the American Water Resources Association*. Paper No. 01162

Key points of the Rashin paper include:

- Vegetated buffers that are greater than 33 feet in width have been shown to be effective at trapping and storing sediment.

Dry Forests

Messier, Michael S., Shatford, Jeff P.A., and Hibbs, David E. 2011. Fire Exclusion effects on riparian forest dynamics in southwestern Oregon. *Forest Ecology and Management*. 264 (2012) 60-71.

Key points of the Messier paper include:

- Fire exclusion has altered the structure, composition, and successional trajectory of riparian forests in fire-prone landscapes.

- Fire exclusion has been associated with increase in tree density and recruitment of shade-tolerate species that may replace large diameter, more decay-resistant Douglas-fir trees.
- A hands-off management regime for these riparian forests will have ecologically undesirable consequences.

Collectively, we believe that this literature suggests that there exists a declining rate of returns for "protective" measures such as no-cut buffers beyond 30-40 feet. Resource values such as thermal regulation and coarse wood recruitment begin to diminish in scale as no-cut buffers become much larger. We believe that the benefits in forest health achieved through density management will greatly outweigh the potential minor tradeoffs in stream temperature and wood recruitment, based on this scientific literature. We urge the BLM to establish no-cut buffers along streams no larger than required by the 2016 SWO ROD/RMP. The new RMP allows for treatment within the outer and middle zones on most streams. Please take this into consideration when developing the ensuing NEPA document.

We would also like to encourage the BLM to focus their RR treatments on a variety of native habitats. The Aquatic Conservation Strategy applicable to units managed under the NWFP describes the need for treatments that meet the need of multiple habitat types and we encourage the Grants Pass Field Office to look for ways to incorporate treatments that meet those needs. The Warren paper cited above notes the benefits of gap creation in riparian reserves. Utilization of gap cuts to promote early seral habitat in the reserves should be considered. We urge the Grants Pass Field Office to review two recent vegetation management projects from the Willamette National Forest that both implemented gap-cuts in the outer portions of the RR network. The first, located on the Detroit Ranger District called Highway 46, is proposing treatment of 934 acres of riparian reserve thinning, including riparian stands over the age of 80 and implementing gap cuts. The second, located on the McKenzie River Ranger District called Green Mountain, is proposing treatment 901 acres of riparian reserve including gap cuts.

Silviculture and T&E Species

The primary driver of this project, as it's written in the scoping notice, is to fulfill the purposes of the O&C Act and the needs of the Grants Pass Field Office in contributing to the ASQ established by the SWO ROD/RMP for the Medford SYU. A secondary purpose identified in the scoping notice is to restore and maintain forest health and resiliency. AFRC believes that this objective is best met by developing silvicultural treatments across the planning area that best achieve desired forest health conditions. When managing in the HLB this objective should be secondary to compliance with the O&C Act and attainment of the ASQ, and likewise, consideration of impacts to T&E listed species should be secondary, except where management direction in the RMP suggests otherwise. Management direction and land use allocations in the 2016 SWO ROD/RMP are intended to constitute the BLM contributions to the recovery of the northern spotted owl. The ROD explicitly describes how this direction does so on pages 22-24.

In summary, the ROD describes this contribution via: **a.) maintenance of a network of large blocks of forest to be managed for late-successional forests; b.) maintenance of older and more structurally-complex multi-layered conifer forests; c.) timber harvest in the HLB consistent with the concepts of Ecological Forestry, and d.) mitigation of the effects of the barred owl by avoiding the incidental take of NSO's until implementation of a barred owl management program.** In other words, the fact that the BLM placed the vast majority of O&C Lands into reserves including nearly all of the older stands, along with "lighter-touch" silvicultural prescriptions in the HLB, should allow for implementation of sustained-yield timber management on remaining O&C Lands in the HLB unencumbered by NSO concerns. Incidental take avoidance should be the only reason why treatments in the HLB get deferred for NSO considerations.

