Oregon Chapter Sierra Club
Asante Riverwind
Eastern Oregon Forest Organizer
P.O. Box 5534
Bend, Oregon 97708
(541) 322-4065 office
(541) 306-7737 field
asante.riverwind@sierraclub.org

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Additional Comments on the Proposed East Maury Fuels and Vegetation Management Project DEIS

Bill Queen, District Ranger,
Cathy Lund, (Acting Ranger at the time of the DEIS notice)
Barbara Fontaine, Project Leader,
Lookout Mountain Ranger District, Ochoco National Forest
comments-pacificnorthwest-ochoco@fs.fed.us

As noted in our comments on the East Maury Project DEIS, sent June 2, the Oregon Chapter Sierra Club and the League of Wilderness Defenders-Blue Mountains Biodiversity Project have the following additional comments supplementing the issues addressed in our previous comments. We request planning staff and decision-makers review these additional comments, addressing further specific conservation concerns and scientific research pertinent to this proposed East Maury Fuels and Vegetation management Project (East Maury or EM Project).

Preferred Alternative 2 would:

- treat fuels and vegetation on approximately 14,000 acres through the use of
  - harvest (6,857 acres),
  - pre-commercial thinning (11,039 acres, including 3327 acres juniper thinning), and
  - fuels management (11,400 acres) strategies
- 5285 acres individual tree selection (multi-aged prescription below 21" dbh)
- 1125 acres commercial thinning
- 237 acres sanitation
- 3433 acres grapple pile
- 7952 acres prescribed underburn
- 6163 acres tractor logging (512 acres skyline, 182 acres horse) ("Overall, potential for detrimental soil conditions is 17 to 22 percent for a designated ground harvest system which includes landings, skid trails and roads.") Mitigated by 100-140 acres of soil tillage.
- Possible use of mechanized harvesters which will remove whole trees and foliage nutrients from site and increase landing size.
- 20.5 mmbf
- two plan amendments to allow violations of the Eastside Screens:
  - 573 acres of logging Late Old Structure forest
  - 83 acres of logging in connective corridors
- harvest 2 acres eagle nesting area
- harvest 36 acres develop recreation area

- harvest 210-248 acres RHCA ("Based on stream surveys, the project area is deficient in the amount of large woody material in streams. LWD ranges from no LWD in several reaches to 4.3 pieces per 100 feet in Drake Reach 3.")
- harvest 505 acres winter range
- harvest 613 acres winter range/GFMA
- harvest 5010 acres GFMA
- harvest 757 acres visual management areas
- 6 units have ground-based logging within 200 feet of streams (86, 87, 97, 121, 264, 276)
- goshawk foraging and nesting habitat suitability reduced within post-fledging areas on 1806-2472 acres. Commercial logging would impact 19 percent of the current primary reproductive habitat and 53 percent of habitat within post fledging areas in the project area.
- pileated woodpecker habitat suitability reduced on 124 acres
- 3079 acres of primary cavity excavator habitat "restored" (what?! Captured mortality is not restoration of mortality)
- 11 units proximate to existing infestations of weeds
- 6174 acres of ground based logging
- 19 acres impacted by roads
- 50% increase in flooding risk
- 311 feet of new road in RHCA and 3 new road/stream crossings
- 1.7 miles of road closure or decommissioning in RHCA
- 3327 acres of juniper cutting
- 8 units may impact Peck's Mariposa lily
- 573 acres of multi-story LOS converted to single-story LOS
- harvest 82 acres within connective corridors
- treat 2569 acres of stands at high risk for insects and disease
- 475 acres of treatment in aspen stands (210 acres with restoration objective)
- 9.3 miles road construction
- 18 miles road reconstruction
- 2.5 miles road decommissioning
- percent cover in winter range is slashed in half.
- Maury Creek and Indian Creek Subwatersheds at risk (p 86)
- 3.6 percent increase in the drainage network resulting from new roads and a 6.4 percent increase resulting from reopening existing roads.
- harvest on approximately 19 percent (1,198 acres) of the project area within 400 feet of streams (15 percent tractor)
- 25 percent of logging generated sediment would come from 6 tractor units: 86, 87, 97, 121, 264, and 276
- fuels treatments on 42 percent (2,599 acres) of the project area within 400 feet of streams. About 75 percent of this is activities fuels treatment associated with harvest and non-commercial thinning.
- construct 1.0 mile of new system road and 1.4 miles of new temporary road within 400 feet of streams (0.25 mile/mile^2). New stream crossings would be constructed on Stewart Creek, Keeney Creek, and Poison Creek.
- About 6,915 acres (29 percent) of the project area is on dormant landslide terrain. About 39 miles of the system are located on dormant landslide terrain. In general, these miles of road on dormant landslide forms are at a slightly increased risk for potential mass wasting (cut and fill failures)
- reconstruct (9.3 miles) and construct (6.3 miles) of new road underlain by dormant landslide terrain.

- Commercially log 4,441 acres of land underlain by dormant landslide. The tractor and skyline units on steeper slopes are units: 33, 93, 98, 99, 124, 180, 20, 36, 84, 86.1, 86.2, 89, 107, 122, 126, 130, 132, 139, 144, 179, 185, 186, 189, 192, 215, and 242.
- Expand rock pit by 4 acres.

