RESPONSE TO PUBLIC COMMENTS ON DRAFT DECISION MEMO

Three letters providing comments or expressing interest in the project (PF[1] Doc. G-6, 7, 8) were received during the 30-day comment period on the draft Barton Springs Thinning Decision Memo (PF Doc. G-2). Each letter has been combined into this one document. Agency responses to comments are provided in *italics* and delineated with a *box*.

If you would like to review the contents, and responses, of a specific letter, please refer to the following pages or use the bookmarks provided in the electronic copy.

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Letter 1: Native Ecosystems Council & the Alliance for the Wild Rockies

Native Ecosystems Council (NEC) and the Alliance for the Wild Rockies (AWR) would like to provide comments on the draft Decision Memo (DM) for the proposed Barton Springs Thinning Project released for public comments on May 27, 2007. A separate correspondence by NEC has been included with these comments identifying additional information needs we are requesting though the Freedom of Information Act (FOIA).

Please provide additional copies of the final DM once it is released to:

Sara Jane Johnson, NEC PPO Box 125 Willow Creek, MT 59760	Mike Garrity, AWR PO Box 505 Helena, MT 59624

Agency Response: Both organizations are included on the project mailing list and will be mailed the final DM. Attachments to the DM will be available on the internet at http://www.fs.fed.us/r1/b-d/ *.*

Issue #1: Failure of categorical exclusions to provide adequate information to the public regarding project impacts and implementation.

Use of a categorical exclusion (CE) to define projects and their impacts to the resources result in a violation of the National Environmental Policy Act (NEPA) and the National Forest Management Act (NFMA). Information that is provided to the public is too limited to inform such as to the extent of direct, indirect and cumulative effects within the impacted landscape, or to clearly demonstrate how all pertinent Forest Plan standards will be met. The use of a CE is largely a means of the agency to save itself work at the great expense to public participation in the management of public lands. Without adequate information, the public cannot provide effective comments. A good example of this problem can be seen in the need for NEC to send in a FOIA request to obtain even a minimum amount of information on project impacts and compliance with the Beaverhead-Forest Plan direction. This FOIA is not the end, either. Once the final DM is released, we will have to request copies of various specialist reports, the biological evaluation, etc. The burden of obtaining adequate information clearly is dumped on the public when a CE is used, a result that is counter to the NEPA.

[1] PF followed by an alpha-numeric number refers to a specific document, available upon request, in the Barton Springs Thinning Project File.

Agency Response: The use of a categorical exclusion for this project is in compliance with the Forest Handbook 1909.15. The analysis shows there would be no significant direct, indirect, or cumulative effects as a result of this project. This will be disclosed in the final DM. Your FOIA request will be answered according to policy.

We would like specific information provided in the final decision regarding compliance with ALL Forest Plan standards. Please not[e] this includes what type of snag analysis was done, as per the current Forest Plan, as well as information [on] old growth, big game hiding cover, open road density, and elk effective cover for elk security analysis area #42, or the Silver King area.

Agency Response: All of the data and analysis for the Barton Springs project is located in the project file in Dillon, Montana, and is available for public review. The DM will include a discussion on project compliance with Forest Plan standards for the Deerlodge Forest Plan, as well as information on old growth (the Barton Springs Thinning project will NOT treat old growth), big game hiding cover, security, snags, open road density, and elk effective cover.

Issue #2: Forest Plan monitoring for compliance has not been demonstrated in the draft DM.

The use of a CE requires that no significant environmental impacts occur. One criteria for avoidance of significant impacts is compliance with Forest Plan Standards. However, just because a Forest Plan standard is met does not ensure that impacts will be nonsignificant. The agency needs to ensure throughout the planning process that Forest Plan standards are a viable measure of environmental impacts to wildlife. Each new project needs to refer to the validity of these standards, particularly when a CE is done. There is no information provided in the Barton Springs draft DM that demonstrates that current Forest Plan direction will prevent any significant wildlife impacts. Examples include the 5% old growth and the 3.5% snag clusters per compartment (are these standards working and therefore should continue to be used as a measure of nonsignificant impacts), and also, the impact of commercial thinning on big game security. The draft DM infers that security will not be impacted, but no supporting information was provided. Also of interest to the pubic is the impact of commercial thinning on sensitive species, such as goshawk and black-backed woodpecker. Although there are no specific Forest Plan standards for these species, the agency is required to maintain their populations. Therefore, existing Forest Plan standards need to ensure this will happen. The project is problematic for both sensitive species, such as due to a reduction in snags, canopy cover, average forest age and decadence. If existing standards are inadequate, how can the agency assume that project impacts will not be significant on the local landscape? The agency needs to provide the supporting monitoring information data to buttress up the CE.

Agency Response: The draft DM describes briefly that the project meets Management Area direction for the Deerlodge National Forest Plan. The final DM will describe more clearly how the project meets Deerlodge Forest Plan standards. Forest Plan Monitoring reports are available on the internet at http://www.fs.fed.us/r1/b-d/ *. Supporting information regarding security is located in the wildlife report (PF Doc. C-18 pp. 31-3). You are correct that forest standards are not specific to goshawk and black-backed woodpeckers. Existing condition, effects analysis, data collection and use are discussed in the wildlife report for Northern goshawk (PF Doc. C-18 pp. 16-22) and black backed woodpecker (PF Doc. C-18 pp 27-31). These analyses discuss viability by habitat by proxy. Hard copy reports of surveys and monitoring are found in the project file by various species (PF Doc. C-18 through 26, C-34 through 38, D-1).*

Two monitoring items we are particularly interested in is how the agency has determined that commercial thinning will improve habitat for the sensitive flammulated owl, or why commercial thinning will not affect big game security.

Agency Response: *The Deerlodge Forest Plan does not have specific monitoring requirements for the flammulated owl, a sensitive species. However a full discussion of existing condition, effects analysis, data collection and use are discussed in the wildlife report for flammulated owl (PF Doc. C-18 pp. 22-27). In this discussion McCallum (1994) speculates that "doghair" stands may provide roosting habitat, but may reduce foraging potential. Closed canopy forests shade out grasses and small shrubs needed to support the owl's prey species. Also, the typical foraging maneuvers of the owl may be difficult in dense forests. This is a citation used in a bigger scope in the discussion for scientific disclosure. No where in the report does it state that commercial thinning will improve habitat for flammulated owl, as a matter of fact, the exact determination call and rationale is cited as: "The project as proposed May Impact Individuals or Habitat, but is not expected to result in reduced viability for the population or species. Treatments will occur outside the breeding season. Thinning will not occur in or near (greater than 300 meters) areas where the owl has been detected during the breeding season. No old growth will be impacted, leaving the most suitable owl habitats in tact. A minor amount (.01%) of potential nesting/foraging habitat will be thinned from below leaving the overstory relatively in tact. The resulting stand characteristics will be consistent with areas where the owl has been detected. The project will not change the amount or distribution of owl habitat on the forest. Owl habitat is well distributed on Forest, and in the Region." Furthermore, the report does not address in any paragraph why commercial thinning does not affect big game security. In the wildlife report on file a full discussion is included incorporating existing condition, effects analysis, data collection and use (PF Doc. C-18 pp. 31-33).*

Issue #3: Violation of MA D2 direction requires a Forest Plan amendment.

The project proposal, which includes almost all of MA D2, clearly violates current Forest Plan direction to meet the cover requirements of big game species. In addition, timber is considered unsuitable for management. The CE clearly notes that the purpose of the project is to manage the timber resource in this area. Almost all wildlife, including Management Indicator Species (MIS) and sensitive species, will be harmed by the project. Product removal (firewood, post and poles) can occur provided big game cover requirements are met. To proceed with this project, the agency needs to change the MA direction from range/wildlife to something that fits timber management as the emphasis.

Agency Response: The goal of MA D2 is "to provide a balanced amount of livestock forage and big game habitat" with direction to "permit harvest of firewood, post and poles, and other products that are compatible with wildlife cover requirements of the area" (Forest Plan, p. III-53). Forest-wide standards state that "silvicultural systems will be the primary tool for preventative pest management. Use systems to improve species diversity, growth, and vigor for stands" (Forest Plan, p. II-32).
The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality. The purpose is not to "manage the area for timber production"… The thinning occurs mainly in

MA E1 (132 acres) and just a small portion of the unit occurs in MA D2 (31 acres). The portions of MA D2 surrounding the spring and meadow areas were removed from treatment.
Cover requirements for big game species will be met (PF Doc. C-18). Refer to discussion in the Wildlife Report on MIS and Sensitive Species. Determinations for all wildlife species conclude there are no extraordinary circumstances for this project.

The goal of MA E1 is "to provide for healthy stands of timber while maintaining overall levels of wildlife habitat, livestock grazing, and dispersed recreation" (Forest Plan, p. III-54).A full discussion of existing condition, effects analysis, data collection and use are discussed in the wildlife report for MIS, TES and species of special concern (PF Doc. C-18). Elk and cover requirement information is found in the wildlife report on pages 31-33.

Issue #4: Failure to conduct adequate wildlife surveys prior to project planning.

According to current Forest Plan direction, sensitive species as the goshawk and black-backed woodpecker, plus the flammulated owl, only have to be actually managed if they are located. When this happens, the Forest usually protects a small area around occupied areas. This management strategy automatically requires that thorough, exhaustive surveys are conducted to ensure that all sensitive species will be located prior to project implementation. Otherwise, the agency would have to conclude that the occupancy of a[n] area by sensitive species is uncertain, and therefore the risks of the project are also uncertain. There is no mention in the draft DM regarding wildlife surveys. We have submitted a FOIA to obtain this important information.

Agency Response: Wildlife surveys have been performed and copies will be provided through your FOIA request, originals will be located in the project file (PF Doc. C-18 through 26, C-34 through 38). Additionally, these surveys are mentioned in the wildlife report, specific to the aforementioned species (PF Doc. C-18 pp. 16-30).

Issue #5: Failure to ensure that the current best information will be used regarding snag management.