Due to the project's location within the range of the northern spotted owl (NSO) and management direction in the 2016 RMPs the BLM will have to consider impacts to this threatened species when managing in lands designated as LSR differently than when managing in the HLB. Often, habitat conditions such as canopy cover that are accepted thresholds for NSO life-cycle needs are in conflict with desired forest health outcomes. One pertinent example is the Big Pines project where the Rogue River-Siskiyou NF, High Cascades District made the decision to sacrifice forest health objectives in order to maintain a canopy cover threshold on a portion of the project area. Page 12 of the Big Pines EA described the impacts appropriately: ***"to preserve current spotted owl NRF habitat required a tradeoff in not achieving historic and scenic objectives, forest health and diversity objectives, partial fire resilience objectives, and improvements for other wildlife."*** **AFRC would like the Grants Pass Field Office to develop an alternative for the Poor Windy project that treats 100% of the proposed LSR acres to meet forest health objectives exclusively.** We understand that some treatments will likely require modifications to mitigate impacts around active NSO centers. However, we think that the decision-maker needs to see the full range of forest health benefits possible by treating every stand to meet those objectives. Such an alternative was not analyzed on the Big Pines project and the District was unable to properly weigh the tradeoffs of downgrading NSO habitat in order to meet the multiple resource objectives highlighted in the above cited portion of the EA. We do not want this shortcoming to impact the decision-making process on the Poor Windy project and urge the BLM to consider the alternative described above.

NSO Canopy Condition

Among other findings, a Northern Spotted Owl Canopy Condition study concluded that partial-harvest forestry, primarily commercial thinning, has the potential to improve foraging habitats for spotted owls. The treatments being proposed in the LSR will likely affect NSO habitat to some degree. Often this level of effect is quantified by the amount of forest canopy that remains following thinning treatments. AFRC has general concerns with how the BLM has been measuring these effects to NSO habitat, specifically regarding canopy cover/closure. There is no scientific or biological justification for canopy closures greater than 40% in regard to providing dispersal habitat for the northern spotted owl.

We also urge the Grants Pass Field Office to consider a range of thinning intensities when developing prescriptions to create diversity across the LSR landscape and to provide additional timber products where appropriate. Thinning from below ends up being the most common thinning method utilized by the BLM. AFRC urges the BLM to thin through a diameter range, thin from above, and use group selection/ gap creation. The forest is in urgent need of seral class diversity. Remember that every time a stand is treated a legacy is left on the land. We recommend the Grants Pass Field Office review the following PNW paper if you have not already:

> *Garman, Steven L.; Cissel, John H.; Mayo, James H. 2003. Accelerating Development of Late-Successional Conditions in Young Managed Douglas-fir Stands: A Simulation Study. Gen. Tech. Rep. PNW-GTR-557. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.*

This study suggests that heavy thinning promoted rapid development of large boles, vertical diversity, and tree-species diversity, but required artificial creation of dead wood. Treatments that retained more than 40 percent of the overstory delayed attainment of late-successional conditions by 10 to 30 years but resulted in higher levels of most late-successional attributes at the end of a rotation. We would like the Grants Pass Field Office to consider this study and to weigh these tradeoffs and consider a variety of thinning intensities to achieve desired outcomes. A mixture of heavier treatments that may remove northern spotted owl dispersal habitat could accelerate development of late-seral conditions, provide diverse understory species, and result in a higher level of overall diversity within the stands.

Effects on NSO

In addition to the effects to NSO habitat, this project may also have short-term effects to the NSO (based on the presence of actual owls) due to the assumption that any type of forest management activity, including those that maintain habitat types, will have a negative impact on owls and their prey. This assumption is typically based on a few scientific pieces of literature published over the past decade. We would like the Grants Pass Field Office to consider a recently published study conducted by NCASI when assessing treatment areas and their potential affects to owls:

> *Larry L. Irwin, Dennis F. Rock, Suzanne C. Rock, Craig Loehle, Paul Van Deusen. 2015. Forest ecosystem restoration: Initial response of spotted owls to partial harvesting*

Among other findings, this study concluded that partial-harvest forestry, primarily commercial thinning, has the potential to improve foraging habitats for spotted owls.

