Doug Heiken
<dh@oregonwild.org>
Sent by:
dh.oregonwild@gmail.com

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To Stephanie_Kelleher@blm.gov, BLM_OR_MD_Mail@blm.gov
cc Joseph Vaile <joseph@kswild.org>
bcc
Subject Pilot Joe Demonstration Project EA - supplemental comments

FROM: Doug Heiken, Oregon Wild | PO Box 11648, Eugene, OR 97440 | 541-344-0675 | dh@oregonwild.org
TO: Stephanie_Kelleher@blm.gov, BLM_OR_MD_Mail@blm.gov
ATTN: Stephanie Kelleher, Ashland Resource Area, Medford BLM
DATE: 25 July 2011
RE: Pilot Joe Demonstration Project EA -- supplemental comments

Please accept the following supplemental comments from Oregon Wild regarding the proposed Pilot Joe Demonstration Project EA (DOI-BLM-OR-M060-2011-0016-EA) http://www.blm.gov/or/districts/medford/plans/files/pilotjoeea.pdf These comments are intended to supplement the comments submitted on our behalf by Joseph Vaile of the Klamath Siskiyou Wildlands Center.

The preferred alternative involved 889 acres of forest treatment.

- 299 acres of commercial harvest in ppine and Doug-fir series.
- 253 acres of understory (<8" dbh) fuel reduction,
- 590 acres of non-commercial density management in pine, D-fir, and oak series.
- 0.4 miles roa decommissioning.
- activity fuel treatment and maintenance burning
- no commercial harvest in riparian reserves
- 175 acres of spotted owl NRF habitat would be downgraded.

Oregon Wild supports valid ecological restoration projects that are supported by sound science and that move degraded ecosystems toward complex late successional conditions that are currently under-represented.

We appreciate that the project planning made an effort to retain the most suitable owl habitat and the focus of fuel treatments in is habitat of lower quality. We agree that optimal restoration outcomes are obtained from a mix of treated and untreated areas, and the challenge is to find the right mix and spatial arrangement of treated and untreated patches.

We support the culturing of legacy trees individually and in clumps, especially early seral species like ponderosa pine.

We urge that adequate consideration be given to short-term and long-term recruitment of snags and dead wood which tend to enhance late successional habitat conditions.

We support the fact that road construction would be avoided. Real restoration will require that more of the existing roads be closed, decommissioned, and/or storm-proofed.

We support the cautious approach to commercial logging in riparian reserves, however the EA

should make the intend more clear. The EA does not say clearly that commercial logging is excluded form riparian reserves until page 3-57.

We support the use of "treat and maintain" methods for treating spotted owl habitat, and we urge that such treatments really focus on retaining canopy cover, as well as structural values associated with dead wood and diverse understory vegetation that supports spotted owls and their prey.

Unlike the eastside of the Cascades where low density pine forests were relatively more common, within the range of the spotted owl fire tend to be less frequent and forests tend to be more dense. The wildlife that use westside forests depend on maintaining relatively dense forest conditions. Even within westside forests that were historically less dense, it may not be desirable to restore low density forests. This is for two reasons: First, the lack of adequate late successional habitat on non-federal lands, requires that federal lands supply a disproportionate amount of habitat for species that prefer dense forests. Second, the low density forests that existed historically were often a result of cultural burning practices. The exclusion of fire and redensification of these forests may have resulted in a return to "natural" albeit not "historical" conditions.

The EA appears to lack a description or analysis of the effects of logging on the long-term recruitment of snags and dead wood over time. Such information is essential to weighing the ecological effects of commercial logging and other alternatives. The EA appears to rely in part on snags being recruited somewhere else on the landscape. This raises concerns as prescriptions like this are scaled up to the landscape level. Snags are not being adequately provided on non-federal lands, nor in old clearcuts, nor in thinned areas, so where are they going to be recruited, and is that enough to meet the needs of scores of species associated with dead wood. This is an important cumulative impact issue.

