August 2, 2019

Sent via email to: appeals-northern-regional-office@fs.fed.us

Objection Reviewing Officer
USDA Forest Service Northern Region
26 Fort Missoula Road
Missoula, MT 59804

Re: Gold Butterfly Project Objection

Pursuant to 36 CFR 218, this is an objection to the Final Environmental Impact Statement (FEIS) and draft Record of Decision (ROD) for the Gold Butterfly Project, on the Stevensville Ranger District, Bitterroot National Forest (BNF). The Responsible Official is Forest Supervisor Matt Anderson. This objection is filed on behalf of Friends of the Bitterroot, WildEarth Guardians, Alliance for the Wild Rockies, Gail H. Goheen and Steven S. Goheen ("Objectors"). The ROD selects FEIS Alternative 2 with two modifications but a succinct description of the Selected Alternative is not available in the FEIS or ROD. The FEIS description of Alterative 2 is immediately below, and the ROD's changes to that are presented just below that.

FEIS Alternative 2:

- Regeneration harvest treatments on an estimated 2,081 acres and intermediate harvest treatment on approximately 3,540 acres removing commercial products totaling an estimated volume of 34 million board feet/67,000 hundred cubic feet.
- Non-harvest fuel treatments include prescribed burning as well as piling and burning without commercial harvest on an estimated 1,766 acres of upper, mid and low elevation forest.
- Approximately 4,843 acres of commercial harvest, or 86 percent of the total treated, will occur within the Wildland Urban Interface (WUI). An estimated 805 acres non-commercial treatments, or 46 percent, will occur in the WUI.
- Approximately 392 acres of intermediate harvest in dry site old growth is included. These treatments will retain old growth characteristics. In addition, there are 359 acres of regeneration harvest in old growth that remove those acres from being old growth; these treatments are in areas for priority fuel reduction needs for WUI as well as promotion of retaining mature whitebark pine trees with planting of whitebark.
- Thirty-six of the proposed regeneration harvest units will contribute to a total of 14 openings over 40 acres.
- Decommissioning work on approximately 22.3 miles of roads that are no longer needed for future management, and 21.3 miles of Intermittent Stored Service (storage) on roads that are needed for future management of forest resources.
- Decommissioning of non-system (undetermined) roads on 16.5 miles.
- Adding approximately 16.5 miles of non-system (undetermined) roads that already exist on the landscape to the National Forest System Roads (NFSR) network for current and future use for management; this also is the entire amount of roads to be stored.

- Construction of approximately 6.4 miles of permanent road and 17.3 miles of temporary road in order to implement silvicultural prescriptions and to provide for product removal.
- Application of Best Management Practices (BMP) on 32.4 miles of haul road as part of the timber sale to help reduce potential sediment runoff and improve water quality.
- Watershed and other road work not associated with road storage or decommissioning:
- The Burnt Fork and Willow Creek trailheads are proposed to be moved lower in the drainages to address watershed concerns, with the associated 2.4 miles of road being converted to the NFS trail system:
    - Willow Creek (364) and Gold Creek (969) Roads will receive BMP improvements, which include rock lined ditches, riprap protected catch basins, and sediment traps; and
    - Road maintenance work includes reconditioning 22.8 miles of road surface.

ROD modifications to Alternative 2:

1. Convert 14 units with proposed regeneration harvest treatments in old growth, including clearcuts with leave trees (29 acres), seed tree cuts (50 acres), and shelterwood cuts (59 acres), to a commercial intermediate treatment. An intermediate treatment would retain and perpetuate old growth characteristics in ponderosa pine and/or Douglas-fir stands by leaving most of the large green trees and snags while removing mostly co-dominant and intermediate trees that show symptoms of susceptibility to western spruce budworm and/or other insects and diseases. In addition, an improvement harvest would strategically create canopy openings around dominant ponderosa pine trees to encourage natural regeneration of ponderosa pine.
This modification applies to the following units containing old growth: 17, 18, 23a, 24a, 25a, 25b, 25c, 28, 30a, 30b, 30c, 30d, 53, 58a