Alternative 3 would treat approximately 13,725 acres through the use of harvest (5,102 acres), pre-commercial thinning (10,833 acres) and fuels management (11,061 acres) strategies. The amount of new and temporary road construction proposed is reduced to 0.4 mile as opposed to 9 miles proposed in Alternative 2. As a result of reduced road access, harvest would occur on approximately 1,750 fewer acres than alternative 2. "Alternative 3 is the environmental preferred alternative. Alternative 3 has fewer roads and proposes less harvest and fuel treatments. There would be less sedimentation and soil disturbance under this alternative."

Additional DEIS Comments:

Once again the Ochoco Forest Service's "Viable Ecosystems Management Guide"(VEMG) is being used as the basis for yet another scientifically flawed and ecologically harmful project. Despite this document now being several years old, it is still a draft that has not been adequately subjected to peer review or revision; failing as such to incorporate credible contemporary scientific research or critique. Again in the East Maury Project, the Forest Service is using VEMG as a *de facto* plan amendment, however this use is unlawful as VEMG has never completed public NEPA analysis nor scientific peer review. The reliance of this DEIS on VEMG fails clear requirements of the NEPA on at least three points:

1) VEMG is an outdated draft document that fails to incorporate contemporary scientific research findings pertinent to its findings and to this proposed project;
2) VEMG has never been put through scientific peer review or public NEPA processes;
3) The reliance upon VEMG has precluded agency review and inclusion within the DEIS of credible peer reviewed and contemporary scientific research that is both pertinent to this proposed project and considered to have greater scientific accuracy, credibility, and applicability;
4) The use of VEMG fails NEPA requirements mandating the use of the best available science, expert advice, and professional accuracy;
5) The failure of the DEIS to disclose and assess continuing scientific controversy related to many of the proposed commercial logging and road building actions of this vegetation management project, and to disclose and review specific scientific research studies and recommendations pertinent to this proposed project violates the clear requirements of the NEPA;
6) Among the scientific research studies that both VEMG and the East Maury DEIS fails to address, incorporate, contradicts, or otherwise is inconsistent with are (accompanying as part of these comments is the CD "Fire and Thinning Science Vol.1" which has these and other scientific research studies):
    - Fire, Fuels and restoration of ponderosa pine-Douglas fir forests in the Rocky Mountains, USA (Baker et al, 2005). A restoration model based on low-severity fire modeling, focusing on thinning and prescribed burning to restore historical forest structure.
    - Executive Summary: Interim protection for late successional forests, fisheries and watersheds (1993).
    - Study: Reforestation rich after fires: looking at the aftermath of wildfires in the forests of southwestern Oregon and Northern California (Barnard, 2007).
    - Fire regime considerations: Key issues in fire regime research for fuels management and ecological restoration (Veblen, 2003).
    - Forest Dreams, forest nightmares: An ecological and economic look at the Blue Mountains and the changes that have taken place since settlement (Langdon, 1995).

- Preemptive and salvage harvesting of New England forests: When doing nothing is a viable alternative, (Foster & Orwig, 2006).
- Changes in downed woody material and forest structures after prescribed fire in ponderosa pine forests, analyze changes in downed woody material and forest structure (trees and snags) measured within one year after prescribed fire treatments completed in Arizona and New Mexico in order to see effects on wildlife populations and their habitat (Saab).
- Birds in the black: *Through following avian wildlife, a UM scientist has discovered that burned forests play a critical role in the health and diversity of the Western landscape* (Jamison, 2005).
- Research Article: A landscape model quantifies error in reconstructing fire history from scars. *Errors in reconstruction may lead to a misunderstanding of the role of fire or incorrect restoration prescriptions. Here, a stochastic landscape model is used to quantitatively assess the accuracy of a commonly used statistic* (2005).
- Logging to control insects: The science and myths behind managing forest insect "pests". (Black, the Xerces Society for Invertebrate Conservation, Portland, Oregon, 2005).
- Neo-tropical migrant and native birds: The impacts of timber logging on neo-tropical migrant and native birds.
- Fire severity in conifer forests of the Sierra Nevada, California (Odion & Hanson, 2006).
  A study of both spatial and temporal patterns of contemporary fires in the Sierra Nevada Mountains, California and how they are linked to species diversity.
- Fire ecology of Ponderosa Pine and the rebuilding of fire-resilient Ponderosa Pine Ecosystems (Fitzgerald, 2005).
- Research Proposal: Post fire management of snag forest habitat in the Sierra Nevada, (Hanson, 2006). *Investigation of the association of three woodpecker species with four habitat strata following fire in the Sierra Nevada, assessment whether one species in particular, the Black-backed Woodpecker, may generally be restricted to forest recently burned at high severity ("snag forest habitat"). Also investigates the factors that best explain post-fire conifer mortality, and thus the creation of snag forest habitat, as well as the extent of natural conifer regeneration in snag forest patches that are left unmanaged following severe fire.*
- Stress (Waring, OSU, 2004) *A brief analysis of the kinds of tolerance and avoidance mechanisms that trees evolved to withstand specific stresses.*
- Studies to find danger to forests in thinning without burning (Robbins, New York Times, 2006). *Missoula, Montana – Thinning forests without also burning accumulated brush and deadwood may increase forest fire damage rather than reduce it, researchers at the Forest Service reported in two recent studies.*
- Thinning and nitrogen fertilization in a Grand Fir stand infested with Western Spruce Budworm. Part IV: An ecosystem management perspective (Waring, 1992). *Allowing pine forests to be replaced with fir through fire protection and selective logging has increased the nitrogen demand beyond that readily supplied in the ponderosa pine/true fir type. Fertilizing with one application of nitrogen at the time of an insect outbreak may reduce mortality and associated fire hazard through a period of up to 5 years.*
- Assessment of site index and forest growth capacity across the Pacific and Inland Northwest U.S.A. with a MODIS satellite-derived vegetation index (Waring et al, 2006).
  Foresters, scientists, and policy makers would benefit if region-wide maps of potential forest productivity were available at decadal intervals to record changes, seek causes, and plan for the future.
- The watershed impacts of forest treatments to reduce fuels and modify fire behavior (Rhodes, 2007). (Pacific Rivers Council) *This report examines the effects on watersheds and aquatic*