The Northern Region Snag Protocol has apparently not been applied to this project. Since this has not happened, we would like to know why not, and what better information has been validated and used instead. We note there does not appear to be any current monitoring regarding the validity of the Beaverhead Forest Plan snag direction (3.5% of each compartment in 5 acre snag clusters). Snag densities are particularly important for the flammulated owl and black-backed woodpecker, as well as for goshawk prey species, so adequate snag management is crucial to estimating environmental impacts of a project.

Agency Response: The Northern Region Snag Protocol will be followed for this project. The final DM will address how snag standards for the Deerlodge Forest Plan will be met. An exhaustive analysis for flammulated owl, black-backed woodpecker and goshawk are in the wildlife report (PF Doc. C-18 pp. 16-30). The analysis addresses snags as well as mitigation measures specific to snags (PF Doc. C-18 pp. 7-8).

Issue #6: Lack of information on various wildlife habitat values of this landscape.

There is almost no information on the current habitat values of this area for wildlife. They must be considerable, given that this area was provided a management area designation that emphasized wildlife. Please define what habitat values for wildlife are in this area, including winter range, calving habitat, and winter thermal cover (requires at least 20% on winter ranges as per the Beaverhead Forest Plan).

Agency Response: All forest plan standards will be met regarding elk. An exhaustive analysis addressing the above concerns for elk are on pages 31-33 of the wildlife report. Additionally, a thorough description of the analysis area is provided on pages 1-9 as well as within each individual species existing condition discussion throughout the 42 page report (PF Doc. C-18).

We would also like to know what the current situation is as per big game vulnerability. How much of the landscape area of elk security #42 contains security as per the Hillis methods (including the requirement of contiguous forest cover within security areas), and how is this existing situation affecting bull harvest, including during early snow years?

Agency Response: For a full discussion of elk refer to pages 31-33 of the wildlife report (PF Doc. C-18). In summary: Currently, the analysis area provides elk with 55% security (17,273/31,395 acres) distributed among two habitat blocks that range in size from 4,236 to 13,037 acres (Appendix A, Map 2). Elk security in the analysis area is well above the 30% recommended.

Proposed treatments and associated activities are located a mile from any security areas, therefore, direct, indirect, and cumulative impacts to existing elk security are not expected. Dry, Douglas-fir/ponderosa pine cover types, such as the proposed treatment unit, do not typically provide elk hiding cover because of their low stem densities. Therefore, the proposed unit was not included in cover calculations. The project will not change open road density and therefore the existing EEC will be maintained. Thinning the understory will decrease stem densities further, however, vegetative screening will be maintained along the edges of grassland parks and in intermittent patches throughout the unit.

Also, what is the vulnerability status for mule deer, and how will this change with the proposed project.

Agency Response: As stated in the wildlife report page 30, mule deer and moose were analyzed using elk as a surrogate. They have similar habitat needs. Please see the elk analysis for effects to mule deer, pp. 30-33 of the wildlife report (PF Doc. C-18).

Finally, it was unclear as to the construction of new roads for this project. If no new roads will be constructed, what is the expected impact of forest thinning and numerous long skid trails on off-road vehicle use and its impact on big game security?

Agency Response: As described in the draft DM, the Barton Springs Thinning project does not propose to construct any roads. The possible impact of using skid trails for this project is analyzed in the specialists' reports in the project file and no significant impacts were found.

Letter 2: WildWest Institute & the Alliance for the Wild Rockies

Ms.Sawyer:

I am commenting on the Barton Springs Thinning project proposal (May 7, 2007 solicitation) on behalf of the WildWest Institute and the Alliance for the Wild Rockies.

Since specialist reports were not finalized prior to solicitation of comments, it is difficult to provide comments on the proposal. We ask that the comment period be extended to allow adequate time to review all specialists' reports and that said reports are forwarded to us as they become available.

Agency Response: Specialists reports were in draft form at the time the draft DM was sent for public comment. The reports will be finalized prior to a decision being signed. The final biological evaluations and assessments will be available on the internet after the Decision Memo is signed.

It is hard to understand how the ID team can project a "no impact" determination regarding TES species when specialists' reports have not been concluded. How can the FS come to any sort of conclusion before the science is in? The proposal states — without meaningful explanation — that even though thinning habitat may negatively impact individual black-backed woodpeckers, northern goshawk, and flamulated owls, it will "not likely result in a trend towards federal listing." Without more, this general statement regarding the possible impact and risk involved does not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided. The FS Must establish a threshhold for habitat loss.

Agency Response: The NEPA process is evolutionary in nature, because of this, reports are constantly being updated as the survey process and analysis evolves. Effects determinations are made using the best science and data at that particular point of the analysis. At this point in the process, a thorough investigation of TES, MIS and species of concern are discussed in a 42 page wildlife report with maps and appendices for visual aid (PF Doc. C-18 through 26).

Many adverse consequences to soil, ecological processes, wildlife, and other elements of the natural environment are associated with logging, including thinning (Ercelawn, 1999; Ercelawn, 2000). For example: "Salvage or thinning operations that remove dead or decayed trees or coarse woody debris on the ground will reduce the availability of forest structures used by fishers and lynx" (Bull et al., 2001).

Agency Response: Even though thinning operations emphasize the removal of sound, merchantable wood, dead and decayed woody material would be retained on site to be consistent with the 1987 Deerlodge Forest Plan, and will vary by size based on existing stand characteristics. This material would be available for use by wildlife. Additionally, the analysis area and treatment will not impact fisher or lynx habitat (PF Doc. C-18). Furthermore, mitigation measures for down woody debris are identified pp. 7-8 of the wildlife report (PF Doc. C-18).

We believe that the forest manipulation as you are proposing will not lend towards restoring functional ecosystems. Rather, logging activities will lead to accelerated erosion and soil compaction and will disrupt the natural processes.

Agency Response: This concern is addressed in the soil report in the project file. Logging activities will be modified as needed to avoid accelerated erosion and soil compaction.

Any forest condition that is maintained through intense mechanical manipulation is not maintaining ecosystem function. We request detailed disclosure of the historical data used to arrive at any assumption of "desired conditions." Also, are the proposed management activities designed to foster the processes that naturally shaped the ecosystem and resulted in a range of natural structural conditions, or are they merely designed to recreate structural conditions in a single point in time that you consider natural? Generally, past process regimes are better understood than past forest structure. How are you factoring in fire, insects, tree diseases, and

other natural disturbances in specifying the structural conditions you assume to be representative of the historic range?

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality. Since the purpose does not focus on ecosystem restoration principles, the project design was not based on assumptions of natural desired conditions representative of the historic range of variability. Furthermore, principles about historic ranges of vegetative conditions and structure are of value when viewed at the landscape level far larger than the project area.

McClelland (undated) states:

The snags per acre approach is not a long-term answer because it concentrates on the products of ecosystem processes rather than the processes themselves. It does not address the most critical issue--long-term perpetuation of diverse forest habitats, a mosaic pattern which includes stands of old-growth larch. The processes that produce suitable habitat must be retained or reinstated by managers. Snags are the result of these processes (fire, insects, disease, flooding, lightning, etc.). (Emphasis added.)

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality. McClelland, does not apply to this project because larch is not a component of the treatment unit or the analysis area. Snags that exist in the treatment unit that are greater than 10 inches dbh will be left, both hard and soft. Based on the mortality of the analysis area our insects and disease monitoring flights from 2002-2006 estimate that there are and additional 13,999 trees that have died from beetle mortality for snag recruitment in the analysis area on 20,000 acres. Refer to the Wildlife Report in the project file (PF-Doc. C-18).

And Hutto, 1995 addresses the processes topic, talking about fire in that case:

Fire is such an important creator of the ecological variety in Rocky Mountain landscapes that the conservation of biological diversity [required by NFMA] is likely to be accomplished only through the conservation of fire as a process…Efforts to meet legal mandates to maintain biodiversity should, therefore, be directed toward maintaining processes like fire, which create the variety of vegetative cover types upon which the great variety of wildlife species depend. (Emphasis added.)

Agency Response: We agree that fire is a process that is important to the landscape but the purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality, not to reduce hazardous fuels.

Problems that could arise as a result of thinning include the following, which must be considered:

- There could be a loss of native species, and an increase of species that favor disturbance. This includes weeds, brush that grows after logging, more deer, etc.

Agency Response: Mitigation measures and analysis for weeds and commonly hunted species are addressed in the NEPA document.

- Thinning could break up hiding cover, travel corridors for sensitive wildlife.

Agency Response: An exhaustive analysis was done for all MIS, TES and species of special concern regarding the effects of this proposal, see the wildlife report (PF Doc. C-18). Hiding cover and security are addressed for elk on pages 31-33 of this report.

- Thinning could impair riparian areas, and the function of streams that are within the community fire protection zone - consider how many people live near water.

Agency Response: No riparian zones will be affected by this project.

- Visual screening can be lost to homeowners.

Agency Response: There are no homeowners in or near the project area.

- Thinning can result in a loss of soil nutrients and productivity that will get worse as the forests are thinned again when saplings and brush come back in. Soil chemistry can change, impacting tree growth and mortality. Soils can become compacted.

Agency Response: Soil nutrient loss from thinning will be minor relative to the nutrient capital remaining on site in the form of the residual stand, litter, duff and the organic rich surface soil layers. The potential for compaction and the mitigation to prevent it are discussed in the soil report. Soils are naturally buffered systems so soil chemistry changes from the proposed treatments are unlikely.

- Thinning will disrupt natural forest succession, particularly in those areas that had natural cycles where entire stands burned hot - such as lodgepole. Natural fire regimes created habitat and increased fire dependent species, such as lynx, snowshoe hare, black backed woodpecker, western larch, etc.

Agency Response: An exhaustive analysis was done for all MIS, TES and species of special concern regarding the effects of this proposal, see wildlife report (PF Doc. C-18). The treatment unit is Ponderosa Pine and Douglas-fir that had more frequent burns with low intensity affects. Even though this is not a fuels treatment the thinning will reduce stocking and bring the treatment area to a more natural stocking density.

- Thinning can be expensive to maintain, especially on moist sites where re-growth will quickly occur. Reduction of canopy cover will exacerbate this where sunlight is allowed to enter the forest floor and brush and seedlings will quickly fill in the niche.