In addition, tall patches of trees may be more important for the vitality of NSOs. We suggest looking at this article to understand why downgrading habitat may be better than maintaining canopy cover.

North, M. P., Kane, J. T., Kane, V. R., Asner, G. P., Berigan, W., Churchill, D. J., . . . Whitmore, S. (2017). Cover of tall trees best predicts California spotted owl habitat. Forest Ecology and Management, 405, 166-178. doi:10.1016/j.foreco.2017.09.019

Key Points:

- Focus on preserving patches of large/tall trees rather than canopy cover
- High canopy cover does not incorporate important habitat components

In the recent Roseburg BLM NEPA document "Third Rock Harvest Plan EA" an adaptive management strategy is laid out to address what will happen if a NSO or nesting pair is found within the project area. It has been included bellow for your convenience. AFRC appreciated this inclusion because it allows for transparency with the public. Please include this type of transparency within the Poor Windy NEPA document and allow for opportunities for the purchaser of any sale to survey for T&E species themselves and identify areas where restrictions may be waived during operations and haul. AFRC does however take issue with the option to defer or thin stands that are dispersal-only or capable habitat.

In past BLM documents, it is clear that the agency has determined a need to "maintain" dispersal habitat within priority NSO sites in order to avoid incidental take. We believe that this approach is not supported by the current science on NSO dispersal habitat and BLM internal direction. An Information Bulletin dated July 21, 2017 was sent to the District Managers of each BLM District managing under the 2016 RMPs. This bulletin was titled *"Timber sale planning approaches to avoid take of northern spotted owls under the 2016 RMPs."* Appendix 2 of this bulletin titled "Evaluation of Take Potential" includes guidance on how to assess incidental take. Page 1-16 of this Appendix reads that the best available science indicates that forest habitat needs of the owl should be assessed at the core and home-ranges scales. Specifically, that literature has demonstrated the *"importance of having sufficient amounts of NRF habitat within owl core areas"* and that "*populations are stable when the average proportion of NRF habitat in the home range is 30-50%."* Nowhere in this document is there any guidance or scientific literature that suggests the home-range and core use area as adequate scales for assessing needs of dispersal habitat. In fact, on the contrary, page 1-19 of this bulletin suggests that *"the effects analysis for owl dispersal habitat considerations is informed by landscape conditions, as suggested by Thomas et al. (1990) along with Lint et al. (2005) and Davis et al. (2016)."* More specifically this page goes on to read that *"as assessment of dispersal habitat condition was recommended on the quarter-township scale by Thomas et al. (1990)"* and that *"the U.S. Fish and Wildlife Service has subsequently used fifth-field watersheds or larger landscapes for assessing dispersal habitat conditions because watersheds or provinces offer a more biological meaningful way to conduct the analysis."* **In light of this scientific documentation and clear direction, we would like the BLM to assess incidental take in the context of *suitable* NSO habitat, not dispersal habitat, which is properly assessed at the landscape, not site, scale.**

Table 2-2. Third Rock Alternative 2 Adaptive Management Strategy

RMP Decision	Monitoring Metric	Trigger *(If the unit[2] is….)*	Spatial Scale[3] *(And the unit[1] is within the…)*	NSO Habitat Type	Adaptive Management Response *(Then BLM may take the following actions[2]…)*
Avoid NSO Incidental Take (NCO ROD/RMP, p. 31)	NSO Occupancy Based on Protocol Survey[1] Results	OCCUPIED (territorial pair or resident single status)	Nest Patch	NRF, Dispersal-Only, and Capable	Defer
			Core-Use Area Not Habitat-Limited (>50% NRF)[4]	NRF	Defer, Thin, or Regeneration Harvest while maintaining > mean value of 250 acres of NRF habitat in the core-use area.
				Dispersal-Only	Defer, Thin, or Regeneration Harvest as long as other actions in the core-use area do not reduce the amount of NRF below mean value of 250 acres.
				Capable	Defer, Thin, or Regeneration Harvest
			Core –Use Area Habitat-Limited (<50% NRF)	NRF	Defer
				Dispersal-Only	Defer
				Capable	Defer, Thin or Regeneration Harvest
			Home Range Not Habitat-Limited (> 1,158 acres (40%) NRF)[2]	NRF	Defer, Thin or Regeneration Harvest while maintaining NRF above the mean habitat value of 1,158 acres in the home range scale.
				Dispersal-Only	Defer, Thin or Regeneration Harvest as long as other actions in the home range do not reduce the mean habitat value of NRF below 1,158 acres at the home range scale..
				Capable	Defer, Thin or Regeneration Harvest
			Home Range Habitat-Limited [<1,158 acres (40%) NRF]	NRF	Defer
				Dispersal-Only	Defer, Thin or Regeneration Harvest
				Capable	Defer, Thin or Regeneration Harvest
		UNOCCUPIE D	Nest Patch, Core-Use Area, Home Range	NRF, Dispersal-Only, Capable	Defer, Thin or Regeneration Harvest