It is essential that we learn from all management efforts on federal forest lands by conducting thorough pre- and post-implementation monitoring, as well as effectiveness monitoring and validation monitoring. The monitoring questions needs to be well-crafted to inform future management. I.e., NOT "did we demonstrate ecological forestry methods described by Johnson and Franklin?" but rather something closer to: "did treatments optimize net ecological benefits compared to alternative treatments or passive management?" and "What are the ecological costs of commercial logging compared to alternative treatment methods that retain medium and large tree structure?"

Owls, Logging, and Fire

One of our biggest concerns with this project (and one of the biggest impediments to broad-scale application of similar treatments) is that it is based on an untested and potentially invalid assumption that the habitat effects of wildfire is worse than the habitat effects of logging, and that logging random sites to reduce the effects of unpredictable wildfire can provide net benefits to habitat.

Page 3-79 to -83 describe the relative effects of wildfire and logging but not in a framework that makes sense. The EA says that fire is "expected" but not during what time period. The EA says

that fire would case "more" severe impacts to soil, but does not say at what scale or compared to what. Page 3-83 asserts that logging will have "long term beneficial effects" but this conclusion is not supported by any evidence or analysis. A meaningful analysis of the relative effects of logging vs fire would need to consider the factors set forth in Heiken, D. 2010. Log it to save it? The search for an ecological rationale for fuel reduction logging in Spotted Owl habitat. Oregon Wild. v 1.0. May 2010. http://dl.dropbox.com/u/47741/Heiken_Log_it_to_Save_it_v.1.0.pdf In particular, the loss of down woody structure caused by logging can be significant and long-term, and the risk of adverse effects from fire is speculative.

We raised this issue in our scoping comments and will repeat them here:

Logging habitat to save it from fire.

When logging will reduce the quality of habitat, the NEPA analysis must include some evaluation of the probability that fuel reduction treatments will interact favorably with fire, which requires an estimate of the probability of future wildfire. To assume a 100% chance of fire is to vastly over-estimate the ecological value of fuel treatments and under-estimate the ecological effects of logging on habitat. See Heiken, D. 2010. Log it to save it? The search for an ecological rationale for fuel reduction logging in Spotted Owl habitat. Oregon Wild. v 1.0. May 2010.
http://dl.dropbox.com/u/47741/Heiken%2C%20Log%20it%20to%20save%20it%20v.1.0.doc

There is a strong interest among the federal land management agencies to conduct widespread logging in suitable spotted owl habitat in order to reduce the effect of fire. The agencies view fuel reduction logging as beneficial to owl habitat because modeling shows that fire behavior is moderated by fuel reduction, but proponents never seem to conduct a careful evaluation of the relative probability, and the relative harms, of logging versus wildfire. Strangely, the probabilistic aspects of this issue have been largely ignored in the owl science literature, but recently explored in the forest-carbon literature which recently showed that although thinning can modify fire behavior, logging to reduce fire effects is likely to remove more carbon by logging than will be saved by modifying fire. Mitchell, Harmon, O'Connell. 2009. Forest fuel reduction alters fire severity and long-term carbon storage in three Pacific Northwest ecosystems. Ecological Applications. 19(3), 2009, pp. 643–655 http://ecoinformatics.oregonstate.edu/new/FuelRedux_FS_CStorage_Revision2.pdf The reason for this seemingly counterintuitive outcome is a result of the “law of averages.” As explained by Cathcart et al 2009 —

The question is—if the implementation of fuels treatments within the Drews Creek watershed had the beneficial effect of reducing the likelihood of wildfire intensity and extent as simulated in this study, why is the expected carbon offset from fuels treatment so negative? The answer lies in the probabilistic nature of wildfire. Fuels treatment comes with a carbon loss from biomass removal and prescribed fire with a probability of 1. In contrast, the benefit of avoided wildfire emissions is probabilistic. The law of averages is heavily influenced that given a wildfire ignition somewhere within the watershed, the probability that a stand is not burned by the corresponding wildfire is 0.98 (1 minus the average overall conditional burn probability …

> Thus, the expected benefit of avoided wildfire emissions is an average that includes the predominant scenario that no wildfire reaches the stand. And if the predominate scenario for each stand is that the fire never reaches it, there is no avoided CO2 emissions benefit to be had from treatment. So even though severe wildfire can be a significant CO2 emissions event, its chance of occurring and reaching a given stand relative to where the wildfire started is still very low, with or without fuel treatments on the landscape.