Agency Response: This site is a dry ponderosa pine, Douglas-fir site that was in a more open grown condition and large diameter. From experience we know that regeneration stocking levels are low on this site, and growth is very slow. Vegetation is pinegrass with some snowberry which is not a concern for the site. Opening the stand by thinning increases the air ambient temperature that reduces the impact of mountain pine beetle on second growth ponderosa pine trees.

- Thinning stands will change hydrologic function because wind velocities will increase, evaporation will increase, and down woody material, which holds tremendous moisture, will decrease. Rain-on-snow dynamics may change.

Agency Response: Changes to hydrologic function would be insignificant at the scale proposed (163 acres). At 60-80 sq. ft. basal area, canopy closure maintains 75% of a closed canopy.

- Logging is associated with increased root rot and forest pathogens - disturbance often brings on bugs, and equipment can spread root rot spores.

Agency Response: Mitigation measures for treating all stumps greater than 12" with Sporax within 24 hours, will prevent the spores from germinating (annosum). See silviculture report for reference to the FHP reports which suggests application procedures for the use of sporax on ponderosa stumps greater than 14" within 24 hours of cutting.

- Logging can change site temperature, humidity, and unwanted vegetation. It can create new pools of standing water and made others less acidic. That can increase the populations of mosquitoes, flies, mice, bats, and other vectors of infectious diseases.

Agency Response: Changes to in hydrologic function would be insignificant at the scale proposed (163 acres). At 60-80 sq. ft. basal area, canopy closure maintains 75% of a closed canopy.

- Logging may change predator/prey balance, for example, causing animals that eat mice or compete with them to disappear and the mouse population to grow. Thinning can increase whitetail deer populations, and lead to increased cougar populations and threats on humans.

Agency Response: Provisions have been made for down woody debris and exclosure of shrub and grassland areas for small mammals, see mitigation measures in wildlife report (PF Doc. C-18 pp7-8). Big game MIS species are addressed on pages 31-33 of the wildlife. This project is over 30 miles from human habitation.

Hayward, 1994 states:

Despite increased interest in historical ecology, scientific understanding of the historic abundance and distribution of montane conifer forests in the western United States is not sufficient to indicate how current patterns compare to the past. In particular, knowledge of patterns in distribution and abundance of older age classes of these forests in not available. …Current efforts to put management impacts into a historic context seem to focus almost exclusively on what amounts to a snapshot of vegetation history—a documentation of forest conditions near the time when European settlers first began to impact forest structure. …The value of the historic information lies in the perspective it can provide on the potential variation… I do not believe that historical ecology, emphasizing static conditions in recent times, say 100 years ago, will provide the complete picture needed to place present conditions in a proper historic context. Conditions immediately prior to industrial development may have been extraordinary compared to the past 1,000 years or more. Using forest conditions in the 1800s as a baseline, then, could provide a false impression if the baseline is considered a goal to strove toward.

Hayward, 1994 essentially calls into question the entire mechanical manipulation/ prescribed burning regime. The managed portion of the BDNF has been fundamentally changed, so the FS

must consider how much forest has been fundamentally changed compared to historic conditions forestwide before pursuing “treating” it anywhere.

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality. Since the purpose does not focus on ecosystem restoration principles, the project design was not based on assumptions of natural desired conditions representative of the historic range of variability. Furthermore, principles about historic ranges of vegetative conditions and structure are of value when viewed at the landscape level far larger than the project area. This activity is not prescribing a fuels treatment regime.

Please consider that thinning can result in faster fire spread than in the unthinned stand. Graham, et al., 1999a point out that fire modeling indicates:

For example, the 20-foot wind speed must exceed 50 miles per hour for midflame wind speeds to reach 5 miles per hour within a dense Stand (0.1 adjustment factor). In contrast, in an open stand (0.3 adjustment factor), the same midflame wind speeds would occur at only a 16-mile-per-hour wind at 20 feet.

Graham, et al., 1999a also state:

Depending on the type, intensity, and extent of thinning, or other treatment applied, fire behavior can be improved (less severe and intense) or exacerbated.” … Fire intensity in thinned stands is greatly reduced if thinning is accompanied by reducing the surface fuels created by the cuttings. Fire has been successfully used to treat fuels and decrease the effects of wildfires especially in climax ponderosa pine forests (Deeming 1990; Wagel and Eakle 1979; Weaver 1955, 1957). In contrast, extensive amounts of untreated logging slash contributed to the devastating fires during the late 1800s and early 1900s in the inland and Pacific Northwest forests.

In their conclusion, Graham, et al., 1999a state:

Depending on intensity, thinning from below and possibly free thinning can most effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species. Such intermediate treatments can reduce the severity and intensity of wildfires for a given set of physical and weather variables. But crown and selection thinnings would not reduce crown fire potential.

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality, not to reduce hazardous fuels. (Project thinning is thinning from below which in turn reduces crown bulk density.)

Also, Hessburg and Lemkuhl (1999) suggest that prescribed burning alone can be utilized in many cases—possibly here—where managers typically assume mechanical fuel reductions must be used.

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality, not to reduce hazardous fuels.

The FS is often misplaces the threats to clean water onto vegetative conditions instead of correctly identifying the true threats to watershed health. The Western Montana Level I Bull Trout Team (Riggers et al., 2001) state:

(T)he real risk to fisheries is not the direct effects of fire itself, but rather the existing condition of our watersheds, fish communities, and stream networks, and the impacts we impart as a result of fighting fires. Therefore, attempting to reduce fire risk as a way to reduce risks to native fish populations is really subverting the issue. If we are sincere about wanting to reduce risks to fisheries associated with future fires, we ought to be removing barriers, reducing road densities, reducing exotic fish populations, and re-assessing how we fight fires. At the same time, we should recognize the vital role that fires play in stream systems, and attempt to get to a point where we can let fire play a more natural role in these ecosystems.

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality, not to reduce hazardous fuels.

The biologists emphasize, “the importance of wildfire, including large-scale, intense wildfire, in creating and maintaining stream systems and stream habitat.” The biologists continue “in most cases, proposed projects that involve large-scale thinning, construction of large fuel breaks, or salvage logging as tools to reduce fuel loading with the intent of reducing negative effects to watersheds and the aquatic system are largely unsubstantiated.” The biologists point out that logging, thinning and fire suppression can have harmful effects on watersheds (Id.). We ask that the FS explicitly consider Riggers et al., 2001 in the subsequent NEPA document.

Agency Response: The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality, not to reduce hazardous fuels.

Roads often have devastating impacts on water quality and fish habitat by increasing landslides, erosion, and siltation of streams. Roads also fragment forests and degrade or eliminate habitat for species that depend on remote landscapes, such as grizzly bears, wolves, and other large, wide-ranging predators (Trombulak and Frissell 2000). The FS must utilize the Roads Analysis Process and analyze travel management, including road obliteration possibilities, in the analysis area.

Agency Response: The roads analysis process is not necessary because no road construction or obliteration is included in the decision.

The FS seems to fail to understand that dead, diseased, dying, etc. trees have a role in the forest—they are not something to be avoided in attempting to “Create healthier coniferous forest conditions…”. Please disclose the amounts of snags, recruitment snags, and down woody debris previous logging operations have left in previous similarly logged units, so that the public can tell if you’ve met Forest Plan Standards in those units. Please perform surveys to determine the amounts of snag habitat and down woody debris exist in similarly stocked unmanaged areas for comparison.

Agency Response: Please refer to the wildlife report (PF DOC. C-18) in the project file for reference (information) concerning snag habitat available in the project area.

Please disclose how stands to be logged compare to old-growth criteria. In order to disclose such information, please provide all the details, in plain language, of these areas' forest characteristics (the various tree components' species, age and diameter of the various tree components, canopy closure, snag density by size class, amounts of down logs, understory composition, etc.).

Agency Response: Please see the Silviculture Report in the project file (PF Doc. C-7) and the stand tables (inventory data) for Barton Springs project that gives diameter by age class, trees per acre, and snags (PF Doc. C-32 & 33).

Please disclose whether the amount of existing old growth meets standards and other required levels for old-growth habitat. The FS must consider the likelihood that the areas proposed for logging will have old-growth habitat characteristics enhanced, not destroyed by the same natural processes the FS is using as a reason for the logging proposal. Please disclose if the proposed cutting units were, still are, or will, in the foreseeable future, qualify as old growth. What criteria or definition(s) of old growth are you using? Please disclose how the project will impact the old-growth wildlife species, and mature forest associated species.

Please disclose, using tables and maps, the amounts, locations, sizes, and connectivity of all old-growth stands in the project area. Disclose whether it is actual old growth (meets all criteria) or whether it is "recruitment" old growth. Disclose whether or not you have compared all stands proposed for logging and/or burning to the old-growth criteria. Please disclose the methodology used to identify each stand as old growth, recruitment old growth, or not old growth.

Agency Response: No old growth will be treated. The stand does not meet old growth criteria (Green et al. 1995); however, a few small patches of forest located within the stand that had old growth characteristics (i.e. multi-storied with a large diameter tree-greater than 21 inches dbh-component in the overstory, large diameter snags with excavated cavities, and large downed woody debris) were completely removed from any treatment activities. Additionally, an exhaustive analysis can be found for TES, MIS and species of special concern in the wildlife report (PF Doc. C-18).

For the proposal to be consistent with the Forest Plan, enough habitat for viable populations of old-growth dependent wildlife species is needed over the landscape. The BDNF has failed to insure viability of MIS and TES species to date.

The FS has acknowledged that viability is not merely a project area consideration, that the scale of analysis must be broader:

Population viability analysis is not plausible or logical at the project level such as the scale of the Dry Fork Vegetation and Recreation Restoration EA. Distributions of common wildlife species as well as species at risk encompass much larger areas than typical project areas and in most cases larger than National Forest boundaries. No wildlife species that presently occupy the project area are at such low numbers that potential effects to individuals would jeopardize species viability. No actions proposed under the preferred alternative would conceivably lead to loss of population viability. (Lewis and Clark NF, Dry Fork EA Appendix D at p. 9.)