[1] *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls* (USDI FWS February 2, 2011; revised January 9, 2012; 42 pp.).

[2] Applicable to entire unit or portions of unit

[3] Nest Patch = 300 meter circle centered on activity center (70 acres); Core-Use Area = 0.5 mile radius circle centered on activity center (500 acres); Home Range = 1.2 mile radius circle centered on activity center (2,895 acres; Western Cascades Provincial Home Range).

[4] NRF – Nesting, roosting, and foraging

Impacts of the Proposed Action on Carbon Sequestration and Climate Change

Carbon sequestration as it relates to climate change is a topic that often gets broadly analyzed in NEPA documents. The analysis that the BLM will likely be conducting through the ensuing environmental analysis will discuss forest health benefits, effects on carbon sequestration and storage potential and meeting the purpose and need all within the context of an economically viable timber sale. We would like the BLM to review the following summary of information and incorporate this into its environmental analysis. AFRC believes this will help educate the public about and disclose localized effects to the forested landscape regarding carbon sequestration, carbon storage, and climate change as a whole.

Background

The Poor Windy project consists of variable density thinning which may affect the treated stands ability to resist, respond, or be resilient to climate change in the project area. The direct, indirect, and cumulative effects of carbon sequestration and storage and its relationship to climate change in regard to this project must be viewed at much larger scales than the general project area because the scientific literature regarding these, only support analysis on larger scales. There is a large body of literature on management strategies that have the greatest carbon sequestration benefit. In general, actively managing the forest will produce a positive net increase in carbon sequestration thus a positive benefit to reducing anthropogenic effects on climate change (IPCC, 2007). AFRC urges the BLM to analyze the type of treatments being proposed and determine through the literature how they will affect carbon sequestration potential through time.

As defined by the USFS in the Climate Change Glossary,

> "Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use" (USFS, n.d.).

The United States Environmental Protection Agency (EPA) estimated that national greenhouse gas emissions were 6.87 billion metric tons CO_2-eq/yr in 2015 (EPA, 2016). With increased concentrations of greenhouse gasses, more heat is retained leading to an increase in the earth's average surface temperature e.g. global warming (USFS, 2010). In total, 91.262 billion metric tons of carbon is stored in the managed US forests as of 2016. In 2016, the US sequestered 216 million metric tons of carbon in its forests (Woodall et. al, 2015). According to the EPA (2016), 11% of the US CO_2 emissions were sequestered in forests and associated wood products in 2014. National Forest System lands only represents 13% of all forest sequestration in the US.

Strategies

There are two main strategies for addressing climate change: adaptation and mitigation.

