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Comments on the Proposed Canyon Project EIS

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The Oregon Chapter Sierra Club and the League of Wilderness Defenders-Blue Mountains Biodiversity Project have reviewed the February 12, 2009 notice for the proposed Canyon Project EIS. The Sierra Club represents over 20,000 members throughout Oregon, including the Club's Juniper Group, which has over 1,000 members throughout central and eastern Oregon. Sierra Club members feel strongly about nature, wilderness, natural forest ecosystems, wildlife, fisheries, and the environment. Sierra Club members regularly enjoy hiking, camping, wildlife watching, birding, ecological study, photography, natural solitude, and recreation within the national forests of central and eastern Oregon, including the Ochoco National Forest Canyon Project area. LOWD-Blue Mountains Biodiversity Project has many members and volunteers throughout the Northwest. Members and volunteers of the LOWD-Blue Mountains Biodiversity Project regularly use the Ochoco National Forest, including the Canyon Project area, for hiking, ecological study, watching wildlife, viewing forest native botanical diversity, and avian species study. The Canyon Project as proposed would adversely impact the environment of the greater Canyon Project area, significantly harming the interests of the members and volunteers of both of our organizations, .

The proposed Canyon Project involves:

Proposes commercial logging across 4,859 acres of forest, pre-commercial thinning on 5,494 acres, "prescribed" fire (more correctly known as controlled fire) to "reduce fuels" on 1,989 acres, juniper cutting on 1,397 acres, and riparian and hardwood logging-thinning actions on 236 acres. The agency proposes 19.5 miles of new road construction and 13.2 miles of road reconstruction.

Proposed "Purpose & need:"

- "1. maintain and increase the abundance of late & old structure (LOS) stands;"
- "2. reduce fuels and the potential for high-intensity wildfires;
- "3. maintain conditions that currently support low intensity fires;"
- "4. reduce the susceptibility of the landscape to large-scale infestation by insects and disease;"
- "5. enhance hardwood communities, such as aspen and cottonwood;"
- "6. increase riparian vegetation and large tree structure in Riparian Habitat Conservation Areas (RHCAs);

- "7. increase early seral species composition;"

The Proposed Canyon Project must be consistent with pertinent scientific research and must meet the analysis requirements of the NEPA

The analysis for this project must address inherent flaws, omissions, and assumptions in the above "purpose and need" objectives. Among these are:

- Purpose and need 1: Science generally notes that old growth forest structure is dependent upon complex interwoven natural ecological processes; that nature is ever on a course of self-restoration and resilience; and that protecting natural ecological processes and forest conditions is the best management course to maintaining and increasing the abundance of LOS stands. Science generally does not support commercial logging as a feasible action capable of attaining purpose and need #1 above. Old growth structure is not a 'product' that can be artificially manufactured by commercially logging and adversely tampering with natural forest ecosystems. Logging and road building fragmentation, soil community disturbance, compaction, and hydrological impairment caused by logging is antithetical to the stated objective # 1. The EIS must disclose the full range of credible scientific research pertinent to this project's ecosystems, ecological processes, salmonid watersystems, and wildlife. The project's developed alternatives must be based upon scientific research. If some developed alternatives are premised on scientifically controversial assumptions and actions, other action alternatives must responsibly and objectively embody the recommendations of conflicting science. Proposed actions must provide verifiable evidence that alternative actions are capable of actually achieving the project's stated goals, and must disclose scientific research that calls into question the efficacy and basis of proposed actions.
- Purpose and need 2: Forest structure naturally is composed of flammable organic vegetation, including living and dead brush and wood fiber. Fires, including "high-intensity wildfires," are natural components of forest ecosystems, without which such systems would cease to exist. Stated purpose and need # 2 must be further qualified to bring this objective into consistency with the areas natural ecological cycles and functioning, accurate site-specific conditions, and with the recommendations of scientific research pertinent to the area's varied plant association community mosaics.
- Purpose and need 3: Fire intensity patterns vary across the landscape. A significant portion of the proposed Canyon project area is located in naturally varied mixed fire severity forest systems. Even ponderosa pine forests, often purported to be low-severity fire systems, are over time actually on the lower intensity continuum of mixed fire severity systems, and as such occasionally burn severely to fluctuating extents as part of their natural ecological cycles. Mixed conifer forest stands, and the area's overall forest mosaic patterns, are dependent upon naturally fluctuating recurrent cycles that span the range of low intensity to mid and high severity fires. Complex ecological functioning, biodiversity, plant association group mosaics, and overall forest resilience is dependent upon ongoing dynamic natural fire cycle variations in fire severity and extent. Forest pathogens are in-part kept within natural check and balance patterns by fire cycle variations. Essential wildlife habitat quality, including foraging species biodiversity and abundance, as well as variable forest structure including dense stands/hiding and thermal cover, meadow openings, plant abundance, etc are dependent in-part upon fluctuating natural fire patterns. Soil communities and functioning are dependent in-part upon fire cycle fluctuations which provide nutrients, replenish depleted forest soils, and re-arrange the ever-changing dynamics of forest stand and vegetation compositions and species habitat locations. This purpose and need must be revised to incorporate the ecological realities and scientific research knowledge pertaining to the area's dynamic mixed severity forest stand mosaic compositions. Forests are not static. Objectives should be to work towards the protection and maintenance of natural ecological processes and