Agency Response: This is not the Dry Fork Vegetation and Recreation EA; this is the Barton Springs Thinning Project. For a full discussion for MIS, TES and species of special concern of the analysis area, existing condition, effects analysis and determination calls including rationale incorporating cumulative effects and viability via habitat by proxy, please refer to the 42 page wildlife report (PF Doc. C-18).

The FS should firmly establish that the species that exist, or historically are believed to have been present in the analysis area are still part of viable populations. Since Forest Plan monitoring efforts have failed in this regard, it must be a priority for project analyses. Identification of viable populations is something that must be done at a specific geographic scale. The analysis must cover a large enough area to include a cumulative effects analysis area that would include truly viable populations. Analysis must identify viable populations of MIS, TES, at-risk, focal, and demand species of which the individuals in the analysis area are members in order to sustain viable populations.

Agency Response: See response above. Also, the Forest has no legal requirement to do this. All known wildlife population status, distribution, and occurrence records as well as habitat information for federally threatened and endangered, Forest Service sensitive (TES), and Forest Plan management indicator species (MIS) known or suspected of occurring in the analysis area are provided in the terrestrial wildlife report for the project. The project is not in or near any designated or proposed critical habitat for ESA-listed species (http://criticalhabitat.fws.gov/). The nearest proposed critical habitat is for Canada lynx and occurs north of Missoula, Montana, over 60 miles northwest of the project. Cumulative effects for TES and MIS were fully analyzed in the terrestrial wildlife report for the project, and the cumulative effects area was well defined in the report with a map provided (PF Doc. C-18 through 26). The project will not impact the viability of TES or MIS populations on the Forest (PF Doc. C-18).

The fact that the BDNF has not monitored the population trends of its old-growth management indicator species (MIS) as required by the Forest Plan bears important mention here. The BDNF has failed to insure viability of MIS and TES species to date. The BDNF's old-growth inventory inaccurately inflates the actual amount of old growth existing on the Forest.

Agency Response: This project will not treat or impact old growth. However, Forest Plan Monitoring reports are available on the internet at http://www.fs.fed.us/r1/b-d/. Other reports and surveys completed for this project are located in the project file (PF Doc. C-7 & 8). Also see response below.

Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et. al., 1994), the cumulative effects of carrying out multiple projects simultaneously across the BDNF makes it imperative that population viability be assessed at least at the forestwide scale (Marcot and Murphy, 1992). Also, temporal considerations of the impacts on wildlife population viability from implementing something with such long duration as a Forest Plan must be considered (id.) but this has never been done by the BDNF. It is also of paramount importance to monitor population trends (as mandated by the Forest Plan) during the implementation of the Forest Plan in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993).

Unfortunately, region-wide the FS has failed to meet Forest Plan old-growth standards, does not keep accurate old-growth inventories, and has not monitored population trends in response to management activities as required by Forest Plans and NFMA (Juel, 2003).

Agency Response: The terrestrial wildlife report (PF Doc. C-18) for the project considers the impacts of all past, present, and reasonably foreseeable future actions on TES and MIS in the analysis area, including vegetation treatments in all forested cover types that occurred prior to Forest Plan implementation (pre-1986) as well as after implementation (post-1986). The project will not impact the viability of TES or MIS populations on the Forest. The Forest has monitored

wildlife populations, such as the goshawk, an MIS for old growth (Kirkley 2000, 2002, 2004, 2005; Clough 2000; USDA-FS 2005), and the Forest keeps an accurate inventory of old growth and snags Forest-wide (Bush and Leach 2003, Czaplewski 2003). Forest Plan Monitoring reports are available on the internet at http://www.fs.fed.us/r1/b-d/. In fact, the Forest found that the productivity of nesting goshawks in heavily managed areas of the Forest falls well within the ranges found in both managed and unmanaged landscapes throughout the western United States (summarized in Clough 2000). In addition, the Forest keeps an accurate inventory of old growth which considers all past management activities and old growth appears in abundance across the Forest at 20.95% (Bush and Leach 2003, Czaplewski 2003). The commenter cites Marcot and Murphy 1992, an unpublished report presented at a "Conference for Biodiversity in Managed Landscapes: Theory and Practice," Sacramento, CA. Authors outline a nine-step process for assessing species viability, similar to what the Forest Service already uses in its habitat-based viability analyses for species (Inland Empire Public Lands Council et al. v. United States Forest Service, United States Court of Appeals, Ninth Circuit, July 3, 1996; Samson 2004).
Lacy and Clark 1992 also cited by the commenter, refers to an article published in the Great Basin Naturalist 53:3 (282-292) entitled: Simulation modeling of American marten populations: vulnerability to extinction. Lacy and Clark used a computer-based model to simulate the extinction rate of 50 and 100 marten and came up with several scenarios, the "most optimistic" of which shows 66% survival over 100 years with no trapping, logging or migrants. The problem associated with computer based population viability analysis (PVA) models lies in the fact that we cannot collect enough long term demographic data (number of individuals, birth rate, death rate, immigration, emigration) on any one single species to test computer-based PVA models in the real world (summarized in Samson 2005). Lacy and Clark, themselves stated "the results of PVA are only as accurate as the data that are fed into the model" and "any PVA model is still a simplified picture of the real world."

State-of-the-art conservation biology and the principles that underlie the agency's policy of "ecosystem management" dictate an increasing focus on the landscape-scale concept and design of large biological reserves accompanied by buffer zones and habitat connectors as the most effective (and perhaps only) way to preserve wildlife diversity and viability (Noss, 1993).

Agency Response: The terrestrial wildlife report for the project fully considered the project and cumulative impacts in the affected watersheds on biological diversity as well as on the connectivity of habitat patches, including size and distribution. No existing wilderness or roadless areas will be impacted by the project (PF Doc. C-18 & D-6).
The commenter cites Noss 1993, which refers to an article published in Wild Earth magazine entitled: The Wildlands Project: Land Conservation Strategy. Noss discusses the application of conservation biology to wilderness recovery

The FS has stated: "Well distributed habitat is the amount and location of required habitat which assure that individuals from demes, distributed throughout the population's existing range, can interact. Habitat should be located so that genetic exchange among all demes is possible." (Mealey 1983.)

Agency Response: The Forest is not familiar with Mealey 1983, and cannot find the citation in any peer-reviewed scientific journals. Nonetheless the forest agrees with the definition of well-

distributed habitat (summarized in Samson 2005) and fully considered the distribution of habitats for TES and MIS in its terrestrial wildlife report for the proposed project (PF Doc. C-18). The project will not impact the viability of TES or MIS populations and habitat for all species that occur in the vicinity of the project is abundant and well distributed across the Forest.

Please include in your analysis the possible effects of noxious weed introduction on Sensitive plant populations and other components of biodiversity. Please include in the analysis the results of monitoring of noxious weed infestations and treatment efficacy from past management actions in the Forest

One of the biggest problems with the FS's failure to deal forthrightly with the noxious weed problem on a forestwide basis is that the long-term costs are never adequately disclosed or analyzed. The public is expected to continuously foot the bill for noxious weed treatments—the need for which increases yearly as the BDNF continues the large-scale propagation of weeds, and fails to monitor the effectiveness of all its noxious weed treatment plans to date. There is no guarantee that the money needed for the present management direction will be supplied by Congress, no guarantee that this amount of money will effectively stem the growing tide of noxious weed invasions, no accurate analysis of the costs of the necessary post-treatment monitoring, and certainly no genuine analysis of the long-term costs beyond those incurred by site specific weed control actions.

Agency Response: In 2002, the Beaverhead-Deerlodge National Forest identified approximately 43,000 acres infested to some degree with noxious weeds. The 2002 Noxious Weed EIS and Record of Decision established an integrated pest management approach to prevention of additional weeds and suppression of existing populations. The forest has continued to operate district weed crews that inspect for new infestations and treat existing ones.

The Biological Evaluation for Sensitive Plants Species has mitigation measures for dealing with noxious weed infestations.

We request the FS adopt the Forest Restoration Assessment Principles found within the Forest Restoration Principles and Criteria (DellaSala, et al., 2003) as a screen for all proposed actions.

Agency Response: DellaSala, et al., 2003 refers to restoration and fire/hazard reduction. Using the principles would be a very general screen and is not applicable to this project.

Our goals for the area include fully functioning stream ecosystems that include healthy, resilient populations of native trout. The highest priority management actions in the project area are those that remove impediments to natural recovery. We request the FS design a restoration/access management plan for project area streams that will achieve recovery goals. The task of management should be the reversal of artificial legacies to allow restoration of natural, self-sustaining ecosystem processes. If natural disturbance patterns are the best way to maintain or restore desired ecosystem values, then nature should be able to accomplish this task very well without human intervention (Frissell and Bayles, 1996).

Agency Response: Frissell and Bayles 1996 discusses a different level of project scope or scale and does not meet the purpose and need for this project.

Please utilize the NEPA process to clarify any roadless boundary issues. It is not adequate to merely accept previous, often arbitrary roadless inventories—unroaded areas adjacent to inventoried areas were often left out. Additionally, there is a lot of public support for adding unroaded areas as small as 1,000 acres in size to the roadless inventory.

Agency Response: The forest has no requirement to clarify roadless boundary issues in the CE for Barton Springs Thinning project. Roads completely surround the treatment area and exist throughout the treatment area. This treatment area was once harvested in 1958.

We request a careful analysis of the impacts to fisheries and water quality, including considerations of sedimentation, increases in peak flow, channel stability, risk of rain-on-snow events, and increases in stream water temperature. Please disclose the locations of seeps, springs, bogs and other sensitive wet areas, and the effects on these areas of the project activities. Where livestock are permitted to graze, we ask that you assess the present condition and continue to monitor the impacts of grazing activities upon vegetation diversity, soil compaction, streambank stability and subsequent sedimentation.

Agency Response: A list of past projects is available in the project file and was used in the analysis for all resource areas. Project maps show that springs and other wet areas are excluded from the treatment area. Livestock grazing is managed in accordance with the Allotment Management Plan.