"The International Panel on Climate Change (IPCC) (*http://www.ipcc.ch/*) defines *adaptation* as an initiative to reduce the vulnerability of natural or human systems to expected climate change effects." (USDA, 2011)

Adaptation strategies include the following:

> 1. Building *resistance* to climate-related stressors such as drought, wildfire, insects, and disease.
> 2. Increasing ecosystem *resilience* by minimizing the severity of climate change impacts, reducing the vulnerability and/or increasing the adaptive capacity of ecosystem elements.
> 3. Facilitating large-scale ecological *transitions* in response to changing environmental conditions." (USDA, 2011)

According to the Office of Sustainability and Climate Change, "Forest ecosystems capable of adapting to changing conditions will sequester carbon and store it more securely over the long term, while also furnishing woody materials to help reduce fossil fuel use (Office of Sustainability and Climate Change, 2016). Therefore, adaptation can be enhanced through active forest management activities which improve the health and vigor of the forest ecosystem. By enhancing the vigor and growth of the forest, the forest as a carbon sink, can also be vitalized.

"The IPCC defines *mitigation* as an intervention to reduce the emissions or enhance the storage of greenhouse gases. Mitigation is predicated on adaptation: the long-term capability of ecosystems to capture and store carbon depends in large part on their ability to adapt to a rapidly changing climate" (USDA, 2011).

Mitigation strategies include the following:

1. Promoting the uptake of atmospheric carbon by forests and the storage of carbon in soils, vegetation, long-lived wood products, and recycled wood materials.
2. Indirectly reducing greenhouse gas emissions (for example, through the use of carbon-neutral bioenergy to offset fossil fuel emissions and substituting wood for more fossil fuel-intensive building products)
3. Diminishing greenhouse gas emissions (for example, through the cooling effects of urban forests, which reduce the need for fossil fuels to run air conditioners) or through more prudent consumption in facilities, fleet, and other operations.

This is why active management is vitally necessary. The world is at a time where deliberate action needs to be taken for the future of humankind. Through meaningful and well-developed forest practices, increased adaptation and mitigation can occur. "An actively managed forest landscape that provides a large amount of sustainable biomass yield while at the same time maintaining large standing forest carbon stocks, provides greater climate benefits in the long run compared to unmanaged forests" (Lundmark et al. 2016). Which is tied back to Nabuurs and Masera 2007 and Lundmark et al. 2014. "Several studies have shown the importance of a sustained or increased yield in actively managed forest to increase the climate benefit (Canadell and Raupach 2008; Malmsheimer et al. 2008; Poudel et al. 2012; Lundmark et al. 2014; Sieva¨nen et al. 2014) … In order to make additional climate benefits compared with today, the most efficient strategy … is to increase growth and yield and to maximize the substitution benefits" (Lundmark et al. 2016).

Carbon Sequestration

Regeneration and Patches

When a forest stand is harvested, the stored carbon removed is transferred into other pools. It could go into the carbon sequestration of harvested wood products (HWP pool), into the soil organic carbon (SOC pool) or released into the atmosphere due to decomposition or slash burning. The small portion that is released into the atmosphere is captured again through increased photosynthesis of the remaining or new stand in a short period of time. Davis et al. (2009) suggested that just after 55 years, carbon sequestration was similar in harvested as un-harvested forests. Not only can forests have equal sequestration over the long term, but it is suggested that the recovery of the ecosystem can be extremely elastic as well. Amiro et al. (2010) discovered that, "A clear GPP[1] recovery occurred within about the first 20 years following a stand replacing harvest." AFRC acknowledges the fact that there is a reduction in the short term in net primary production (NPP[2]) following a harvest. However, when a long-term (>40years) scale is used,

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[1] (Gross primary production (GPP) is the total amount of carbon dioxide "fixed" by land plants per unit time through the photosynthetic reduction of CO2 into organic compounds."

[2] Net primary production (NPP) of plant structural biomass in stems, leaves, and fruit, labile carbohydrates such as sugars and starch, and, to a much lesser extent, volatile organic compounds used in plant defense and signaling.

harvesting older trees or thinning overstocked stands will always increase positive climate change benefits because of long term storage of carbon in furniture, houses, etc., the substitution effect and increased CO2 sequestration due to increased photosynthesis.

Some may argue that maintaining canopy cover or a continuous forest will best allow for trees to remain as secure carbon storage on the landscape while thinning underneath can provide the wood the timber industry needs, but "[t]he long-term annual average carbon stock change in living trees is close to zero for a continuous cover forest while an annual net increase occurs on production forests where clear-cuts are utilized." (Lundmark et al. 2016). This shows how forests that grow in a patchy environment will always have higher increment growth with greater carbon sequestration potential than continuously thinned stands.