resilience, which is ever-ongoing within nature. As such, the planned commercial logging as proposed is premised largely upon simplistic scientifically insupportable and ecologically erroneous assumptions. The EIS for this proposed project must responsibly disclose and address the range of scientific controversy pertinent to the area's forest ecosystems, ecological processes, wildlife, and waterways.

- Purpose and need 4: As with the complexity of dynamic ecological processes noted above, insects and disease are inherent, beneficial, and necessary components of forest ecosystems. At times even "landscape to large-scale infestation by insects and disease" may naturally occur across significant portions of forest systems. However, current levels of insects and disease are far from either landscape or large-scale at present, nor have sufficient conditions been identified to credibly ascertain that such widespread levels of insect or disease caused tree mortality is likely at any time in the foreseeable future to occur on a scale that would be detrimental to natural forest functioning, and resilience. Insect and disease levels within area forests are well-within natural variable endemic levels, and are largely very beneficial to forest structure, wildlife habitat, and soil community functioning. The EIS must disclose and assess the applicable scientific research related to natural ecological processes, including insects and disease, and the wildlife and invertebrate species dependent upon forests insect and disease tree pathogens for sustenance and habitat. The EIS must disclose and address applicable scientific research that strongly recommends against commercial logging to influence or "reduce" insect and disease activity; noting that such logging is incapable of achieving the purported goals above, and instead results in significant adverse harms throughout the forest ecosystem that actually can result in exacerbating tree mortality and other impacts of insects and disease. As with fires, natural forest ecological processes bring inherent and fluctuating levels of resilience to the impacts of insects and disease. At times, insects and disease levels must peak to perform needed soil nutrient replenishment; natural stand thinning; changed localized stand and vegetative structure and compositions; boosts to predator species populations, habitat, and sustenance sources; preparing the course for the next ongoing phase of changing forest mosaic cycles and patterns. Mechanical manipulation through logging – other than very limited scientifically controversial small diameter tree and brush removal that is largely of little or no commercial economic value – has been well-proven through a significant number of scientific studies to be severely detrimental to forest resilience, both in the short and long-term.
- Purpose and needs # 5 & 6: Hardwood communities including aspen, cottonwood, and others; and RHCA objectives; are best enhanced by addressing the root sources of unnatural conditions. First and foremost among these are livestock grazing and changes in hydrological flow patterns caused by water diversions, and unnatural changes to soil and plant communities. Roads also impair and divert both surface and subsurface hydrological flows from prior natural patterns most hardwood communities depend upon. Logging also reduces moisture and nutrient availability, harms complex soil communities, and opens areas to trampling from livestock as well as – to some extent - native ungulates. Management actions in RHCAs must be consistent with credible non-controversial science research and recommendations, and largely must protect and maintain ongoing natural recovery and resilience processes in these areas. Removing livestock from RHCAs for a minimum of ten years is a foundational requisite for hardwood and riparian plant community recovery. Removing road beds located in or adjacent to RHCAs and restoring hydrological subsurface soil flows can be beneficial. Preventing the introduction and spread of invasive exotic plants, and reducing or removing current invasive plant populations with ecologically benign methods are also essential. Returning diverted waters to affected watersystems, and removing unnatural consumption demands upon available waters – such as livestock – is important to achieving this objective. Restoring natural fire cycles may also help, provided that this does not entail harmful mechanical equipment use and logging in these areas, and providing that livestock are prohibited from affected areas for at least ten years. Theoretical