2. Convert two units with a proposed regeneration harvest treatment of clearcut with leave trees (111 acres) in old growth to a non-commercial treatment. Non-commercial treatments would remove target specie(s) within a unit up to a certain diameter limit. Treatments would favor retaining larger diameter ponderosa pine and whitebark pine and old growth characteristics.
This modification applies to the following units containing old growth: 13b, 93

Summary of Changes to Units Containing Old Growth

Treatment Unit	OG Acres in Unit	Original Treatment Prescription in Alt 2	Modified Treatment Prescription
17	14	Shelterwood	Commercial Intermediate Treatment
18	2	Shelterwood	Commercial Intermediate Treatment
23a	2	Clearcut with Leave Trees	Commercial Intermediate Treatment
24a	10	Shelterwood	Commercial Intermediate Treatment

25a	9	Seed Tree	Commercial Intermediate Treatment
25b	8	Seed Tree	Commercial Intermediate Treatment
25c	16	Shelterwood	Commercial Intermediate Treatment
28	5	Clearcut with Leave Tree	Commercial Intermediate Treatment
30a	15	Seed Tree	Commercial Intermediate Treatment
30b	16	Clearcut with Leave Tree	Commercial Intermediate Treatment
30c	18	Seed Tree	Commercial Intermediate Treatment
30d	6	Clearcut with Leave Tree	Commercial Intermediate Treatment
53	13	Shelterwood	Commercial Intermediate Treatment
58a	4	Shelterwood	Commercial Intermediate Treatment
13b	46	Clearcut with Leave Tree	Non-commercial Intermediate Treatment with 7" DBH limit
93	65	Clearcut with Leave Tree	Non-commercial Intermediate Treatment with 12" DBH limit

ROD Summary of Vegetation Treatment Acre

Activity	Modified Alt 2 (Selected Alternative)
TOTAL COMMERCIAL HARVES	5461
Clearcut with Leave Trees	531
Shelterwood	653
Seed Tree	172
Group Selection	296
Commercial thin	765
Sanitation	517
Improvement	2527
TOTAL NON-COMMERCIAL	7238
Plantation Thinning	427
Mechanical Thinning / Fuel Reduction	64
Planting	2198
Non-commercial thinning associated with timber harvest units	3580
Meadow Restoration	84
Whitebark pine Daylighting	885
TOTAL PRESCRIBED FIRE	4854
Prescribed fire associated with commercial harvest	4440
Maintenance Burn	414
TOTAL AREA TREATED[1]	7376

INTRODUCTION

Objectors previously submitted comments on the project, including a July 11, 2017 letter responding to the Forest Service's proposal from Friends of the Bitterroot (FOB) and Alliance for the Wild Rockies (AWR); a December 8, 2017 letter by Jim Miller on behalf of FOB; a November 29, 2017 letter from AWR regarding the Alternative Workshop; a November 30, 2017 letter from WildEarth Guardians regarding the Alternative Workshop; a July 30, 2018 letter from Friends of the Bitterroot and Alliance for the Wild Rockies commenting on the Draft EIS; a July 17, 2017 letter from WildEarth Guardians and others at the scoping phase; letters from Gail and Stephen Goheen dated July, 2017; a July 30, 2018 letter from Gail and Stephen Goheen commenting on the Draft EIS, a July 30, 2018 letter from WildEarth Guardians and others commenting on the Draft EIS. We fully incorporate those previous comments into this objection.

We also fully incorporate the comments of FOB members into this objection. Specifically these include: Larry Campbell July 12, 2017 comments; Jeff Lonn comments of July 5, 2017; comments of Van Keele dated 1/27/2017; undated comments by Jeff Lonn regarding the Alternatives Workshop; comments of Larry Campbell regarding Alternative Development dated December 4, 2017; undated comments by Michele Dieterich regarding the Alternatives Workshop; comments of Gary Milner regarding November 30, 2017 open house; comments of Michael Hoyt dated December 6, 2017 regarding November 30, 2017 open house; undated letter from Jeff Lonn commenting on the Draft EIS; undated letter from Van Keele commenting on the Draft EIS and; July 30, 2018 letter from Larry Campbell commenting on the Draft EIS.

We also incorporate by reference the Objections of the Gold Butterfly project filed by Gail and Stephen Goheen, Michael Hoyt, Gary Milner, and Van Keele.