Old Trees

Yu et al. (2017) in their paper titles "Influence of site index on the relationship between forest net primary productivity and stand age" found the following:

- "Similar to previous studies, our results also show that forest NPP[2] increases quickly at young ages, reaches the maximum value at middle age (10±40 years old), and then decreases to a relative stable level at old ages. However, we additionally found that forests under better site conditions have faster growth rates in young ages and steeper declines after reaching the maximum."
- "NPP increases rapidly before reaching its maximum and thereafter decreases to a relatively steady state. At younger ages, carbon is mostly accumulated in stems, branches and coarse roots so the total NPP is dominated by living biomass increments. The decline of NPP with age is mainly caused by the decreasing rate of living biomass increment. At older ages, NPP-age curves are dominated by leaf and fine-root turnovers since carbon allocations to these two components are larger than the other parts."
- "Coniferous forest NPP decreases substantially after reaching to its maximum value."
- "Studies indicated that NPP in old forests generally decreased to about half or one-third of its maximum value."
- "The decrease of NPP at old ages is mainly due to the declining carbon allocation to wood components, in addition to increased autotrophic respiration for sapwood maintenance, decreased photosynthesis efficiency and declining N-availability to trees (Ryan et al. 1997). In addition to these factors affecting the performance of individual trees, changes in forest structure, such as self-thinning and wind damage, would also negatively impact forest NPP at old ages (Smith et al. 2001). For old age forests, leaf and fine root turnovers take a large part of photosynthetic productions (DesRochers et al. 2001). Accurate estimates of leaf and fine root turnovers and carbon allocation ratio of new fine roots to new leaves are of importance to NPP calculation." (Yu et al., 2017).

Harvested Wood Products (HWP)

The utility that forest products provide humans in their day to day lives is paramount. Products connected to the forest are used every day by everyone. "If forested ecosystems are to be managed with carbon sequestration in mind, then wood product market fluctuations must be considered in addition to ecosystem responses to harvest" (Davis et al., 2009). Often when carbon pools are brought up, the HWP pool is left out or misrepresented. The fact is that humans use wood products that do not decompose quickly; in fact, "only 30% of the carbon from paper and 0–3% of the carbon from wood are ever emitted as landfill gas. The remaining carbon … remains in the landfill indefinitely. Some of this carbon may be removed during leachate treatment, but a large portion is permanently sequestered where its impact on global warming is negligible. The placement of forest products in landfills serves as a significant carbon sink, and its importance in the global carbon balance should not be overlooked" (Micales & Skog, 1997). Carbon is stored securely in HWP of all kinds. The potential of any given acre to store carbon is exponentially increased when active management occurs on that piece of land because of harvesting and storing wood in the HWP pool, the substitution effect, and replanting after final harvest. When carbon is stored in houses, furniture, fences, light poles and other products, the wood is not only storing carbon, but serving a tangible benefit as well. Many of these products will outlive the tree/s they came from due to insects, disease, or fires that would have otherwise killed the tree, released the stored carbon and had its carbon legacy taken away. The homes, dresser, rocking chair, or local bar all get to live on.

Substitution

One of the most frequently disregard factors concerning the harvest of trees as it relates to CO2 sequestration or emissions is the carbon footprint of the materials that will be used as substitutes if these trees are not utilized to build homes, make furniture or any of the myriad of products produced from wood fiber. These commonly include concrete, steel, and plastics. The use of "forest products led to a significant reduction in atmospheric carbon by displacing more fossil fuel-intensive products in housing construction. The result has important policy implications since any incentive to manage forest lands to produce a greater amount of forest products would likely increase the share of lands positively contributing to a reduction of carbon dioxide in the atmosphere." (Perez-Garcia et al. 2005)

The Consortium for Research on Renewable Industrial Materials (CORRIM; www.corrim.org), a not for profit university lead research group of 16 research institutions, developed a research plan in 1998 to study the complete environmental performance of wood. Since its inception in 1996, CORRIM has developed comprehensive environmental performance information on wood building materials consistent with International Organization for Standardization (ISO) standards for life-cycle inventory (LCI) and lifecycle assessment (LCA) research.