"conifer encroachment" in aspen and hardwood community areas generally only feasibly applies to small diameter young trees that may have grown in frequent fire areas since the last local fire. However, most RCHAs are actually infrequent mixed and high fire severity areas, and as such naturally had considerable vegetative and conifer growth occurring between less frequent fire cycles. As such, any proposed removal of conifers in these areas must comport with the actual natural range of variability and scientific research pertinent to proposed action locations. The EIS must disclose and address pertinent science and develop ecologically sound action alternatives that address root causes of RHCA impairment, and hardwood community abundance and resilience issues. Action alternatives should not involve scientifically insupportable or controversial logging, machinery, or road building in or near RHCAs, or in hardwood communities.

The EIS analysis must address the following also:

- Are current deficiencies of large late and old forest structure within RHCAs the result of past logging, natural or human caused fires, livestock grazing, other conditions, or a combination of factors?
- Is ongoing livestock grazing contributing to current deficiencies in hardwood plant species and water quality?
- Are current western juniper levels and extent within natural cycles of juniper expansion and contraction or the result of unnatural processes, including logging of conifer and/or hardwood species, grazing, fire suppression, etc.?
- What are the past century's fire histories (occurrences, natural mosaic fire intensity and extent patterns, suppression incidences and extent of effectiveness, fire causes)? What are the natural ranges of variability in the natural fire frequency and severity patterns for project area forest stands? How do these patterns vary dependent upon elevation, moisture patterns and hydrology, and forest stand Plant Association Groups across project area forests? What are the cumulative changes to natural forest conditions, forest soil communities, moisture availability, and hydrological functioning that have occurred over the past century, and what are the past and ongoing causes of these changes?
- Utilizing a centuries-long assessment of the area's natural range of variability and climatic fluctuations; are current forest conditions, including 'fuels' levels and fire patterns, within natural variable fluctuations for the area forest's Plant Association Groups? For example, mixed conifer mid and upper elevation forests tend to burn less frequently, with natural accumulations of dead woody materials and increasing stand density and complexity over time between longer periods of recurrent mixed fire severity cycles. Some lower elevation and south-facing ponderosa pine dominated PAGs generally have more frequent recurrent fires and less build up of woody debris and understory vegetation. It is important that project planning be tailored to fit, rather than unwisely tamper with, natural ecological processes and functioning.
- There is no need to include commercial logging as proposed to achieve the project's purported ecological objectives. Indeed science research documents significant harms from commercial logging that are antithetical to the project's stated purpose and need; and largely recommends against any commercial logging removal of trees and forest structure in mixed conifer, mixed fire severity forest stands. For drier more frequent fire ponderosa pine forest stands there exists a varying range of scientifically controversial research and recommendations pertaining to limited levels of thinning small diameter trees in areas where three or more fire cycles have been missed and young tree and brush density levels are unnaturally high. Such research however, recommends strongly against the removal of trees that exhibit inherent fire resistant characteristics, as once removed these are soon replaced with more fire-prone trees and brush.
- To the extent that the stated ecological goals can be met, in addition to providing for the wildlife viability requirements of the NFMA and to protecting natural resource concerns including

ecological functioning, forest soil communities, aquatic species, and water quality can also be met; it may be that there could be a limited component of small diameter wood resources resulting from the proposed project. However, economic objectives must be defined by scientifically supported ecological needs, and precluded at the onset from unduly influencing or directing project design and development.