If the Forest Service (FS) were to be open forthcoming with its agenda, willing to actually work with the owners of the Bitterroot National Forest to find middle ground, and respond to concerns this objection likely would not have been written. The individuals and groups represented on this objection would not have opposed the project and in some cases, would have supported it. For example, WildEarth Guardians' July 30, 2018 Citizen Comment Letter states, "eliminating old growth logging, clear-cuts, and new road construction will ensure connected habitat for wildlife to thrive. Fewer road miles subject to log truck hauling will also reduce the amount of sediment that bleeds into neighboring waterways, giving bull trout a better chance at recovery. We strongly urge the Forest Service to select a modified Alternative 3 with stronger protections for wildlife and waters." That letter was signed by over 3000 Americans.

The agency itself has chosen this contentious path, by pushing logging (including in old growth) and road building to an unsustainable degree, and in a manner that is unaffordable to American taxpayers and those in Ravalli County.

COMPLIANCE WITH NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

Several violations of NEPA were discussed in FOB/AWR DEIS comments at pp. 2-6. We incorporate those comments into this objection, and add the following discussion.

NEPA requires the FS to respond in writing to comments the public and government agencies make on the Draft EIS. The reason is, the public and others need to be informed about how their concerns about proposals affecting federal lands—related to the wildlife, fish, old growth, water quality, finances, and other resources—are being considered and addressed by the agencies. Lacking this information places an undue burden on the public as they proceed with further involvement in the decisionmaking process and project implementation. This is why it is so disappointing that the Forest Service ignored so many comments, including those of Objectors.

It's the very same problem when the Forest Service does respond but its responses are obtuse, evasive, or otherwise inadequate. If the agency cannot go through the process of responding appropriately and transparently with the public, it lacks the credibility to gain or maintain confidence in its competence as land managers.

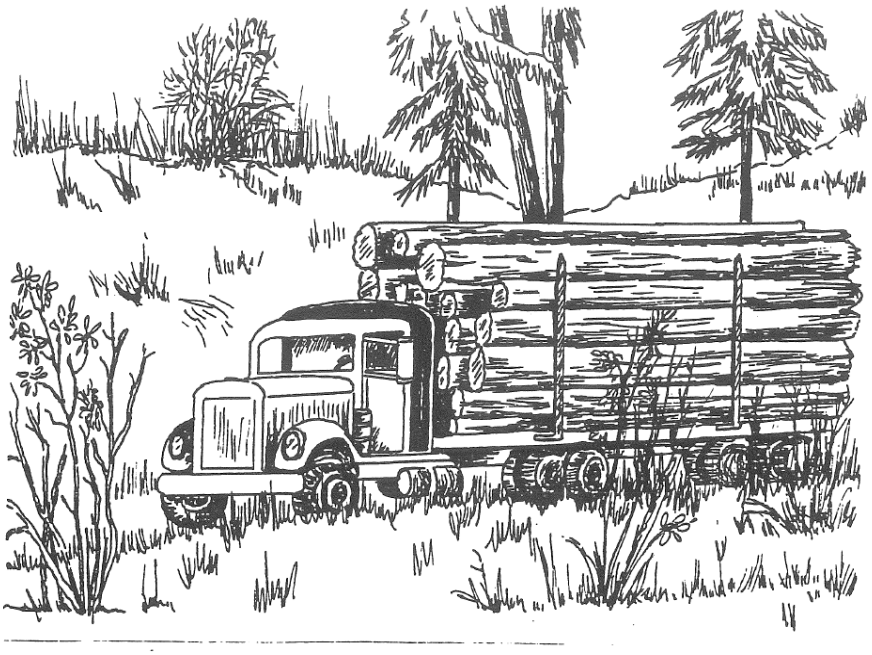
Scientific information was a major component of comments Objectors submitted. The agency response to scientific information is extremely weak. We questioned in great detail the scientific basis for the project, and the scientific veracity of some the analyses. It seems the agency tries to bend science to justify its policies, and if science is broken in the process, oh well.

The FEIS states, "The Bitterroot National Forest has been and continues to seek additional haul route access options through use of a temporary road use agreement with private landowners." Since the FS doesn't know which roads will be haul routes, it fails to analyze and disclose impacts of such road use.