Please disclose in the NEPA document the results of up-to-date monitoring of fish habitat and watershed conditions, as required by the Forest Plan.

Agency Response: Forest Plan Monitoring reports are available on the internet at http://www.fs.fed.us/r1/b-d/ *.*

The NEPA analysis should show whether or not your alternatives would comply with the Clean Water Act and all state water quality laws and regulations. Categorically excluding actions that risk further pollution in Water Quality Limited Segments is not consistent with the Clean Water Act, NFMA, or NEPA. Please note that designating BMPs is not sufficient for compliance with CWA and NFMA.

Agency Response: The final DM will discuss how the project complies with the Clean Water Act and other applicable laws and regulations. Reference Hydrology Report in the project file (PF Doc. C-4).

Discuss the actual effectiveness of proposed BMPs in preventing sediment from reaching water courses in or near the analysis area. What BMP failures have been noted for past projects with similar landtypes? We would like to see a thorough discussion of the BMPs and mitigation measures you would propose. Also, pleased disclose which segments of which roads in the watersheds to be affected by this proposal will not meet BMPs following project activities.

Unfortunately, the entire issue of BMPs has been repeatedly clouded by the FS. The Lolo NF and Regional Office have admitted that during even large-scale projects, not all problem sites are restored up to BMP standards (Lolo BMP Memo), thus allowing chronic, persistent watershed damage to continue indefinitely.

Agency Response: Because no continuous stream channel exists within the analysis area, the potential for any sediment delivery to affect beneficial uses is basically non-existent. The proposed action includes restorative measures on existing roads that collect runoff and will improve the soil-water function at the site level. Reference Hydrology report (PF Doc. C-4).

Please examine past logging activities, including such information as year and regeneration success level for each past activity in the analysis area and in the cumulative effects area. Please disclose the sizes and condition of manmade openings already existing in the area, and exactly where the proposed cutting units are in relation to the old logged areas.

Agency Response: The project file contains a map of past treatments in relation to the project area and includes size of opening (PF Doc. C-11 & 11a).

Please fully analyze and disclose cumulative impacts on soil productivity. Disclose the areas of unstable and highly erosive soils that would result in mass movement and erosion. Include maps that show all land and soil types in the NEPA document. Please analyze how much soil compaction and surface erosion has occurred in the proposal area because of past actions and what the likely increases will be for the alternatives proposed.

Agency Response: The final decision memo and the soils report in the project file discuss cumulative effects of past projects on soils resource.

The Sheep Creek Salvage FEIS (USDA Forest Service, 2005a) states at p. 173:

Noxious weed presence may lead to physical and biological changes in soil. Organic matter distribution and nutrient flux may change dramatically with noxious weed invasion. Spotted knapweed (Centaurea biebersteinii D.C.) impacts phosphorus levels at sites (LeJeune and Seastedt, 2001) and can hinder growth of other species with allelopathic mechanism. Specific to spotted knapweed, these traits can ultimately limit native species' ability to compete and can have direct impacts on species diversity (Tyser and Key 1988, Ridenour and Callaway 2001).

Please disclose how the productivity of the land been affected in the project area and forestwide due to noxious weed infestations, and how that situation is expected to change in the coming years and decades.

Agency Response: In 2002, the Beaverhead-Deerlodge National Forest identified approximately 43,000 acres infested to some degree with noxious weeds. The 2002 Noxious Weed EIS and Record of Decision established an integrated pest management approach to prevention of additional weeds and suppression of existing populations. The forest has continued to operate district weed crews that inspect for new infestations and treat existing ones.
The Biological Evaluation for Sensitive Plants Species has mitigation measures for dealing with noxious weed infestations.

Please disclose the scientific research information you have to indicate that "mitigation" measures such as helicopter yarding, winter logging, and skidding on slash mat materials will minimize damage to soils.

Agency Response: There are no mitigation measures for helicopter yarding, winter logging, or skidding on slash materials for this project. No helicopter yarding or winter logging is proposed. Thinning and treatment of slash prior to IPS beetle emergence in the spring limits the use of winder thinning. Also, the type of materials harvested from "thin from below" (i.e. small diameter trees) limits the use of helicopter yarding.

The FS has essentially admitted that it is in the dark as far as doing scientific research on soil productivity changes following management activities. In response to comments on the Black Ant Salvage DEIS, Lewis & Clark NF, USDA Forest Service, 2002 states:

Soil Quality Standards "provide benchmark values that indicate when changes in soil properties and soil conditions would result in significant change or impairment of soil quality based on available research and Regional experience" (Forest Service Manual 2500, Region 1 Supplement 2500-99-1, Chapter 2550 – Soil Management, Section 2554.1).

A formal research study, the “Long Term Soil Productivity Study,” is currently being conducted by the Research Branch of U.S. Department of Agriculture, Forest Service to validate these soil quality standards.

The Forest Management Handbook at FSH 2509.18 directs the FS to do validation monitoring to “Determine if coefficients, S&Gs, and requirements meet regulations, goals and policy” (2.1 – Exhibit 01). It asks what we are asking: “Are the threshold levels for soil compaction adequate for maintaining soil productivity? Is allowing 15% of an area to be impaired appropriate to meet planning goals?” The Ecology Center recently asked the Northern Region if they have ever performed this validation monitoring of its 15% Standard, in their February 26, 2002 Freedom of Information Act request to the Regional Forester, requesting:

The Forest Management Handbook at FSH 2509.18 provides the Forest Service with examples of validation monitoring to “Determine if coefficients, S&Gs, and requirements meet regulations, goals and policy.” It asks “Are the threshold levels for soil compaction adequate for maintaining soil productivity? Is allowing 15% of an area to be impaired appropriate to meet planning goals?” We request all documentation of validation monitoring by the Forest Service in the Northern Region that answers those two questions.

The Regional Office’s reply letter stated that there is no documentation that responds to this request. If the BDNF is aware of any new documentation that would respond to this request now, we ask that you please disclose it.

Agency Response: The Regional Soil Quality Standards set limits for soil disturbances and were designed “to meet direction in the National Forest Management Act and other legal mandates” (USDA Forest Service, 1999) and are based on research and collective experience from the field. .*
**USDA Forest Service. 1999. FSM 2500 – Watershed and Air Management. R-1 Supplement 2500-99-1. Title 2500 – Watershed and Air Management. Forest Service Manual.)*

Harvey et al., 1994 state:

The ...descriptions of microbial structures and processes suggest that they are likely to provide highly critical conduits for the input and movement of materials within soil and between the soil and the plant. Nitrogen and carbon have been mentioned and are probably the most important. Although the movement and cycling of many others are mediated by microbes, sulfur phosphorus, and iron compounds are important examples.

The relation between forest soil microbes and N is striking. Virtually all N in eastside forest ecosystems is biologically fixed by microbes... Most forests, particularly in the inland West, are likely to be limited at some time during their development by supplies of plant-available N. Thus, to manage forest growth, we must manage the microbes that add most of the N and that make N available for subsequent plant uptake.

(Internal citations omitted.)

Agency Response: This publication, (Harvey et al. 1994) is aimed primarily at Inland Pacific Northwest, with tree species and soil conditions different than found in the Barton Springs project area. However, the publication is a good source of general ideas for management of soil fungal and insect populations for ecosystem health. Harvey addresses the need to avoid excessive soil disturbance in cases where timber stands are cut and then regenerated. While the Barton Springs project does not propose a regeneration type of harvest, it does incorporate soil health mitigation.

Please disclose your inventory or monitoring of indicators, including lichens, fungi, insects, etc. since these can and do define existing and probable future forest conditions, especially related to natural recovery following fire. Lichens in particular, while capturing atmospheric nitrogen for later release to higher plants and trees, are sensitive indicators of atmospheric and ground conditions and cannot be ignored in attempts at ecosystem management. Fungi and insects indicate and largely drive forest condition. Those that act as antagonists or parasites to destructive forms like root disease fungi or bark beetles should be recognized, as should tree pathogens and pests.

Agency Response: There are no current requirements to survey for lichens, fungi or insects in the project area as no R1 sensitive species in these categories exist for the Beaverhead-Deerlodge NF. Lichens, fungi and insects other than those detectable by aerial survey have not been monitored or inventoried in the project area.
*However, Inventory and monitoring of the insects listed in the purpose and need are the reason for the proposed action. However, inventory and monitoring of the large number of lichens, fungi, insects etc to define existing condition and probable future forest conditions is impractical even if it were possible. To our knowledge there are no incontrovertible "indicators" in the suite of species you mention and no way to evaluate the data if we had it. *Niwa, Peck, and Torgerson, 2001 summarize the situation well: "Thresholds required for healthy ecosystem function, and predictive and decision-support tools that include these components in relation to disturbances are not available" (emphasis added). Future research should investigate management practices relevant to these habitats, including various fuel treatments, subsoiling, tree harvest, and wildfire. While past studies have addressed arthropod abundance and diversity, none have successfully linked disturbance effects on arthropod communities to changes in ecosystem function."*
**Niwa, Chrisline G., Robert W Peck, and Torolf R. Torgerson. 2001. Soil, Litter, and Coarse Woody Debris Habitats for Arthropods in Eastern Oregon and Washington. Northwest Science (Special Issue) Vol. 75:141-148.)*

Lacy, 2001 examines the importance of soils for ecosystem functioning and points out the failure of most regulatory mechanisms to adequately address the soils issue. From the Abstract:

Soil is a critical component to nearly every ecosystem in the world, sustaining life in a variety of ways—from production of biomass to filtering, buffering and transformation of water and nutrients. While there are dozens of federal environmental laws protecting and addressing a wide range of natural resources and issues of environmental quality, there is a significant gap in the protection of the soil resource. Despite the critical importance of maintaining healthy and sustaining soils, conservation of the soil resource on public lands is generally relegated to a diminished land management priority. Countless activities, including livestock grazing, recreation, road building, logging, and mining, degrade soils on public lands. This article examines the roots of soil law in the United States and the handful of soil-related provisions buried in various public land and natural resource laws, finding that the lack of a public lands soil law leaves the soil resource underprotected and exposed to significant harm. To remedy this regulatory gap, this article sketches the framework for a positive public lands soil protection law. This article concludes that because soils are critically important building blocks for nearly every ecosystem on earth, an holistic approach to natural resources protection requires that soils be protected to avoid undermining much of the legal protection afforded to other natural resources.