- All thinning slash must be removed from the area within one year, as by the second year's summer season it would contribute significantly to greatly increased unnatural risk of severe fires in the project area, which would be antithetical to the purported project goals.
- Road density is already high in much of the project area. The agency already has far too many roads which it is incapable of maintaining, and which harm wildlife, aquatic systems, and forest ecological integrity throughout the area. There should not only be absolutely no new roads of any kind, including so-called "temporary roads" anywhere in the project area; the project must instead remove roads and restore roadbeds to natural forest topography and vegetation, and bring density levels into compliance with the LRMP and wildlife thresholds.
- Roadless areas, including uninventoried ecological unroaded areas, must be disclosed and protected from project actions, so that natural processes continue untampered with in these ecologically significant areas.
- Old growth and mature forest stands, connective habitat, RHCAs, and areas of ecological and recreational significance must be protected from management disturbance actions.
- The EIS must develop viable plans to protect, maintain, and recover listed species, species of concern, and indicator species populations, habitat, distribution and abundance throughout the project area.

Violations of objective scientifically based NEPA analysis and meaningful public involvement

As proposed, we have serious ecological and legal objection to the Canyon Project, which largely fails in its assumptions to be based upon credible science, and the natural variability of the area's ecological processes, functioning, and resilience. NEPA requires EIS analysis be objective, and fully disclose project area conditions, pertinent science, and ecological and listed-species maintenance and recovery needs. NEPA prohibits EIS processes being misused for preconceived projects with forgone conclusions already in place. This is just the scoping period for the Canyon area, and as such the notice should not be already proposing mapped out logging units and planned actions. Instead, this phase of the public NEPA process mandates meaningful scientifically sound, environmentally accurate objective analysis and public involvement. Instead, based purportedly upon the above presumptive and largely scientifically insupportable or deficient "purpose and needs," the District discloses the Canyon project already involves:

- Commercial logging thinning of 4,859 acres of forest;
- Non-commercial thinning of 5,494 acres;
- "Prescribed" - or more correctly stated – controlled fires on 1,989 acres;
- proposed logging methods are as yet unspecified whether these include soil devastating tractor machinery or light on the land equipment and methods, skyline systems, and/or helicopter hauling;
- 19.5 miles of new road construction, including: 8.2 miles of admittedly new roads, an additional 3.6 miles of new road construction segmented as scientifically insupportable so-called "temporary" roads, and another 7.7 miles of new road construction further segmented as scientifically insupportable so-called "temporary" road on an as yet unidentified "existing disturbance" area;
- The notice does not disclose the potential extent of closed roads that may also be opened?;

- 13.2 miles of road reconstruction (whether these "reconstructed" roads are currently navigable or have been reclaimed by nature is not disclosed, though this latter criteria should be categorized as new road construction;
- Unspecified extent of logging hauling miles, stream crossings, and direct and associated impacts;
- No disclosure of possible Forest Plan amendments associated with the proposed project;
- No disclosure of ESA, regional, and state listed species and species of concern that may be within the project area, and no information on species population status and trends, or on potential project impacts, objectives, or concerns related to species recovery objectives and habitat protection;
- No disclosures of water system quality listings (Oregon State 303(d) list) or listed aquatic species and species of concern that may be within the project area;
- No disclosures of cumulative impacts or simultaneous project implementation and management analysis that is or may occur within the proposed project area (the Spears project is immediately adjacent and is being currently logged; the Walton Lake Campground project; proposed rotenone poisoning of Walton Lake; OHV Travel Management Planning affecting road and OHV trail use and impacts in the district; the Burn and Crystal Springs allotments, and other unspecified allotments are and/or adjacent to the project area – the former having very recently completed analysis, decision, and appeal resolution without disclosing the existence of this planned project);