resources from forest fuel reduction treatments aimed at modifying wildland fire behavior on public lands.

- Avian Population Trends *(Brian Sharp) Report documents the significant population declines of interior forest dependent avian species resulting from logging in Central Oregon and Pacific Northwest forests.*
- Report on the values of snags and down wood (Rose et al. 2001).

7) The inappropriate reliance upon VEMG has contributed significantly to the inadequate range of developed alternatives. Included among the scientifically and ecologically reasonable alternatives agency failed to responsibly consider are restoration alternatives with no commercial logging, road building, or heavy machinery use, and a range of alternatives with limited ecologically-based commercial logging (such as small diameter and variable diameter tree removal only: 8" to 12" dbh, and 14" to 18" variable dbh including species-specific dbh limits, etc). As noted in our previous comments and quoted legal rulings, these failures violate federal environmental policy laws and judicial rulings.

Scientifically and ecologically consistent changes needed:

- Retain all trees with mature and old growth characteristics. Old growth and mature trees regardless of size are inherently fire resistant and provide important habitat and ecological functions essential for forest stand ecological integrity. Characteristics of maturing and old trees include increased bark thickness, furrowing, and/or color variation form younger immature trees; canopy structure and shape; branching structure; evidence of "decadence," slowed radial and height growth, varying presence and/or susceptibility to mistletoe, root rot, insects, and disease; presence of fire scars; etc.
- Concentrate management on edge-area forests near residences, and previously roaded, logged, and managed forests, with management actions appropriate to Plant Association Groups (PAGs) and dominant and/or co-dominant seral species. In ponderosa pine frequent low intensity fire ecology forests: employ as site-specifically appropriate variables of traditional small-diameter tree "thinning from below" to create single strata stands of large trees and/or "free-thinning from below" to create multi-aged stands with large trees. This approach will help establish a heterogeneous mix of stand conditions. In mixed conifer, mixed and high fire severity regime fir and/or fir/larch/ponderosa pine forests and in interior LOS forest habitat: avoid inappropriate scientifically controversial or ecologically unsubstantiated thinning. The preponderance of restoration science recommends against extensive thinning in mixed fire severity forest regimes, concluding that such management actions are unwarranted, may result in increased risk of severe fire, and adversely impact ecological integrity, biodiversity, forest hydrology, and wildlife habitat. (The DEIS is vague on the agency's definition and interpretation of what "individual tree selection" means. It's described as multi-aged forest with a diameter limit. Does this mean free thinning below 21" dbh? Is it a form of regen harvest? Science strongly recommends that thinning should not be so heavy as to regenerate a new cohort. Additionally, thinning established trees that have begun to exhibit fire resistance and resiliency characteristics increases the risk of future severe fires, as these removed trees are soon replaced with more fire-susceptible vegetation, brush, and small seedling trees.)
- In ponderosa pine stands employ large skips and small "gaps" (less than 1 acre and where possible in areas that are naturally open or that have recently filled in with small diameter young trees) to mimic the typical patchy-clumpy stand conditions found on the eastside. Gaps should not be located in areas where there are already stands of maturing trees, and should be of limited size – one acre or less unless site-specific natural stand conditions evidence localized size variations.

Gaps should be appropriately thinned and capable of providing and enhancing wildlife habitat. These should not be clearcut.