Jim Cathcart, Alan A. Ager, Andrew McMahan, Mark Finney, and Brian Watt 2009. Carbon Benefits from Fuel Treatments. USDA Forest Service Proceedings RMRS-P-61. 2010. http://www.fs.fed.us/rm/pubs/rmrs_p061/rmrs_p061_061_079.pdf

Both carbon and spotted owl habitat tend to accumulate in relatively dense forests with intermediate or longer fire return intervals. Thus, we can likely read these studies and replace the word "carbon" with the word "spotted owl habitat" and the results will likely hold.

In an effort to advance the discussion and help the agencies conduct better risk assessments in the NEPA context we have prepared the attached white paper in an attempt to clarify the critical considerations in a probabilistic risk assessment that compares the risk of logging versus wildfire. Heiken, D. 2010. Log it to save it? The search for an ecological rationale for fuel reduction logging in Spotted Owl habitat. Oregon Wild. v 1.0. May 2010. http://dl.dropbox.com/u/47741/Heiken%2C%20Log%20it%20to%20save%20it%20v.1.0.doc

To justify such fuel reduction logging in suitable owl habitat on ecological grounds requires several findings: (1) that wildfire is highly likely to occur at the site of the treatment, (2) that if fire does occur it is likely to be a severe stand-replacing event, and (3) that spotted owls are more likely to be harmed and imperiled by wildfire than by logging at a scale necessary to reduce fire hazard. Available evidence does not support any of these findings, which raises serious questions about the need for and efficacy of logging to reduce fuels in western Oregon and other forests lacking frequent fire return intervals.

The probabilistic element of the risk equation demands careful consideration. Both logging and fire have meaningful consequences, so the issue really boils down to a comparative probabilistic risk assessment where risk is characterized by two quantities: (1) the magnitude (severity) of the possible adverse consequence(s), and (2) the likelihood (probability) of occurrence of each consequence.

Framework for Assessing the Risk of Wildfire vs Fuel Reduction Logging			
	Likelihood of event	Magnitude of harm	Net Benefit
Wild fire	LOW: Stand replacing wildfire is not common in western Oregon. Fire suppression policy prevails. The chance that	LOW: The majority of wildfire effects are not stand replacing. Fire is a natural process to which native wildlife are adapted. There is still a	Fire is likely less harmful to habitat than fuel reduction

	any given acre of forest will experience wildfire is low.	deficit of natural fire processes on the landscape.	logging.
Logging	HIGH: To be effective in controlling fire, logging must be very extensive, and sustained. Many more acres would need to be logged than would burn.	HIGH: Widespread logging will have significant impacts on canopy, microclimate, understory vegetation, down wood, and long-term effects on recruitment of large trees and snags.	Fuel reduction logging is likely more harmful to habitat than wildfire.

The white paper is organized around these risk evaluation parameters.

In spite of what we often hear, that federal forests are not at imminent risk of destruction by wildfire. Fire return intervals remain relatively long, due to both natural factors and active fire suppression policies. Wildfire severity also remains moderate. Most wildfires are NOT stand replacing. Most fires are in fact low and moderate severity.

The location, timing, and severity of future fire events cannot be predicted making it difficult to determine which forests will benefit from treatment - consequently fuel treatments must be extensive and many stands will be treated unnecessarily, thus incurring all the costs of fuel logging, but receiving none of the beneficial effects on fire behavior.

Furthermore, logging for purposes of fuel reduction has impacts on owl and prey habitat that remain under-appreciated, especially the reduction of complex woody structure, and the long-term reduction in recruitment of large snags and dead wood. Fuel reduction logging also has complex effects on fire hazard with potential to increase fire hazard, especially when fuel reduction efforts involve removal of canopy trees.