It is clear from reviewing the proposed project actions, and the actual impacts of the similarly premised adjacent Spears project, that implementation of the Canyon Project's proposed logging activities would irreparably degrade forest ecology, wildlife habitat, and impair water quality in the area's watersheds, and be inconsistent with credible science and the purported ecological objectives of the project. Proposed new and so-called "temporary" new road building; thinning of mature sized and mature and old characteristic trees; impacts to listed species, indicator species, and species of concern including (but not limited to) goshawks, flammulated owls, neotropical migrant and native interior forest bird species, lynx, wolverine, marten, elk, deer, bear, cougar, small mammals, bats, and other wildlife species; impacts from ground-based heavy logging machinery; ground and airborne sedimentation into area watersystems; and cumulative impacts from this and other area projects would undeniably result in further significant degradation of the ecological integrity, wildlife habitat, soil hydrology, and aquatic systems in and around the project area.

As per a number of agency projects where we have negotiated ecological, legal, and/or appeal issues; such as the Paulina District's Willow Pine project, and to a lesser degree the Lookout Mountain District's Spears and East Maury projects, in addition to similar projects on the Deschutes, Malheur, Umatilla and elsewhere; it is possible there are ecologically and economically feasible common ground provisions that could be incorporated into the proposed project objectives, and the development of scientifically sound action alternatives. However, this would require the agency adhere to the letter and intent of NEPA environmental policy law in conducting a legal, scientific, and environmentally comprehensive objective EIS analysis process for this project. We look forward to discussing conservation concerns with this proposed project soon, before any more time and resources are spent on developing the above proposed contrived scientifically and legally insupportable logging project.

Scientific Recommendations and Ecological Accuracy

The scoping notice's proposed actions appear at best to be based upon scientifically controversial assumptions, goals, and management methods. Whether the agency's proposed actions will effectively 'restore and maintain fire dependent ecosystems and maintain the forest in a healthy condition'

is likely to depend upon the degree in which these actions embody scientifically supportable ecologically appropriate methods to effectively address naturally occurring forest fuels, fire risks, and naturally inherent insect mortality in forest ecosystems.

As this project begins its NEPA analysis, it is important the agency assess and disclose the full range of applicable scientific research. Proposed management actions must be supported with analysis disclosures of substantiating science AND disclosures of scientific controversy or nonsupport. Accurate site-specific conditions, cumulative impacts analysis, and disclosures and assessments of the proposed projects impacts upon species of concern must be presented in the EIS. The project must base its planned actions on credible scientific recommendations towards protecting, restoring and maintaining the long-term ecological integrity and functioning of the area's forest ecosystems, ensuring the project meets the biodiversity, habitat, and viability requirements of native species of concern.

Common conservation ground can best be achieved when proposed actions are based upon credible ecologically non-controversial science research restoration recommendations; avoiding actions that could result in significant harms to natural forest ecology and biodiversity. Proposed actions should not exceed those scientifically necessary and capable of achieving legitimate ecological purpose and need goals. Removal of mature, old, and inherently fire resistant trees; unnatural logging removal or excessive manipulation of established forest structure; excessive thinning in ponderosa pine stand; logging-thinning in mixed conifer mixed-fire severity forest; use of heavy logging machinery; new, "temporary," and other road construction would adversely impact forest ecology, biodiversity, vegetation, soils, wildlife, avian, botanical & other species of concern populations and habitat; resulting in further degradation of the ecological integrity, wildlife habitat, soil hydrology, and natural systems in and around the project area.