- Mimic natural disturbance by retaining significant amounts of dead wood, both standing and down. In areas where snags and/or downed log levels are deficient, instead of felling and removing during thinning, at least some trees to-be-thinned above 12" to 14" dbh (or more as appropriate) should be turned into standing snags and/or downed logs and retained as wildlife habitat.
- There should be absolutely no commercial logging-thinning in any of the area's "fire suppressed" "riparian habitat conservation areas." Ecologically limited non-commercial thinning should be employed in a variable mix of management methods, with most if not all of RHCAs left unthinned. Care should be taken to prevent adverse impacts to waterways, aquatic species habitat, and riparian resources. No heavy or ground disturbing machinery should be used in or near RHCAs. Seasonal restrictions during avian species nesting and fledging periods, aquatic species spawning periods, and botanical species emergence and pre-seed development periods should be employed. Care must be taken to prevent introducing or spreading invasive non-native plant species.
- DEIS goals and restoration objectives in RHCAs can best be met by also incorporating provisions to significantly limit, restrict or terminate livestock grazing in these areas, whether this be done permanently, seasonally, or for a specified period of years/time. The DEIS must be revised to adequately address this compounding cumulative issue, and incorporate such provisions as ecologically and scientifically appropriate into the proposed management actions.
- In thinned areas, retain sufficient small and medium-sized trees to provide for ecological integrity, stand structure, wildlife habitat, and ensure adequate future recruitment into the large tree and large snag cohorts.
- Incorporate critical aspects of watershed restoration including: reducing the impacts of the road system's excessive and poorly maintained roadways; curtailing harmful impacts from livestock grazing; and establishing the ecological processes that will allow water quality impaired streams, and natural fire regimes to recover. The project should restore ecological *processes* that can be self-sustaining; rather than just attempt to restore forest *structure* – which absent forest self-resilient natural processes would require an unsustainable continuous expenditure of funds, resources, and effort to maintain.

A few additional questions

- How much dead wood habitat should we be leaving, and how do we ensure that it is provide through time? The current forest plan standards for snag-associated wildlife (based on "biological potential") are scientifically outdated and need to be updated. DecAID is a start, but it has its own limitations and DecAID has not been officially adopted as a management standard with appropriate tolerance levels clearly specified for each land allocation. We herein incorporate by reference previous comments we have made regarding DecAID, and also comments by Oregon Wild on this project regarding DecAID and other ecological and legal issues.
- How can we balance the unavoidable adverse impacts of logging, roads, activity fuels, weeds, etc. versus the rather uncertain benefits of fuel reduction? Fuel reduction may have little or no beneficial effect on low severity fires (which are largely controlled by favorable weather conditions) or high severity fires (which are largely controlled by unfavorable weather conditions). What is the actual likelihood that favorable fire will occur any given stand during the relatively brief time period that fuel hazard is reduced by treatments? And, if fire does occur, will there be a good match between the actual forest type, the actual fuel treatment, and the actual weather conditions?

- How effective will restoration treatments be in the long run unless we address the underlying causes of forest health problems, such as fire suppression, livestock grazing, roads, as well as top-down influences such as CO_2 enrichment and climate change.
- What scales and pace of restoration is needed to maintain viable populations of native wildlife, or conversely, given what's going on outside of the federal forest land base, what scales and pace of treatment can be tolerated while still maintaining viable populations?

Snags and Dead Wood

Snags and dead wood are critically important yet vastly under-represented elements in forest ecosystems. Forest management can have significant adverse impacts on dead wood, from fire suppression to regen harvest, salvage logging, sanitation, thinning that captures mortality, hazard tree removal, firewood cutting, etc. The NEPA analysis for this project fails to disclose or adequately address these issues. Current plan direction for protecting and providing snags and down wood tends to be focused on a small subset of the full spectrum of values provided by dead wood and does not ensure the continued operation of these ecosystem functions or meet the complete lifecycle needs of the many species associated with this unique and valuable habitat component. The proposed project analysis and range of alternatives needs to be revised to incorporate scientific research and recommendations addressing the many values of snags and down wood presented in Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* ***Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://www.nwhi.org/inc/data/GISdata/docs/chapter24.pdf

The statement on page 169: "In most cases, wildlife usage is more common when snag is density is higher." is not carried through the analysis. Logging captures mortality and removes trees that would otherwise become future snags. Logging also increase tree vigor and delays snag recruitment. The reduction and delay of normal snag recruitment processes has adverse impacts that are simply not fully disclosed in the DEIS. NEPA requires proposed actions incorporate and have foundation in accurate science and high quality expert advice, and that environmental impacts be fully disclosed and addressed.

Similarly, the analysis on page 169: "The development of hollow snags would be less common than would occur under a natural fire regime, as heart rots spreads through the bole of large live trees very slowly. Trees that are killed rapidly by the combination of competitive stress and insects are less likely to develop sufficient heart rot to create hollow tree habitat than trees that remain defective but alive for years. Hollow trees that die as a result of competitive stress are not likely to remain standing as long as hollow trees that remain alive for a longer period of time. This alternative could result in less habitat in the long run for Vaux's swift, black bear, American (pine) marten, bats, and other species that utilize large hollow snags, trees and logs." - completely fails to address the compensating factor that under the no action alternative there are lots more trees that will suffer mortality and remain in the forest so even if a smaller fraction of trees become hollow, that fraction is applied to a much larger base number of trees so the result might be larger under no action than action alternatives that capture and remove mortality. Further, due to its failure to incorporate science research and recommendations beyond VEMG, and its legally deficient "purpose and need" and logging-focused "alternatives," the DEIS fails to develop a range of action alternatives that could adequately address these and other ecological and restoration issues.

The assertion on page 170: "This project does not propose to harvest snags, so the amount of snags present within the project area should not be substantially altered by thinning implemented under this project." - is misleading as it only looks at a limited viewpoint in time right after the logging but before the application of prescribed fire which will potentially consume a significant number of the

retained snags. This assertion also fails to account for captured mortality and the reduction in the number of trees available for future recruitment, and the projected increase in vigor that could feasibly delay snag recruitment.