When all this evidence is put together, it becomes clear that "saving" the spotted owl by logging its habitat to reduce fuels often does not make any sense.

Similar conclusions were reached by The Wildlife Society (TWS) peer review of the 2010 Draft Recovery Plan for the Spotted Owl. The draft plan called for extensive logging to reduce fire hazard (“inaction is not an option”). TWS used state-and-transition model to evaluate the effects of opening dry forests to reduce fire hazard versus the effects of wildfire.

> The results of running the model with 2/3rds of the landscape treated leads to open forest becoming predominant after a couple of decades, occupying 51 percent of the forested landscape, while mature, closed forest drops to 29 and 24 percent of the Klamath and dry Cascades forests, respectively (Appendix A, Figure 5, shows the Cascades). Treatments that maintain open forests in 2/3rds of the landscape put such a limit on the amount of closed forest that can occur, even if high severity fires were to be completely eliminated under this scenario, there would only be 35 percent of the landscape occupied

by closed forests. In contrast, to the extensive treatment scenario, treating only 20 percent of the landscape reduces mature, closed canopy forest by about 11 percent (Appendix A, Figure 6).

One justification for the extensive treatment scenario promoted in the 2010 DRRP is that it is needed because of increased fire hypothesized to occur under climate change. By doubling the rate of high severity fire by 2050 with 2/3rds of the landscape treated, closed canopy forest is reduced to 25 percent in the Klamath compared to 60 percent without treatment and 23 percent in the dry Cascades compared to 54 percent without treatment.

Under what scenario might treatments that open forest canopies lead to more closed canopy spotted owl habitat? The direct cost to close forests with treatments that open them is simply equal to the proportion of the landscape that is treated. This reduction in closed canopy forest can only be offset over time if the ratio of forest regrowth to stand-replacing fire is below 1 (5-8 times more fire than today), and shifts to above 1 with the treatments (and most or all standreplacing fire in treated sites is eliminated, as modeled here). Another scenario that allows closed forests to increase would be if treating small areas eliminated essentially all future standreplacing fire, not only in treated areas, but across the entire landscape. This scenario obviously relies on substantially greater control over fire than is currently feasible, and it would increase impacts of fire exclusion if effective.

…

In sum, to recognize effects of fire and treatments on future amounts of closed forest habitat, it is necessary to explicitly and simultaneously consider the rates of fire, forest recruitment, and forest treatment over time, which has not yet been done by the Service.

…

The potential impacts of fuel treatments on spotted owls are not considered. … We also know little about the impacts of fire, yet this has been treated as a major threat, leading to proposing more fuel treatments. However, it is uncertain at this time which is a bigger threats, fires or treatments to reduce risk of fires. … If the plan intends to use the best available science to describe ongoing impacts to spotted owl habitat, information and literature about disturbances to reduce fuels should be included.

… there has been no formal accounting of how closed canopy forests can be maintained with the widespread treatments that are being proposed.

The Wildlife Society 2010. Peer Review of the Draft Revised Recovery Plan for Northern Spotted Owl. November 15, 2010.
http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/Recovery/Library/Documents/TWSDraftRPReview.pdf

Do not rely on the flawed analysis in LOWD v Allen in which the 9th Circuit strangely gave the FS deference NOT on a question of forestry, but on a question of risk assessment, an area in which they do not have special expertise. Unlike the majority opinion, the dissent actually perceived the logical flaw in the FS risk assessment. That is, the FS assumed (and the majority bought this assumption) a 100% chance of fire in the period after logging. In reality the risk of wildfire is far less than 100%, while the risk that logging will downgrade spotted owl habitat is virtually certain and will last for 20-50 years. The FS never weighed these effects in any logical risk framework.