Similar with other projects in the region, project provisions need to include:

A. Providing for the retention of all trees with old and mature characteristics regardless of size, projected longevity, or condition;
B. Interior forest stands, and juniper areas, should be ecologically maintained allowing natural cyclic processes, conditions, and functioning. Management actions should be designed to maintain and augment, rather than hinder, natural processes, and to provide for the viability and habitat needs of dependent forest species;
C. Protecting soils and native plants by limited machinery use and requiring low impact light machinery and practices in all areas where machinery is employed;
D. Protecting RHCAs and localized moist 'riparian' areas where these may seasonally occur, by prohibiting machinery use and logging in these locations;
E. Seasonal restrictions on project implementation protecting avian species during nesting and fledging periods;
F. No new roads of any kind may be built. Road reconstruction may not occur on naturally reclaimed non-navigable roads. Road density levels must be reduced throughout the project area, both in localized units and overall. Density levels may not be artificially diluted by averaging these with the inclusion of unroaded or entire project analysis area acres;
G. No logging-thinning actions or machinery use may occur in unroaded or ecologically significant areas;
H. Livestock grazing must be suspended for one year pre-project implementation and between 5 to 10 years post project from all affected action areas;
I. Other provisions as ecologically appropriate.

The notice proposes a series of varied scientifically insupportable logging-'thinning' actions, rationalized by natural forest ecological components of fire/fuels, insects, and disease. Such actions have generally proven to be far more harm than benefit, varying in degree of harms dependent upon the extent of thinning employed and the location and timing of thinning actions.

Management actions work best when they are kept within the parameters of greater scientific consensus rather than controversy. Care must be taken limiting thinning to scientifically supported actions and locations. Project actions must ensure sufficient trees and forest stand structure remain to provide for the diverse optimum habitat needs of dependent wildlife species, and to provide for both localized and landscape scale forest ecological integrity. Management actions that excessively thin forests can be antithetical to project goals of reduced risk of severe fires and enhancing forest ecological resiliency. Excessive logging-thinning actions increase and exacerbate the risk of severe fires, as fire resistant mature and old trees are soon replaced with fire-prone brush and small diameter trees. Soils disturbed and impaired by heavy logging machinery cannot support the healthy subsurface soil microbial communities and hydrological functioning necessary to maintain healthy trees and forests. Existing populations of invasive plants can be further spread, and new introductions of exotic invasive plants may occur as a result of soil disturbing logging-thinning actions.

Limiting thinning to only smaller diameter trees, employing variable diameter thinning limits as appropriate to PAG site-specific conditions, has more scientific and ecological support. For example, limiting felling to trees <12" dbh, or a range of variable diameter limits specific to frequent fire PAGs from 10" to 14" dbh (16" dbh at most), is less scientifically controversial and more ecologically capable of achieving project purpose and need goals.

We look forward to reviewing the draft EIS for this proposed project. The EIS must disclose and analyze:

- Old growth forest areas size and location;
- Listed species, focal species, indicator species, and species of concern in, transiting, and adjacent to the project area;
- Landscape scale and localized wildlife connectivity, including migration, foraging, and dispersal habitat and routes;
- Soil conditions, and soil microbial community qualities and impacts;
- Existing invasive plant population and location concerns, and invasive exotic plant introduction and spread issues;
- Ecosystem and soil hydrological patterns, seasonal moist riparian areas and flows, salmonid and other watersystems, 303(d) listed areas, and any affected aquatic species;
- Excessive road density issues, including plans to remove excess roads and bring the area into compliance with Forest Plan road density standards and wildlife thresholds. No new or temporary roads should be proposed;
- Inventoried and uninventoried roadless areas, and/or areas of significant ecological resource value or concern in or nearby the project area, including connective habitat within or along the project;
- OHV use and issues in and adjacent to the project area;
- The full range of applicable scientific research pertinent to the proposed project, including that which may substantiate proposed actions and that which recommends against such actions or addresses issues of scientific controversy;
- Natural fire cycles, patterns, and conditions that historically occurred in this area, fire occurrence in the area during the past 100 or more years, and recent current fire and management history;
- Natural cyclic changes in juniper forest extent, fire patterns, and species dependent upon juniper dry uplands habitat;
- Cumulative impacts for past, present, and future projects in and adjacent to the proposed project area, including livestock grazing, OHVs, other thinning-logging actions, burning, recreational projects, Walton Lake projects, and all other known or foreseeable actions;
- Other pertinent information as environmentally, scientifically, and legally appropriate.