The article goes on:

Countless activities, including livestock grazing, recreation, road building, logging, mining, and irrigation degrade soils on public lands. Because there are no laws that directly address and protect soils on the public lands, consideration of soils in land use planning is usually only in the form of vaguely conceived or discretionary guidelines and monitoring requirements. This is a major gap in the effort to provide ecosystem-level protection for natural resources.

The rise of an "ecosystem approach" in environmental and natural resources law is one of the most significant aspects of the continuing evolution of this area of law and policy. One writer has observed that there is a fundamental change occurring in the field of environmental protection, from a narrow focus on individual sources of harm to a more holistic focus on entire ecosystems, including the multiple human sources of harm within ecosystems, and the complex social context of laws, political boundaries, and economic institutions in which those sources exist.

As federal agencies focus increasingly on addressing environmental protection from an holistic perspective under the current regime of environmental laws, a significant gap remains in the federal statutory scheme: protection of soils as a discrete and important natural resource. Because soils are essential building blocks at the core of nearly every ecosystem on earth, and because soils are critical to the health of so many other natural resources—including, at the broadest level, water, air, and vegetation—they should be protected at a level at least as significant as other natural resources. Federal soil law (such as it is) is woefully inadequate as it currently stands. It is a missing link in the effort to protect the natural world at a meaningful and effective ecosystem level.

… This analysis concludes that the lack of a public lands soil law leaves the soil resource under-protected and exposed to significant harm, and emasculates the environmental protections afforded to other natural resources.

(Emphasis added.) The problems Lacy (2001) identifies of regulatory mechanisms exist in Regional and Forest-level standards and other guidance applicable for the proposed project.

The amount of detrimental soil disturbance would increase with the implementation of the proposal, therefore soil productivity would be reduced. Some activities, such as log landing construction and intensive log skidding would essentially permanently reduce the productivity of the soil on those sites directly affected.

Agency Response: Lacy (2001) Detrimental disturbance does not equal long term productivity reductions. The thresholds used to define detrimental disturbance are intended to limit productivity reductions to less than 15 percent over the planning period, 15 to 20 years. The thresholds are based on available research and field experience and can be modified based on local experience. Intensively disturbed areas on landings and skid trails will be rehabilitated to assure productivity recovery in less than 20 years and will not constitute permanent productivity reductions.

The intent of the Regional Soil Quality Standards is that the FS must, in each case, consider the cumulative effects of both past and proposed soil disturbances to assure the desired soil conditions are met. This includes impacts from activities that include logging, firewood gathering, livestock grazing, and motorized recreation impacts.

It should be noted that the FS assumes that maintaining soil productivity is achieved simply by limiting detrimental disturbance to no more than 15% of an Activity Area (logging or "treatment" unit) or limiting "total resource commitment" in another arbitrarily defined area. Unfortunately, the scientific adequacy of the FS's methodology for maintaining soil productivity on the BDNF has never been demonstrated. The FS's determination that it may permanently damage the soil

over that much area and still meet NMFA and planning regulations is arbitrary. The FS does not cite any scientific basis for adopting its percent numerical limits.

The FS must deal with the very basic question, what are the quantitative cumulative effects of management activities on the productivity of the land?

The only way for there to be any meaning to the numerical standards in cases where logging is proposed over previously disturbed soils and where activity area boundaries are not kept constant is if a qualified soil scientist actually performs site-specific field measurements to measure the existing percentages of detrimental soil disturbance within the already-established boundaries of activity areas, and within newly-established activity areas. Will the FS utilize the services of a soil scientist on the ID Team?

Agency Response: Activity areas are quite specifically defined in the Forest Service Manual and are not arbitrary. The intent of the standards is to assure that productivity reductions are less than 15 percent and diminish over time with full recovery within the 15 to 20 year planning horizon. The objectives stated in R1 Supplement 2500-99-1 are "To meet direction in the National Forest Management Act of 1976 and other legal mandates". To manage…without permanent impairment of land productivity and to maintain or improve soil quality". These objectives state succinctly that permanent soil damage is unacceptable. The ongoing Long Term Soil Productivity Study and monitoring in the Region and on the Forest are designed to validate the Soil Quality Standards and assure that mitigation measures maintain soil productivity. There is a qualified soil scientist on the ID Team who has performed site specific field measurements of existing soil disturbance. The soils report discusses the cumulative effects of past and ongoing activities within the project area.

Please provide estimates of current detrimental disturbance in all previously established activity areas in the watersheds affected by the proposal.

Agency Response: The proposed activity area is the only one in the watershed affected by this proposal.

Please disclose the link between current and cumulative soil disturbance in project area watersheds to the current and cumulative impacts on water quantity and quality.

Agency Response: The hydrology report in the project file discusses this. There is no channel linking the project area and flowing water therefore cumulative and current soil disturbance is unlikely to affect water quantity and quality.

Please consider the implications of all landtype limitations for detrimental soil impacts. Some of these landtypes may have "moderate" or "severe" soil erosion and sediment hazard potential, and soil erosion or mass wasting (a severe form of erosion) are both kinds of detrimental impacts. The FS must consider which proposed activity areas fall into which landtypes, and therefore might be more at risk for erosion or other detrimental impacts that decrease soil productivity. Please disclose the results of monitoring of past actions on these various landtypes, that would reveal the differential levels of soil impacts of the various logging activities carried out in the past (and now proposed with this new project).

Agency Response: Landtype and landtype limitations (erosion and mass wasting potential etc.) in the project area have been taken into account and documented in the soil report in the project file.

Please disclose the locations and sizes of proposed log landings, which is important because of the extreme amount of soil and other disturbance that occurs on these sites—they will be essentially industrialized for the long-term, despite "mitigation."

Agency Response: The landing locations will be determined during timber sale contract administration. The Decision memo includes mitigation measures for dealing with skid trails and landings which will be rehabilitated to the extent necessary to assure full soil recovery.

Please disclose measures of, or provide scientifically sound estimates of, detrimental soil disturbance or soil productivity losses (erosion, compaction, displacement, noxious weed spread) attributable to off-road vehicle use.

Agency Response: No evidence of off-road vehicle use exists in the proposal area.

Please disclose the results monitoring of weed treatment efficacy on the BDNF, treatments that have been projected to significantly reduce noxious weed populations over time, or prevent spread. This is an ongoing issue of land productivity.

Agency Response: Forest Monitoring reports are available on the web at http://www.fs.fed.us/r1/b-d/ *.*
The Decision Memo includes mitigation measures for treating spotted knapweed in the treatment unit, and monitoring and continued treatment after implementation.

It is clear that the intent of the Regional Soil Quality Standards is that the FS must, in each case, consider the cumulative effects of both past and proposed soil disturbances to assure that soil productivity will be maintained. This includes impacts from activities that include logging, motorized vehicle use, etc. Such cumulative effects analysis found in the Soil and Water Conservation Practices Handbook (FSH 2509.22). FSH 2509.22 states:

Practice 11.01 – Determination of Cumulative Watershed Effects

OBJECTIVE: To determine the cumulative effects or impact on beneficial water uses by multiple land management activities. Past, present, or reasonably foreseeable future actions in a watershed are evaluated relative to natural or undisturbed conditions. Cumulative impacts are a change in beneficial water uses caused by the accumulation of individual impacts over time and space. Recovery does not occur before the next individual practice has begun.

EXPLANATION: The Northern and Intermountain Regions will manage watersheds to avoid irreversible effects on the soil resource and to produce water of quality and quantity sufficient to maintain beneficial uses in compliance with State Water Quality Standards. Examples of potential cumulative effects are: 2) excess sediment production that may reduce fish habitat and other beneficial uses; 3) water temperature and nutrient increases that may affect beneficial uses; 4) compacted or disturbed soils that may cause site productivity loss and increased soil erosion; an 5) increased water yields and peak flows that may destabilize stream channel equilibrium.

IMPLEMENTATION: As part of the NEPA process, the Forest Service will consider the potential cumulative effects of multiple land management activities in a watershed which may force the soil resource's capacity or the stream's physical or biological system beyond the ability to recover to near-natural conditions. A watershed cumulative effects feasibility analysis will be required of projects involving significant vegetation removal, prior to including them on implementation schedules, to ensure that the project, considered with other activities, will not increase sediment or water yields beyond or fishery habitat below acceptable limits. The Forest Plan will define these acceptable limits. The Forest Service will also coordinate and cooperate

with States and private landowners in assessing cumulative effects in multiple ownership watersheds.

Agency Response: The statement addresses cumulative soil productivity effects and cumulative watershed effects. Both have been addressed above

Please disclose how the proposed project units would be consistent with Graham, et al., 1994 recommendations for fine and coarse woody debris, a necessary consideration for sustaining long-term soil productivity.

Agency Response: Existing coarse woody debris is about 4 tons per acre and additional debris from the sale and contributions from the residual stand are expected to meet the recommendations in Graham et al., 1994.

Enumeration of and monitoring of specific small, non-game birds and animal populations that are important in keeping destructive insect populations at low levels must also be disclosed.

Agency Response: The Forest has no legal requirement to monitor specific small, non-game bird and animal populations, but it has monitored landbirds as part of the Regional Landbird Monitoring Program since 1993 (refer to UM site). The terrestrial wildlife report for the project addresses a number of non-game bird and animal species, and uses the pileated woodpecker to analyze project and cumulative effects to snag habitat created by insect infestations (PF Doc. C-18).

The rationale and analysis of this proposal must look at the forest as an ecosystem with interrelationships coequal to timber production. Please use the ecosystem management approach to assess fungal and insect organisms as capable of operating in a self-regulatory manner and exist as beneficial organisms within the project area. Some species of trees, native insects, and disease organisms are often described by the FS as “invasive” or somehow bad for the ecosystem. Such contentions that conditions are somehow “unnatural” runs counter to more enlightened thinking on such matters. For example, Harvey et al., 1994 state:

Although usually viewed as pests at the tree and stand scale, insects and disease organisms perform functions on a broader scale.