They summarize their research to date in the following fact sheet.

Wood Use Can Reduce Carbon Dioxide in The Atmosphere By:

1. Growing trees removes CO2 from the atmosphere and stores it as carbon in the forest.
2. Products made from trees move the stored tree carbon to their point of use.
3. Using Wood Products Creates Opportunities to Avoid the use of Fossil Intensive Products (like steel, concrete, aluminum & plastics) that emit far more CO2 than using wood products.
4. Wood is both Renewable and Sustainable resulting in CO2 initially taken out of the atmosphere and being returned to the atmosphere when decomposed at end of life (a two-way flow) whereas using fossil fuels creates a one-way flow of CO2 accumulating in the atmosphere.
5. Intensively managing forests increases yields, resulting in greater opportunities to avoid using fossil fuels.
6. Using woody biomass for fuel displaces CO2 emissions from fossil fuels although with a lower efficiency of conversion compared to displacement from wood products used in construction.
7. Further CO2 benefits are possible by recycling demolition wood at the end of first life through reuse or reprocessed products such as panel boards, burning the lowest grades of wood for energy, or storing waste wood in landfills where it either does not decompose or the gases produced are collected and burned to avoid producing methane a most harmful greenhouse gas, or better yet use the energy from burning to displace the use of fossil fuels.
8. Managing forests for best use varies by region with natural disturbance risk playing a key role.
9. Increasing carbon values (taxes or incentives) will affect the cost of sustaining critical habitat.
10. Policies customized for specific interests that ignore life cycle impacts, need revision in order to avoid their unintended consequences.

Fire Risk

In Oregon Forest & Industries Council's (OFIC) October newsletter a forestry specialist from the University of California Berkley is highlighted who spoke at their 2018 Annual Meeting. Dr. William Stewart's research focuses on carbon impacts of active management of private forestlands compared to the "not-so-active" management on federal forestlands. He uses comprehensive forest carbon modeling systems to do this. Stewart's research suggests that private landowners are sequestering significantly more carbon than USFS. His research proposes this phenomenon is due to institutional decisions not climate change. Stewart's research also points to the probability of federal forest reserves burning and releasing carbon emissions being three times more likely now than in previous decades. Stewart thinks the prognosis is clear, less active management on federal forests slowed net growth across Oregon, California, and Washington. Conversely, active management clearly moves carbon out of the forest and into products which decreased the likelihood of mass carbon dumps from fire into the atmosphere.

In summary, any analysis of the effects of timber harvest on CO2 emissions or sequestration must be made using a long term, life cycle approach incorporating long term storage of currently sequestered carbon, net primary production of forest stands, and the net increase of CO2 emissions associated with the use of substitute materials. Much research has been done on these subjects which supports the position that managing forests using regeneration timelines related to NPP will result in greater net carbon sequestration than non-management approaches. Research also supports positive potential climate change effects of thinning to promote increased growth and vigor. Fire should also be included in this type of analysis due to their large carbon loading into the atmosphere. Generally, all of the silvicultural tools need to be used to maximize the positive benefits trees and forests provide for the world. To find more information about Oregon's forest benefits you can view a report by the OFIC here. OFIC does a wonderful job at explaining just how wonderful an environment Oregon is to grow trees and the fantastic carbon sequestration power they have here.

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Monitoring

AFRC recognizes all the demanding work put into completing NEPA. Therefore, we would like to see a detailed monitoring methodology for implementation and post implementation (pre-sale and post cut-out). It is not always clear if and how all the arduous work on the front end is coming to fruition. It is paramount quality control occurs. If site specific prescriptions are not written correctly or if those prescriptions are not implemented correctly, then all the work put into the NEPA is moot.

Thank you for the opportunity to provide scoping comments on the Poor Windy project. We look forward to following the implementation of this project as it moves forward.

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