The dissent in LOWD v Allen said:

> "To pick Alternative C because it is 40 percent less likely to result in a crown fire when there is a fire without a determination that includes the actual number of ignitions per year in the forest or some actual evaluation of the risk of fire unjustifiably weighs fire prevention above-and-beyond all other factors. The NWFP's Standards and Guidelines specifically require a "greater assurance" of long-term maintenance. NWFP S & Gs at C-13. Greater is a relative term that requires comparison. Without quantifying actual risk a comparison is not possible. The Forest Service's conflicting statements of fire risk, in my view, are arbitrary,
> and its failure to comply with the NWFP Standards and Guidelines' requirement that it compare costs and benefits is capricious.
> …
> Without providing a basis for the level of assumed fire risk, it is impossible to say that a 40 percent reduction in risk justifies the guaranteed risk of commercial logging: the destruction of 618 acres of owl habitat for 20-50 years. Logging within late-successional forests inside a LSR is permitted only where the proposed logging is not just needed, but rather clearly needed to reduce risks. The NWFP's Standards and Guidelines squarely place the burden on the Forest Service to establish that an exception to the general prohibition on logging applies."

Now there is support for Mitchell and Harmon (2009) from Alan Ager and the WESTCARB Project:

> … [A] team of researchers tried to quantify how removing smaller fuels from forests and conducting prescribed burns helps stave off intense wildfires and reduces greenhouse gas emissions. …

> "The take-home message is we could not find a greenhouse gas benefit from treating forests to reduce the risk of fire," said John Kadyszewski, the principal investigator for the terrestrial sequestration projects of the West Coast Regional Carbon Sequestration Partnership. WESTCARB, ...
>
> As part of Kadyszewski's work, his team directly compared the carbon stocks in about 6,000 acres of forests in Shasta County, Calif., and Lake County, Ore., before and after applying forest management treatments to reduce the risk of severe wildfires, such as prescribed burns and thinning. Then, based on modeled projections, they found that if a wildfire ignited on treated lands rather than untreated lands, there would generally be lower emissions. That was the good news.
>
> But there was a catch: knowing where fires might happen.
>
> Since there is a relatively low risk of fire at any one site, large areas need to be treated -- which release their own emissions in the treatment process. The researchers have concluded that the expected emissions from treatments to reduce fire risk exceed the projected emissions benefits of treatment for individual projects.

Dina Fine Maron 2010. FORESTS: Researchers find carbon offsets aren't justified for removing understory (E&E Report 08/19/2010).

The reason for this seemingly counterintuitive outcome is a result of the “law of averages.” As explained by Cathcart et al (2009) —

> The question is—if the implementation of fuels treatments within the Drews Creek watershed had the beneficial effect of reducing the likelihood of wildfire intensity and extent as simulated in this study, why is the expected carbon offset from fuels treatment so negative? The answer lies in the probabilistic nature of wildfire. Fuels treatment comes with a carbon loss from biomass removal and prescribed fire with a probability of 1. In contrast, the benefit of avoided wildfire emissions is probabilistic. The law of averages is heavily influenced that given a wildfire ignition somewhere within the watershed, the probability that a stand is not burned by the corresponding wildfire is 0.98 (1 minus the average overall conditional burn probability …
>
> Thus, the expected benefit of avoided wildfire emissions is an average that includes the predominant scenario that no wildfire reaches the stand. And if the predominate scenario for each stand is that the fire never reaches it, there is no avoided CO2 emissions benefit to be had from treatment. So even though severe wildfire can be a significant CO2 emissions event, its chance of occurring and reaching a given stand relative to where the wildfire started is still very low, with or without fuel treatments on the landscape.

Jim Cathcart, Alan A. Ager, Andrew McMahan, Mark Finney, and Brian Watt 2009. Carbon

Benefits from Fuel Treatments. USDA Forest Service Proceedings RMRS-P-61. 2010. http://www.fs.fed.us/rm/pubs/rmrs_p061/rmrs_p061_061_079.pdf

And we can reliably replace the word "carbon" with virtually any other forest value that depends on dense forests with relatively high accumulations of dead wood, e.g. spotted owls, flying squirrels, goshawk, marten, pileated woodpecker, etc. and we get the same result. To wit ...

> "Since there is a relatively low risk of fire at any one site, large areas need to be treated -- which *[degrades habitat values for dense forests and dead wood]* in the treatment process. The researchers have concluded that the expected *[habitat loss]* from treatments to reduce fire risk exceed the projected *[habitat]* benefits of treatment for individual projects."