The EIS must develop a full range of truly different scientifically and ecologically substantiated action alternatives. To help identify additional conservation concerns, we herein reference the substantial ecological, science, and legal concerns and issues noted in our comments (and/or appeals and litigation as applicable) on the East Maury, Spears/Bandit, Willow Pine, Deep, and other Ochoco NF fuels reduction thinning styled projects.

We recommend a public open house and a field trip to the proposed Canyon Project area, as well as a public review of the East Maury and Spears projects impacts and efficacy. We look forward to discussing these and related conservation concerns with agency decision-makers and planning staff soon.

For our natural 'wild' forests,

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

Oregon Chapter Sierra Club &
League Of Wilderness Defenders – Blue Mountains Biodiversity Project

Scoping Comment EIS Science Research & Legal analysis information list for inclusion in the Ochoco National Forest
Lookout Mountain Ranger District Canyon Project EIS

Science and legal exhibits (*previously provided the agency as part of our comments and/or appeals on Spears, East Maury, and other projects*)**:** CD compilation of applicable scientific research, reports, judicial caselaw, and conservation issues:

A. Fire Thinning Science Volume I *Contents*:

1. Effects of Fire and Post-fire Salvage Logging on Avian Communities in Conifer-dominated Forests of the Western United States (Kotliar, 2002)
2. Fire on the Mountain: Birds and Burns in the Rocky Mountains (Kotliar, 2005).

   The collective influence of fire and human activities on the landscape influences avian community structure and dynamics.
3. The Effects of Postfire Salvage Logging on Cavity-Nesting Birds (Hutto & Gallo, 2006).
4. Appeal from the United States District Court: Appeal the district court's denial of preliminary injunction to halt the implementation of several United States Forest Service post-fire logging sales in the Umatilla National Forest.
5. 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.
6. Be careful what you wish for: the legacy of Smokey Bear (Donovan & Brown, 2007).

   An alternate approach to wildfire management.
7. Postfire management on forested public lands on the western United States (Beschta et al, 2004).
8. Overstory and understory development in thinned and under-planted Oregon Coast Range Douglas fir stands. (Chan, et al, 2006).
9. Postfire logging hinders regeneration and increases fire risk (Donato, et al, 2006)
10. Postfire logging hinders regeneration and increases fire risk (Donato, et al, 2006)
11. Postfire impacts on forests and wildlife (Hutto, 2005)
12. Executive Summary: Interim protection for late successional forests, fisheries and watersheds (1993).
13. Study: Reforestation rich after fires: looking at the aftermath of wildfires in the forests of southwestern Oregon and Northern California (Barnard, 2007).

14. Fire regime considerations: Key issues in fire regime research for fuels management and ecological restoration (Veblen, 2003).
15. Forest Dreams, forest nightmares: An ecological and economic look at the Blue Mountains and the changes that have taken place since settlement (Langdon, 1995).
16. Preemptive and salvage harvesting of New England forests: When doing nothing is a viable alternative, (Foster & Orwig, 2006).
17. 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).
18. Toward meaningful snag-management guidelines for postfire salvage logging in North American conifer forests. Effects of postfire logging on black-backed woodpecker and cavity nesting birds (Hutto, 2006).
19. 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).
20. 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).
21. Logging to control insects: The science and myths behind managing forest insect "pests". (Black, the Xerces Society for Invertebrate Conservation, Portland, Oregon, 2005).
22. Neo-tropical migrant and native birds: The impacts of timber logging on neo-tropical migrant and native birds.
23. 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.
24. Fire ecology of Ponderosa Pine and the rebuilding of fire-resilient Ponderosa Pine Ecosystems (Fitzgerald, 2005).
25. 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.