The assertion on page 170: “The number of snags felled as hazard trees and to clear right-of-way and landing areas is incidental to this project and is not expected to occur on more than 5 percent of the treated area.” - fails to accurately describe the extent of the activity areas that are subject to OSHA safety requirements. If one were to draw a 150 foot buffer around all haul roads, skid trails, landings, and other activity areas where workers will be exposed to hazards, it represents far more than 5% of the treated area. Extend this picture across the treated landscape on public and non-federal lands and ones starts to get a clear picture of the significant cumulative shortage of snags across the landscape.

The only attempt to quantify the effects on snags is Table 3-47 but this is incomplete and misleading. First, this table focuses on the live trees habitat structure, ignoring the critical need for large snags in the stands. Second, this table only addresses one of the many species (primary cavity excavators plus many others) associated with dead wood. By limiting Table 3-47 to the white-headed woodpecker, the one species that uses more open habitat, the DEIS fails to quantify and fully disclose adverse impacts to many species that rely on dense forests with more abundant snags and dead wood, such as pileated woodpecker, marten, black-backed woodpecker, Lewis’ and Williamson’s woodpeckers, goshawk and their prey, flammulated owl, etc.

The disclosure on page 173: “Based on harvest history and these assumptions, the level of snag retention within the project areas is estimated to be at approximately 42 percent of the maximum potential population capability for primary cavity excavators within the watershed. This analysis is required to compare to standards in the Forest Plan, even though this “biological potential” method has been questioned recently (Bull et al., 1997; Rose et al, 2001).”) - raises several concerns. First, the forest plan as amended by the Eastside Screens requires maintenance of 100% potential population levels of snags associated species, but this project will reduce and delay mortality and significantly retard attainment of this objective. The DEIS (p 12) tries to mitigate for this problem by saying that existing snags will not be harvested, but this is certainly inadequate because snag levels over time are determined not by the number of existing snags in any snapshot in time, but by the number of green trees that are available for continuous future recruitment. Second, the statement admits that the biological potential methods has been discredited but proposes no alternative means of assuring maintenance of habitat to support viable populations of species associated with dead wood. NEPA requires this latter issue either be addressed or the DEIS provide an explanation why such information is lacking and can not be obtained. As actions are to be based upon high quality science and expert advice, where supportive information is lacking, responsible management discretion would weigh in favor of reducing project impacts and – at a minimum – changing the proposed project to comply with Eastside Screen Forest Plan requirements.

The analysis of large wood recruitment in riparian areas under the no action alternative on page 119-120 is misleading. It states: “Because of competition, conifers would grow at slower rates and trees (future large woody debris) would be smaller in diameter than would be expected in less dense stands. …Wood would be available for future recruitment in the streams but would not be large in diameter category (>21 inches dbh, >35 feet long INFISH).” This fails to recognize (1) that recruitment of many small trees (because they are not removed by logging) may compensate for the increased size of trees that may grow faster under the action alternatives, and (2) that tree continue to grow even under the relatively dense stand conditions of the no action alternative. Some will even grow to large size. The analysis of the action alternatives are equally flawed, stating “Activities have been proposed within RHCAs to increase the vigor of riparian vegetation and contribute to recruitment of future large woody material. … increased tree growth is expected and would increase future recruitment of large woody material.” This fails to

recognize (1) that logging "captures mortality" and sacrifices quantity (more numerous small woody input) for quality (fewer larger woody input). The NEPA analysis must disclose, quantify, and consider this trade-off. The analytic flaws described here for large wood recruitment seem to be carried through to the fisheries analysis, e.g. ("Thinning is expected to increase individual tree growth and promote the development of large trees and LWD recruitment to the stream channel. Fish habitat would improve due to increased cover and pool formation with LWD input"). The DEIS also fails to acknowledge the adverse consequences of capturing mortality in terms of reduced habitat for goshawks, native and neotropical avian species, woodpeckers and cavity nesters, and other species dependent upon these features.

The DEIS inappropriately misuses two arbitrarily selected species to represent the needs of other species that are also considered to be management indicator species. Each species has unique habitat, viability, rearing, and foraging requirements. The DEIS says, "other species of primary cavity excavators that would be present in the project area are represented by either the pileated woodpecker or the white-headed woodpecker." Similarly, the DEIS fails to address the significant reduction and loss of viable habitat for smaller woodpeckers such as downy, hairy, Lewis' woodpeckers, sapsuckers, and the many species of cavity nesters among neotropical and native avian species, as well as bats, small mammals and invertebrate species dependent upon these habitat resources.

Goshawks

The DEIS Goshawk analysis contradicts abundant scientific research and recommendations regarding adverse logging impacts upon goshawks by asserting that "thinning … would have the added benefit of creating more open space for flight below the overstory canopy, which can be desirable in foraging habitat for goshawks. … Understory thinning may improve prey availability…" These are highly speculative and unsupported assertions that should not be relied upon until there is scientific support for them. The DEIS fails to provide substantiating science for these erroneous assertions, and fails to disclose credible peer reviewed science that contradicts them – in violation of the NEPA. Scientific research has clearly and irrefutably documented that: Goshawks prefer dense forests. Goshawk prey species prefer complex structures that are often called "surface fuels and ladder fuels. Projects that commercially log and remove forest structure across thousands of acres, such as this proposed project, would clearly have considerable adverse impacts upon not only goshawks but their prey species and to numerous other forest-dependent species as well, however the NEPA analysis fails to adequately acknowledge or address this major issue.