…Pests are a part of even the healthiest eastside ecosystems. Pest roles—such as the removal of poorly adapted individuals, accelerated decomposition, and reduced stand density—may be critical to rapid ecosystem adjustment

…In some areas of the eastside and Blue Mountain forests, at least, the ecosystem has been altered, setting the stage for high pest activity (Gast and others, 1991). This increased activity does not mean that the ecosystem is broken or dying; rather, it is demonstrating functionality, as programmed during its developmental (evolutionary) history.

Agency Response: The purpose and need and the proposed actions are not directed towards changing or modifying any particular ecosystem process or function. Forest structure, density and condition would be modified in specific areas but fungi and insect interactions on the landscape would continue.

The FS often makes a case for logging as a way to reduce insect and disease damage to timber stands. As far as we are aware, the FS has no empirical evidence to indicate its “treatments” for “forest health” decrease, rather than increase, the incidence of insects and diseases in the forest. Since the FS doesn’t cite research that proves otherwise in its NEPA analyses, we can

only conclude that “forest health” discussions are unscientific and biased toward logging as a “solution.” Please consider the large body of research that indicates logging, roads, and other human caused disturbance promote the spread of tree diseases and insect infestation.

For example, multiple studies have shown that annosus root disease (Heterobasidion annosum, formerly named Fomes annosus), a fungal root pathogen that is often fatal or damaging for pine, fir, and hemlock in western forests, has increased in western forests as a result of logging (Smith 1989). And researchers have noted that the incidence of annosus root disease in true fir and ponderosa pine stands increased with the number of logging entries (Goheen and Goheen 1989). Large stumps served as infection foci for the stands, although significant mortality was not obvious until 10 to 15 years after logging (Id.).

The proportion of western hemlock trees infected by annosus root disease increased after precommercial thinning, due to infection of stumps and logging equipment wounds (Edmonds et al. 1989, Chavez, et al. 1980).

Armillaria, a primary, aggressive root pathogen of pines, true firs, and Douglas-fir in western interior forests, spreads into healthy stands from the stumps and roots of cut trees (Wargo and Shaw 1985). The fungus colonizes stumps and roots of cut trees, then spreads to adjacent healthy trees. Roots of large trees in particular can support the fungus for many years because they are moist and large enough for the fungus to survive, and disease centers can expand to several hectares in size, with greater than 25% of the trees affected in a stand (id.). Roth et al. (1980) also noted that Armillaria was present in stumps of old-growth ponderosa pine logged up to 35 years earlier, with the oldest stumps having the highest rate of infection.

Filip (1979) observed that mortality of saplings was significantly correlated to the number of Douglas-fir stumps infected with Armillaria mellea and laminated root rot (Phellinus weirii). McDonald, et al. (1987) concluded the pathogenic fungus Armillaria had a threefold higher occurrence on disturbed plots compared to pristine plots at high productivity sites in the Northern Rockies. Those authors also reviewed past studies on Armillaria, noting a clear link between management and the severity of Armillaria-caused disease.

Morrison and Mallett (1996) observed that infection and mortality from the root disease Armillaria ostoyae was several times higher in forest stands with logging disturbance than in undisturbed stands, and that adjacent residual trees as well as new regeneration became infected when their roots came into contact with roots from infected stumps.

Precommercial thinning and soil disturbance led to an increased risk of infection and mortality by black-stain root disease (Leptographium wageneri) in Douglas-fir, with the majority of infection centers being close to roads and skid trails (Hansen et al. 1988). Also another Black-stain root disease (Verticicladiella wagenerii) occurred at a greater frequency in Douglas-fir trees close to roads than in trees located 25 m or more from roads (Hansen 1978). Witcosky et al. (1986) also noted that precommercially thinned stands attracted a greater number of black-stain root disease insect vectors.

Complex interactions involve mechanical damage from logging, infestation by root diseases, and attacks by insects. Aho et al. (1987) saw that mechanical wounding of grand fir and white fir by logging equipment activated dormant decay fungi, including the Indian paint fungus (Echinodontium tinctorium).

Trees stressed by logging, and therefore more susceptible to root diseases are, in turn, more susceptible to attack by insects. Goheen and Hansen (1993) reviewed the association between pathogenic fungi and bark beetles in coniferous forests, noting that root disease fungi predispose some conifer species to bark beetle attack and/or help maintain endemic populations of bark beetles.

Goheen and Hansen (1993) observed that live trees infected with Laminated root rot (Phellinus weirii) have a greater likelihood of attack by Douglas-fir beetles (Dendroctonus pseudotsugae). Also, Douglas-fir trees weakened by Black-stain root disease (Leptographium wageneri var. pseudotsugae) are attacked and killed by a variety of bark beetle species, including the Douglas-fir bark beetle (D. pseudotsugae) and the Douglas-fir engraver (Scolytus unispinosis) (id.).

The root disease Leptographium wageneri var. ponderosum predisposes ponderosa pine to several bark beetle species, including the mountain pine beetle (D. ponderosae) and the western pine beetle (D. brevicomis) (Goheen and Hansen 1993).

A variety of root diseases, including black-stain, Armillaria, and brown cubical butt rot (Phaeolus schweinitzii), predispose lodgepole pine to attack by mountain pine beetles in the interior west. The diseases are also believed to provide stressed host trees that help maintain endemic populations of mountain pine beetle or trigger population increases at the start of an outbreak (Goheen and Hansen 1993).

Grand and white fir trees in interior mixed-conifer forests have been found to have a high likelihood of attack by the fir engraver (Scolytus ventralis) when they are infected by root diseases, such as laminated root rot, Armillaria, and annosus (Goheen and Hansen 1993).

More western pine beetles (Dendroctonus breviformis) and mountain pine beetles (D. ponderosae) were captured on trees infected by black-stain root disease (Ceratocystis wageneri) than on uninfected trees (Goheen et al. 1985). The two species of beetle were more frequently attracted to wounds on trees that were also diseased than to uninfected trees. They also noted that the red turpentine beetle (Dendroctonus valens) attacked trees at wounds, with attack rates seven-to-eight times higher on trees infected with black-stain root disease than uninfected trees. Spondylis upiformis attacked only wounded trees, not unwounded trees (Id.).

Agency Response: The purpose of the project is to maintain the area for seed production in Ponderosa pine. Field visits on March 26(MFO-TR-06-02) & July 12(MFO-TR-06-18) (PF Doc. C-9 & 10), 2006 by the forest siliviculturist, district foresters and Regional Staff (entomologist and forest pathologist) from Forest Health Protection (FHP) evaluated site specific conditions relative to various bark beetles & on July 12th conducted a root disease assessment. Current conditions with overcrowding of the stand by smaller diameter Douglas-fir, lodgepole pine and Ponderosa pine create competitive stresses between individual trees and predispose the larger seed producing Ponderosa pine & Douglas-fir to attack by bark beetles. Annosus root disease is suspected to be present in the stand (See MFO-TR-06-18). No other root diseases were observed or suspected to be present in the project area. While some of the tree species mentioned such as western hemlock, white and grand firs do not occur in the project area, the Forest Service does recognize that various rots and root disease can be spread through damage to trees. We also are aware of the susceptibility of trees stressed through damage or fire to bark beetle infestation. Standard harvest procedures include designated skid trails and directional felling; designed to mitigate damage to leave trees. Contracts will include provisions to minimize damage to the residual stand where thinning or other silvicultural activities occurs. Timing of thinning, prescribed burning and prompt disposal of created slash can minimize the risk to insect & disease attacks. In the prevention and/or spread of annosus root disease; "H. annosum apparently is not able to survive in and move from smaller stumps. The fungus needs larger stumps in order to survive and cause a disease center. Consequently, cutting smaller ponderosa pine, Douglas-fir lessens the chance of creating new disease centers. If larger

stumps are cut, then treating the stump surfaces with Sporax, a registered product for preventing annosus root disease, will prevent the spores from germinating. The current recommendation is to treat all ponderosa pine stumps 14" or larger in diameter within 24 hours of cutting." Refer to "Bark beetle and root disease concerns in ponderosa pine seed-collection area" Forest Health Protection reports: (MFO-TR-06-02, 3/26/06), (MFO-TR-06-18, 7/12/06) for recommendations and the Decision Memo for treatment descriptions for Insect and Disease in the project area.
In response to concerns over the lack of cited research for thinning and response to bark beetles; the Forest Service relies on the research & recommendations from the Forest Health Protection group as well as numerous research projects. The following is reproduced from the earlier report (MFO-TR-06-02, 3/26/06): "Reducing stocking around desired seed-producing trees will result in less competitive stress on them and lessen the likelihood of their attracting bark beetles." From Kolb et al. 2007, Perpetuating old ponderosa pine: In Montana "Thinning of understory trees, with and without prescribed burning, reduced mortality of old trees compared with the unthinned controls (Fiedler, 2000). Mortality was 5.5-fold greater in control than in thinned or thinned and burned plots. Thinning also increased diameter growth of the old trees by about 2.6-fold." The FS does not propose to alter insect populations directly with this project. Thinning will likely indirectly affect these insects by decreasing amount of tree mortality since inter-tree competitive stress will decline for the residual stand. Microsites will be less attractive for bark beetles in thinned stands since pheromone clouds will be less likely to hang next to individual trees, making bark beetles less effective in targeting individual trees for attack.

Jones and Grant (1996) describe the relationship of roads and clearcutting:

The addition of roads to clear-cutting in small basins produced a quite different hydrologic response than clear-cutting alone, leading to significant increases in all sizes of peak discharges in all seasons, and especially prolonged increases in peak discharges of winter events. These results support the hypothesis that roads interact positively with clear-cutting to modify water flow paths and speed the delivery of water to channels during storm events, producing much greater changes in peak discharges than either clear-cutting or roads alone. Roads alone appear to advance the time of peak discharges and increase them slightly. Road surfaces, cutbanks, and ditches, and culverts all can convert subsurface flow paths to surface flow paths (Harret al., 1975; King and Tennyson, 1984; Wemple, 1994; Wright et al., 1990). Reid (1991) and Reid and Dunne (1984) estimated discharges from culvert outfalls in western Washington and associated them with runoff from road surfaces.