In the months since we submitted our scoping comments, further support for these concerns have been voiced.

In 2011 the GEOS Institute submitted a draft white paper to the FWS attached to their comments on Appendix C of the Owl Recovery Plan, which found ….

> the FIA data illustrate a broad pattern of forest resilience to current fire regimes in the Pacific Northwest. In fact, forests would have to experience a more than threefold increase in fire in the Klamath and nearly an eightfold increase in the Cascades before positive net growth in relation to fire would cease.
>
> The rapid regrowth rate of forests makes them resilient to substantially enhanced rates of burning. In addition, forest growth rates are increasing in the Pacific Northwest (Latta et al 2010), while fire trends are unclear … Because so much more fire would need to occur before net forest loss would begin to occur, managers have more time to monitor long-term fire and climate trends and test long-term treatment impacts in an adaptive management context.
>
> As long as net growth of forests outpaces losses to high-severity fire, treatments that cause habitat to be downgraded will diminish habitat for closed, late-successional species, such as spotted owls, even if treated areas experience no high-severity fire. Habitat loss or degradation is expected to add to effects of barred owl on spotted owls and vice versa (Dugger et al., in press). Habitat impacts will also be greater than modeled here if thinned forests burn, if mid-successional forests do not transition to late successional forests in 20 years, and if it takes longer for recruitment of large snags, down logs and mid canopy trees, and following regeneration patch cuts proposed (e.g., Johnson & Franklin 2009) to restore habitat contiguity. These tradeoffs with maintaining closed forest habitat features often have not been recognized by advocates of widespread fuel treatments (e.g., Stephens & Ruth 2005, Agee & Skinner 2005) …

> The no-treatment scenario, which produced the most future late-successional habitat, would likely increase late-successional forests more than our results indicate. Late-successional forests may increase more because mid-successional forests may not have twice the high-severity fire rate found in late-successional forest, as we assumed for our model. Also, our assumption that no high-severity fire would occur in treated areas is unlikely. There is currently a low probability that treated stands will burn at all (Rhodes & Baker 2008); however, if these stands do burn, treatments would not be effective in reducing wind-driven fire under extreme conditions (Finney et al 2003, Cruz & Alexander 2010), …
>
> … Where maintaining late-successional forests for this species is paramount, especially with barred owl invasion, forests will currently need to be protected from active management that causes habitat to be lost or downgraded at least until monitoring of spotted owls in response to such activities on smaller scales is available. Options involving no-regrets active and passive management that offer habitat improvements, protection from human-caused fire and post-fire logging, and accommodation of naturally occurring fire, can, however, be safely implemented to pursue goals of maintaining habitat for the spotted owl (Hanson et al 2010).

Geos Institute 2011. "Effects of Fire and Forest Treatments on Future Habitat of the Northern Spotted Owl: A White Paper Produced by the Geos Institute." (draft).

William Baker has told the FWS …

> Recent decadal estimates of high-severity fire rotations are long … Ratios of old-forest recruitment to high-severity area are currently high … Thus, dramatic increase in high-severity fire (e.g., 5-10 times as many huge fires per decade) would need to occur for net declines in old forest to begin. … [Reserveless strategy in the 2008 Recovery Plan is] based on incorrect fire-risk estimates. Fire risk, if anything, is currently low, and dynamism rather slow. Fuel treatments on up to 65-70% of dry forests premature and incompatible with recent science. Widespread fuel treatments based on incorrect notion that forests were generally open and park-like because of low-severity fires (see Hessburg et al. 2007, Williams and Baker, for evidence that this is incorrect).

http://www.fws.gov/OregonFWO/Species/Data/NorthernSpottedOwl/Recovery/Library/Documents/DryForestPresentations/Baker_fire_risk_and_NSO.pdf

Sincerely,

/s/

Doug Heiken, Oregon Wild
PO Box 11648, Eugene OR 97440
dh@oregonwild.org, 541.344.0675