A recent review of the most accurate information on goshawk habitat selection confirms that goshawks select late successional forest structure (e.g. high canopy closure, large tree for forest type, canopy layering, abundant course woody debris). This review continues to support Reynolds' 1992 recommendations to manage nest core areas and post-fledging areas for late successional forest characteristics.

This review also does not find support for a few of the assumptions underlying Reynolds' 1992 management recommendations.

(1) Goshawks are habitat generalists only in the sense of using forests with a variety of tree species, but they are not habitat generalists in terms of selecting forest structure. They disproportionately select for late successional forest.
(2) Goshawks are not opportunistic foragers. Rather they appear to select for prey availability as determined by late successional forest structure.
(3) Goshawk are not limited by prey abundance. They select for prey availability, with absolute prey abundance being only a component of availability, late successional forest structure being an important determining factor.

Some relevant excerpts from this review include:

> Boal et al (2001) found that stands used by goshawks contained 1.6 to 2.4 km of down woody debris per hectare with an average diameter of 17-19 cm, depending on forest type, and Bloxton (2002) documented that goshawk kill sites has greater numbers of snags ≥12.5 cm dbh/ha (u=77) than random sites.
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> …
>
> … the consistency of results in demonstrates goshawk selection for late successional forest structures (e.g. high canopy closure, large tree for forest type, canopy layering, abundant course woody debris) when using areas within their studies home ranges. …
>
> …
>
> A majority of studies found selection for stands with >40% canopy closure and greater densities of trees over 40 cm dbh. …
>
> … goshawks may be broad habitat generalists in terms of tree species but are habitat specialists with respect to forest structure. …
>
> … prey abundance is not the most important factor is selecting foraging sites ...
>
> Several studies determined that goshawks select foraging habitat based not on prey abundance but rather prey availability as determined by habitat structure. … [R]ecommendations focusing on increasing prey abundance at the expense of forest structure within occupied home ranges are not likely to improve goshawk occupancy rates.
>
> …
>
> goshawks avoided open areas, particularly logged open areas, and none found selection for openings. … current information does not conclusively support a contention that creating openings through logging will benefit the goshawk. Given the history of clearcutting in much of the western United States range of the goshawk, we very much doubt that forest clearing are a limiting factor for the species.
>
> …
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> Occupancy rates were reduced by removing forest cover in the home range…
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> …
>
> We have no way of knowing assessing whether 40% of the landscape in mature and old-growth forests is sufficient to sustain goshawks. … we recommend protecting existing mature and old-growth forest characteristics and ensuring that such forests are allowed to develop in proportions similar to pre-settlement conditions. This can be accomplished by restricting cutting to small trees and prohibiting large reductions in canopy closure. A similar proposal was recently adopted by Region 5 of the United States Forest Service for the Sierra Nevada.

Greenwald, Crocker-Bedford, Broberg, Suckling, and Tibbitts. 2005. A review of Northern goshawk habitat selection in the home range and implications for forest management in the western United States. Wildlife Society Bulletin 33(1):120-129.

This comprehensive review of telemetry studies does not find support for the hypothesis that thinning improves goshawk foraging habitat. Absent clear scientific support, the agency should clearly label the statement as an unsupported hypothesis. The DEIS violates the requirements of the NEPA regarding goshawks and the likely adverse impacts of this project upon many associated interior forest-dependent species.

Complex effects of logging on fire hazard.

The DEIS fails to consider the complex effects of thinning on fire hazard. Fire hazard is almost always measured through a surrogate - fuel structure, but fire is in fact controlled by several factors, including fuels, weather, and topography. Logging has an influence on two of the factors that control fire behavior - both fuels and microclimate. The EIS should consider the influence of removing canopy trees

on making the stands hotter, dryer, and windier, as well as the creation of slash and the establishment and growth of future ladder fuels. The EIS must inform a rational decision that finds the right balance between canopy fuels reduced to reduce the risk of spreading crown fire vs canopy retained to maintain a cool-moist microclimate and suppress the growth of ladder fuels.

Pages 73-74 of the DEIS admit that opening the canopy will increase fine fuels and reduce fuel moisture but then concludes that this is beneficial because it will help carry ground fires and reduce fuel build-up over time. This sounds like a great way to restore ecological processes except that it won't. The Forest Service still practices aggressive fire suppression, so frequent low severity fire will likely not be restored, fuel will likely build up and fuel moisture will be reduced, so logging will not really solve anything unless the Forest Service takes the additional steps to remove livestock and stop suppressing low severity fires. Unless the DEIS also includes provisions for long-term restoration and maintenance of natural fire regime cycles, this assertion is groundless and violates the NEPA.