26. Scorched forests best left alone, study finds. Biscuit salvage – Logging after the fire killed seedlings and added tinder, research by an OSU-led team says. (Milstein, 2006, Oregonian).
27. Summary Report – Winter habitat use by Spotted Owls on BLM within the boundaries of the Timbered Rock fire (Andrews & Anthony, OCFWRU, DFW, OSU, 2004).
28. Short-term effects of wildfires on spotted owl survival, site fidelity, mate fidelity, and reproductive success (Bond et al, 2002).
29. Associations between forest fire and Mexican Spotted Owls, (Jennes et al, 2004).
30. Stress (Waring, OSU, 2004)

    A brief analysis of the kinds of tolerance and avoidance mechanisms that trees evolved to withstand specific stresses.

31. 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.

32. 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.

33. United States Court of Appeals – Oregon Natural Resources vs. Timber Products.
34. 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.

35. 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.

B. Fire & Forest Science Vol. II Contents:

- Wildfire Charcoal and Soil Processes, Thomas H. DeLuca et al
- Contributions of Pinus Ponderosa Charcoal to Soil Chemical and Physical Properties, Christopher M. Briggs in Briggs, Breiner, Graham, 9 May 2005.
- Chemical composition of forest floor and consequences for nutrient availability after wildfire and harvesting in the boreal forest, E. Thiffault[1] , K. D. Hannam[2], S. A. Quideau[2], D. Paré[1], N. Bélanger[3], S.-W. Oh[4] and A. D. Munson[5] , March 2008.
- Nitrogen mineralization and phenol accumulation along a fire chronosequence in northern Sweden, Zhanna Yermakov[1, 2] and David E. Rothstein[1], May 2006.
- Changes in understory composition following catastrophic windthrow and salvage logging in a subalpine forest ecosystem, Cristina M. Rumbaitis del Rio, 2006
- Contributions of Pinus Ponderosa Charcoal to Soil Chemical and Physical Properties, Christopher Briggs, 2005.
- Biochar: A Soil Amendment that Combats Global Warming and Improves Agricultural Sustainability and Environmental Impacts, recent report compilation of scientific research.
- Communication on BioChar and its implications for forest and societal management, and role in ongoing climatic change.
- Biogeochemical Consequences of Wind and Salvage Logging Disturbances in a Spruce-Fir Forest Ecosystem, C.M. Rumbaitis-del Rio and C.A. Wessman.
- And Several Additional New Studies also….

C. Neotropical Migrant & Native Birds research.

D. Five Buttes file and legal decision.

E. "Forests, Fires, Resilience & Restoration" Sierra Club Presentation.

Exhibit IV: Wildlife and Forest Resilience; Scientific Research Compilation (previously provided the agency in regards to Bandit, Deep, Spears, and other projects as a "Forest health exhibit")

- **Goshawk Fact Sheet**

- **Pileated Fact Sheet**
- **Black-backed Woodpecker**
- **White-headed Woodpecker Fact Sheet**
- **Northern Three-toed Woodpecker**
- **Pine Marten/Martes Americana**
- **Green Tree Snag Replacement**
- **Pocket Gophers & Small Mammals**
- **Soils & Logging**
- **Fire & Salvage**
- **Forest Health**
- **Ponderosa Poster Child**
- **Avian Population Trends –B. E. Sharp**
- **Decaying Logs as Moisture Reservoirs – M.P. Amaranthus et al**