Agency Response: This project does not propose clearcutting or road construction, therefore Jones and Grant was not reviewed.

It is extremely important the FS disclose the environmental baseline for watersheds. Generally, this means their condition before development or resource exploitation was initiated. For example, the baseline condition of a stream means the habitat conditions for fish and other aquatic species prior to the impacts of road building, logging, livestock grazing, etc. Therefore, proper disclosure of baseline conditions would mean estimates of stream stability, pool frequency conditions, water temperature range—essentially the values of Riparian Management Objectives along with such parameters as sediment levels. When such information is provided, comparison with the current conditions (after impacts of development) will aid in the assessment of cumulative effects of all alternatives.

Agency Response: Reference specialist report on Hydrology/Riparian in the project file (PF Doc. C-4). Cumulative effects from past harvest are >20 years and no longer influence hydrologic conditions. The proposed action (thinning) will have little effect on hydrologic function. Project location is away from Lower Willow Creek and/or is buffered by FS Road #358 to have no direct effects on stream conditions.

The FS insists that the economic system as it presently exists be a part of the equation for performing "ecosystem management." Although we disagree the way this is interpreted to mean that present economic interests must be served first, the FS should follow thorough and tell the full economic story of just what the project's impacts would be to taxpayers, not just to local economic interests. Along with the costs of the specific project actions, the costs of road maintenance proportionately attributable to this project and the cumulative economic impacts of carrying out fire suppression policy and the resultant need to carry out such projects as this one should be disclosed.

Agency Response: The Silviculture report in the project file discusses estimated costs and benefits of doing this project (PF Doc. C-7). This project does not propose to construct roads or carry out fire suppression policy. Existing roads will be used to access the project area.

In the name of increased responsibility to the taxpayer for providing the highest benefits in return for public investments, we request that you document how your decisions and the selected alternatives maximize net public benefit. In other words, you should give consideration to, and adequately document, who would benefit from this project and who would pays for it. Please provide an itemized list of monetary costs and benefits for the project, including the no-action alternative.

Agency Response: The final DM will discuss the benefits of the project. The project benefits include creating a ponderosa pine seed collection stand for the "Blue High" seed zone. The seed will be used on the Deerlodge portion of the B-D National Forest in regenerating ponderosa pine sites. The seed is also available to the Bitterroot National Forest where the "Blue High" seed zone occurs to help cover any shortage of seed due to fire/insect mortality. The project will be paid for using appropriated funds.

Economics is another reason why we strongly desire to see an alternative that would only involve rehabilitation and recovery. The long-term benefits of not having to spend money for doing road maintenance or other management activities and administration in the analysis area should be compared to the expenses incurred from both the action alternative(s) and the no-action alternative.

For every project proposal, it is important that the results of past monitoring be incorporated into planning. All Interdisciplinary Team Members should be familiar with the results of all past monitoring pertinent to the project area, and any deficiencies of monitoring that have been previously committed to. For that reason, we expect that the following be included in the NEPA documents or project files:

A list of all past projects (completed or ongoing) implemented in the proposed project area watersheds.

The results of all monitoring done in the project area as committed to in the NEPA documents of those past projects.

The results of all monitoring done in the proposed project area as a part of the Forest Plan monitoring and evaluation effort.

A description of any monitoring, specified in those past project NEPA documents or the Forest Plan for proposed project area, which has yet to be gathered and/or reported.

Please disclose the name of any other past logging projects (implemented during the life of the Forest Plan) whose analysis area(s) encompass the areas to be logged under this proposal. Please disclose if the FS has performed all of the monitoring and mitigation required or recommended in any NEPA documents, and the results of the monitoring. Lacking such knowledge, justification for use of a CE is missing.

Agency Response: Information concerning past, present and foreseeable projects is located in the project file (PF Doc. C-39 through 42) and was considered in the analysis for all resource areas. Forest Plan Monitoring reports are available on the internet at http://www.fs.fed.us/r1/b-d/

Before approving a further set of activities that are known causes of ecosystem damage—activities such as logging, road construction, and motorized access—the FS must complete the revision of the Forest Plan in order to elucidate a truly sustainable ecological vision of forest management. The FS proposes to continue to implement a Forest Plan that has in many ways expired, both legally and ecologically. Project-level decisions based upon an out-of-date Forest Plan and in an absence of adequate monitoring are inadequately informed, are likely illegal, and will result in more of the same kind of damage that has occurred continuously under the first Forest Plan.

Agency Response: The Forest has no requirement to complete the revision of the Forest Plan prior to completing this project. We currently operate under the 1987 Deerlodge Forest Plan and will continue to do so until the revision is complete.

The development of approved fire management plans in compliance with the Federal Wildland Fire Policy was the number one policy objective intended for immediate implementation in the Implementation Action Plan Report for the Federal Wildland Fire Management Policy and Program Review. In general, the FS lags far behind other federal land management agencies that have already invested considerable amounts of time, money, and resources to implement the Fire Policy. Continued mismanagement of national forest lands and FS refusal to fully implement the Fire Policy puts wildland firefighters at risk if and when they are dispatched to wildfires.

Agency Response: This project does not propose any fire management activity. The purpose of the project is to reduce the potential spread of Mountain pine beetle, Douglas-fir beetle, and western pine beetle within the project area by removing infected trees and improving the health and vigor of remaining trees and reduce their susceptibility to bark beetle mortality.

Cumulative effects are defined by NEPA at 40 C.F.R. 1508.7 as:

. . . the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future action regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (emphasis added).

This means the FS must consider the cumulative effects of activities on land of all ownerships in or adjacent to the affected watersheds.

Agency Response: This has been done. Reference Specialists reports in the project file (PF Doc. C-1, 3, 4, 5, 6, 7, 17, & 18). BEs/BAs will be available on the internet at http://www.fs.fed.us/r1/b-d/ after the Decision Memo is signed.

It has been well-established that site-specific Biological Evaluations (BEs) or Biological Assessments (BAs) must be prepared for all actions such as this. Further, the Forest Service Manual requires that BEs/BAs consider cumulative effects. The Forest Service Manual states that project BEs/BAs must contain "a discussion of cumulative effects resulting from the planned project in relationship to existing conditions and other related projects" [FSM 2672.42(4)]. "Existing conditions" obviously are the current conditions of the resources as a result of past actions.

Agency Response: This has been done. Reference Specialists reports in the project file (PF Doc. C-1, 3, 4, 5, 6, 7, 17, & 18). BEs/BAs will be available on the internet at http://www.fs.fed.us/r1/b-d/ after the Decision Memo is signed.

It is our intention that you include in the record and review that letter and all of the literature we've cited herein. Please contact me at the WildWest Institute if you have problems finding any of the references.

*Agency Response: All literature cited referenced in the body of the letter **THAT MAY BE RELEVANT** with context to the Barton Springs Thinning Project will be reviewed and responded to in this document, Response to Comments, which will be part of the project file (PF Doc. H-4) and will also be available on the internet when the Decision Memo is signed, http://www.fs.fed.us/r1/b-d/*

Thank you for your attention to these concerns. Please keep both groups on your list to receive further mailings on the proposal. Also, please send to the WildWest Institute copies of the Biological Evaluations/Assessments for all Threatened, Endangered, Proposed, and Sensitive fish, wildlife, and plant species for this proposed project, as soon as they are available.

We conclude this comment letter with this passage from Frissell and Bayles (1996):

Most philosophies and approaches for ecosystem management put forward to date are limited (perhaps doomed) by a failure to acknowledge and rationally address the overriding problems of uncertainty and ignorance about the mechanisms by which complex ecosystems respond to human actions. They lack humility and historical perspective about science and about our past failures in management. They still implicitly subscribe to the scientifically discredited illusion that humans are fully in control of an ecosystemic machine and can foresee and manipulate all the possible consequences of particular actions while deliberately altering the ecosystem to produce only predictable, optimized and socially desirable outputs. Moreover, despite our well-demonstrated inability to prescribe and forge institutional arrangements capable of successfully implementing the principles and practice of integrated ecosystem management over a sustained time frame an at sufficiently large spatial scales, would-be ecosystem managers have neglected to acknowledge and critically analyze past institutional and policy failures. They say we need ecosystem management because public opinion has changed, neglecting the obvious point that public opinion has been shaped by the glowing promises of past managers and by their clear and spectacular failure to deliver on such promises.

Agency Response: Your approach of using a generic, form letter covering a broad range of resource topics at the landscape scale ensures that some of your concerns actually pertain to this site specific project. Past activities in the Barton Springs area were not part of a past,

ecosystem management approach. However, the proposed activities (i.e. create & maintain a Ponderosa pine seed collection area) while relatively small in scale and specific in purpose; the effects on the "ecosystem" are considered. Three questions are posed & answered as a screen considering the ecosystem. 1) Is a part (of the ecosystem), function or process lost or modified so that can't be recreated? The answer here is, no. 2) Do opportunities exist for natural ecosystem processes to continue & that sustainable management of the site is possible? The answer here is, yes. 3) Is there a conflict at the site level with regards to some part of ecosystem function & processes that can't be resolved? The answer here is, no.

Sincerely,

And on behalf of:

/s/ Michael Garrity

Alliance for the Wild Rockies

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Letter 3: Montana Department of Fish, Wildlife & Parks

Dear Ms. Sawyer:

We have reviewed this document regarding the Pintler Ranger District's proposed thinning treatment on approximately 163 acres, located 18 miles northwest of Philipsburg. We appreciate the Forest Service's consideration of—an attention to—our earlier comments (letters dated 5 July 2006 and 27 May 2004) on this proposal.

Thank you again for providing the opportunity for FWP to comment on this proposal.

Sincerely,

Mack Long

Regional Supervisor

Agency Response: Thank you for your interest. Your previous letters in response to the scoping notices were reviewed and considered in the preparation of the draft DM.