Page 74 has a stunning contradiction: it says that removing the canopy is good because it will stimulate the growth and drying of fine fuels such as grass that will carry fire and maintain low fuel levels and decrease the probability of crown fire, but then four paragraphs later the EIS says that livestock grazing is good because it removes fine fuels that carry ground fire. Grass cannot be both 'beneficial' and then a few paragraphs later 'harmful.' The Forest Service must abide by the NEPA's professional, accuracy, and expert requirements, requiring reasonable substantiated disclosures, and project analysis and development consistency. The DEIS must be revised to provide a coherent working model of forest ecology and consistently effective management actions. Again, mechanical treatment modifies forest structure but not process. As such the DEIS alternatives and supporting analysis, in terms of restoration, are scientifically and legally fatally-flawed unless and until livestock grazing and fire suppression are also addressed, along with accurate wildlife habitat provisions, and the proposed actions appropriately changed.

Fire behavior.

The DEIS page 76 displays maps showing fire behavior under the different alternatives. The analysis behind these maps assumes a certain set of conditions that may or may not be typical. The assumptions set up a fire that is clearly fuel driven, when in fact many fires are not driven by fuels but are driven by weather, such as fires that occur under cool moist conditions (that tend to affect few acres), or fires that occur during very hot, dry, windy conditions (that tend to affect the most acres with stand replacing behavior regardless of fuel treatment). When fires are weather-driven the condition of fuels is less influential on the fire behavior and the vegetation outcome. The new SEIS should disclose the probability that treatments will be affected by fuel-driven fire vs weather-driven fire over the relatively brief time period that these treatments will be effective.

Soils and watershed impacts.

The DEIS fails to accurately address the effects of ground-based logging (plus roads, hauling, landings, grapple piling, activity fuel treatments, firelines, grazing, peak flow effects) especially on highly erosive soils and dormant landslide terrain. There should be no new or temporary road building as part of this project. The proposed actions must also retain sufficient additional dead wood and recruitment trees which provide important hydrological functions. "Large wood helps to anchor snowpacks, limit the extent of snow avalanches, and may even stabilize debris flows, depending on the depth of the unstable area. … By covering soil surfaces and dissipating energy in flowing and splashing water, logs and other forms of coarse wood significantly reduce erosion. Large trees lying along contours reduce erosion by forming a barrier to creeping and raveling soils, especially on steep terrain. Material deposited on the upslope side of fallen logs absorbs moisture and creates favorable substrates for plants that stabilize soil and reduce runoff." Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B.

Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* ***Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://www.nwhi.org/inc/data/GISdata/docs/chapter24.pdf

"Monitoring of West Maury project found substantial disturbance in ephemeral draws and swales from landings, whole tree yarding slash piles, and associated skid trails, which have the potential of being the main source of harvest generated sediment… To reduce this effect, design elements such as limiting equipment used in swales and ephemeral draws and more scarification and seeding have been added. Landing location and size would be addressed during implementation planning."

Implementation was a problem in the West Maury project. The same set of incentives are at work that pressure contract administrators to take short-cuts and reduce implementation costs. What makes this project different? The DEIS should go into more details on the problems and proposed solutions and the SEIS/FEIS and final Record of Decision (which cannot be made until a new EIS is completed subjected to additional public review and comment that addresses the many legal and scientific analysis deficiencies and failures) must include explicit mitigation, not just vague promises to take care of it later.

Additional West & East Maury Failures

West Maury logging resulted in house and apartment sized slash and woody debris piles. The agency and purchaser deemed these too expensive to remove for economically feasible biomass or other product utilization. Consequently, they were slated for burning. Burning such large slash piles results in irretrievable harms to forest soils and area ecological integrity – not just in the short term – but for hundreds of years. Fire sterilized soils, in this case in heat extremes and duration far beyond natural ranges, cannot feasibly support native forest vegetation. Such areas are prone to erosion from wind and water borne soil loss, as well as potential host sites for invasive exotic plants. The DEIS fails to adequately disclose or address this essential issue.

DEIS Fails to Incorporate and Address the Effects of Livestock Grazing on Forest Ecology

Effective restoration of ecological processes requires the agency also address and reduce grazing or remove livestock. Grazing not only alters vegetation/fuel structure but also degrades soil, pollutes water, and harms wildlife.

The DEIS says, "There is a potential indirect effect from increased livestock use in treated riparian areas due to removal of brush and down wood, increased grasses and forbs, increased palatability of forage resulting from higher nutrient content and new growth, and forage remaining succulent later into the season in riparian areas. Increased trampling of banks could increase sediment delivery and grazing on streamside vegetation could reduce shade. This would be partially offset by redistribution of livestock to new forage outside riparian areas and higher fuel levels being retained in RHCAs than on the uplands." Instead actions adjacent to RCHAs should be designed to retain barriers to movement in riparian areas such as creating and retaining extra dead wood as well as stand density and structure.

Livestock grazing has a direct influence on the vegetation structure that this project is designed to address. The agency must analyze the effect of past and future grazing which will tend to reduce palatable fine fuels like grasses and shift the plant community toward less palatable shrubs and trees which are more hazardous as ladder fuels. Livestock grazing probably contributed to the development of plant communities where grass and forbs are underrepresented and small conifers are over-represented. Grazing also likely contributes to the spread of juniper. Future livestock grazing will tend to cause these same trends, so the NEPA analysis must consider the connected and cumulative impacts of livestock grazing.

This project does nothing to address the threat that livestock grazing causes to forest health. There is virtually no point in trying to mechanically reduce tree density unless you deal with other underlying

causes of overstocking, e.g. livestock grazing. The NEPA document describes the effects "on" range resources (e.g., fences and transitory range) but fails to disclose or analyze the effects "of" livestock on forest health and the desired future condition of vegetation composition.

Grazing reduces the density and vigor of grasses which usually outcompete tree seedlings, leading to dense stands of fire-prone small trees. Cows also decrease the abundance of fine fuels which are necessary to carry periodic, low intensity surface fires. This reduces the frequency of fires, but increases their severity. See Belsky, A.J., Blumenthal, D.M., "Effects of Livestock Grazing on Stand Dynamics and Soils in Upland Forest of the Interior West," Conservation Biology, 11(2), April 1997. http://www.onda.org/library/papers/standdynamics.pdf See also Wuerthner, George. Livestock Grazing and Fire. January, 2003. http://www.onda.org/library/papers/Livestock_Grazing_and_Fire.pdf

The NEPA document failed to address these issues and failed to consider alternative ways of avoiding these impacts by not grazing. The combination of fire suppression, past high-grading, and livestock grazing together caused the overstocked condition of the stands in the analysis area. Logging and prescribed fire will only partially address the problem. To be effective, livestock grazing must also be eliminated. Grazing and logging cause cumulative effects that must be considered together in one NEPA document.

The court's decision in League of Wilderness Defenders v. USFS, Civil No. 04--488—HA. 2004 U.S. Dist. LEXIS 24413. November 19, 2004, makes clear that the agency has a duty to take a hard look at the effects of grazing in the context of making timber sale decisions. The agency must disclose cumulative impacts and cannot compartmentalize.

Further evidence of the adverse forest health effects of livestock are presented in Michael H. Madany, and Niel E. West. Livestock Grazing-Fire Regime Interactions within Montane Forests of Zion National Park, Utah. Ecology: Vol. 64, No. 4, pp. 661-667.

> Abstract. Major differences were found between the vegetation structure of ponderosa pine-dominated communities on the Horse Pasture Plateau and those on the nearby but isolated Church and Greatheart Mesas in Zion National Park. The Horse Pasture Plateau was heavily grazed by livestock in the late 19th and early 20th centuries, while the mesas were never grazed. Conditions on the mesas now approximate the pre-European situation of the region as described in the earliest written accounts. Pine, oak, and juniper sapling density and cover were much higher on the formerly grazed plateau than on the relict mesas. Herbaceous species dominated the ground layer in mesa ponderosa pine savanna stands, while grass and forb cover was low on analogous sites of the plateau. Age-class distributions of major tree species further substantiated that major physiognomic changes have occurred on the plateau since the arrival of European man. Analysis of fire scars showed that prior to 1881, the mean fire-free interval for ponderosa pine stands on the plateau was 4 to 7 yr, while the interval for Church Mesa was 69 yr. Since there were no recorded fires on Church Mesa between 1892 and 1964, and yet no corresponding increase in sapling density, the increased understory density of plateau stands should not be attributed primarily to cessation of fires. Instead, heavy grazing by livestock and associated reduction of the herbaceous ground layer promoted the establishment of less palatable tree and shrub seedlings, Fire, however, played an important secondary role in maintaining savanna and woodland communities.

Grazing is also known to have significant adverse impacts on ground nesting birds. Cattle Grazing in a National Forest Greatly Reduces Nesting Success in a Ground-nesting Sparrow. Glenn E. Walsberg. The Condor Volume 107, No. 3. August, 2005.

The agency often erroneously concludes that livestock grazing will not affect upland vegetation of fuel profiles because fire suppressed stands are too dense to allow livestock access, but this is a gross oversimplification. The agency is conducting so-called "restoration" projects to reduce fuels and vegetation density which has and will allow livestock use. The NEPA document must disclose how livestock grazing interacts with the so-called forest restoration projects. The goal of restoration is a more open stand, and the agency wants more grass and forbs and fewer conifers, but grazing in those "restored" stands will cause the opposite effect – more conifers and less grass and forbs – thereby conflicting with the restoration objectives.

Conclusion

We supplement our previous comments as noted within those comments, in part due to the public confusion arising from the discrepancy between the publication of this DEIS project notice in the federal register and the actual publication date in the newspaper of record – which would makes June 6, 2008 the ending of the 45 day public comment period. We add these additional comments based upon our legal standing and interest in this and other Ochoco projects, as we have submitted our previous comments within the agency's stated requisite timeline, and as the FEIS and decision have not yet been completed and there is sufficient reasonable time to include these comments. These additional comments can also help augment and clarify conservation concerns noted in our previous comments, and assist efforts to develop a more effective and ecologically and legally appropriate project. We look forward to discussing these issues further and to visiting the project area with agency planning staff and decision-makers.

For our natural 'wild' forests,

Asante Riverwind,
Eastern Oregon Forest Organizer,
Oregon Chapter Sierra Club
P.O. Box 5534
Bend, Oregon 97708
(541) 322-4065
asante.riverwind@sierraclub.org

and for: Karen Coulter, Director,
League Of Wilderness Defenders-Blue Mountains Biodiversity Project
27803 Williams Lane
` Fossil, Oregon 97830
(541) 468-2028 office
(541) 385-9167 voice mail

Quotations, however, eloquent or inspiring, cannot compare to a day spent free amidst the wonders of wild nature..