The agency also failed to follow a proper NEPA process for the designation of insect and disease treatment areas to increase forest resilience to insect or disease infestations.

Remedy: Withdraw the draft ROD and prepare a Supplemental EIS which includes genuine responses to comments.

OLD GROWTH



Logging is the chief systematic pressure affecting old-growth communities.

(USDA Forest Service, 1987d)

Old growth was discussed in detail in FOB/AWR DEIS comments at pp. 6-15 and in FOB/AWR scoping comments at p. 2. Discussions of old-growth associated wildlife were also presented in FOB/AWR DEIS comments. We incorporate those comments into this objection, and add the following discussion.

The FS's management paradigm for old growth (logging) is reflected in the DEIS statement, "Alternative 2 would increase the vigor of existing old growth stands and stands that are progressing towards old growth, which would make them more resilient to insects, disease and fire." In other words, actively manipulate it to save it. The FEIS lacks sufficient scientific support for its premise.

The DEIS states, "Alternative 1 would not encourage progress of existing immature stands towards old growth conditions…" Also, "Old trees within existing old growth stands where no treatment is proposed would continue to be at increased risk of mortality due to moisture competition and high intensity fire…"The uninformed might be left wondering, how did old growth ever exist before logging?

Mandates in the Healthy Forest Restoration Act (HFRA) include "maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to the pre-fire suppression old growth conditions characteristic of the forest type, taking into account the contribution of the stand to landscape fire adaptation and watershed health, and retaining the large trees contributing to old growth structure" and to "focus() largely on small diameter trees" and "maximize() the retention of large trees."

The ROD's Selected Alternative, a modified version of FEIS Alternative 2, alters logging as outlined for FEIS Alternative 2 as described in the beginning of this Objection, where we cited from the ROD. The modifications convert some proposed "regeneration harvest treatments" in old growth to "commercial intermediate treatment" which are alleged to "retain and perpetuate old growth characteristics in ponderosa pine and/or Douglas-fir stands by leaving most of the large green trees and snags." Other proposed "regeneration harvest treatments" would be converted to "a non-commercial treatment" which would "remove target specie(s) within a unit up to a certain diameter limit." FOB/AWR's comments on the DEIS heavily criticized this Forest Service heavy-handed management of old growth, citing the lack of scientific support. The modifications still result in vague management direction ("retain most of…") which fails to even conform to HFRA requirements.

The Draft ROD lists the changes that were made concerning treatments in old growth. Basically they were changed from a regeneration to "commercial intermediate." Yet nowhere in the EIS is it disclosed what the associated impacts of the decision in changing treatments. There was no analysis done for these changes. For example, Unit 93 is a mix of whitebark pine and subalpine fir. Whitebark pine is a Sensitive species, a Candidate for listing under the ESA. There was no analysis or discussion of impacts to this species as a result of the changes made for the treatment in this unit.

At the BRC meeting on July 22, Project IDT Leader Jeff Shearer stated the changes were a result of suggestions from the silviculturist and the biologist. This is not consistent with documents FOB received from a FOIA in April showing emails between the biologist, silviculturist and then District Ranger Tami Sabol. A spreadsheet of all 16 units showed existing condition, the diagnosis, and their new recommendations/Rx for those units. Those recommendations/Rx are not what appear in the ROD and contradict what Jeff Shearer said.

The document entitled "Modified Alternative Regeneration Harvests-Gold Butterfly" strongly suggests old-growth units will in fact be Regeneration—not Intermediate (e.g., "Shelterwood with diameter cap 16" dbh…"). We find nothing in the FEIS or Draft ROD which distinguish between the "Modified Alternative Regeneration Harvests" and "commercial intermediate." It appears that the changes incorporated for the Selected Alternative—basically leaving a few more trees/acre than would have been left under FEIS Alternative 2—are little but window dressing.

The ROD states on page 5, "Large diameter trees and old growth characteristics sufficient to keep old growth status will be retained through implementation activities, and monitoring of the old growth stands will occur after treatments are completed." This is entirely too vague. While diameter is one way to help determine old growth status, age of trees is also a minimum criteria—and age of retained trees will not be determined prior to stand marking. And what is meant by "old growth characteristics sufficient to keep old growth status" is anybody's guess. In fact, the impacts of applying fire on the logged, "maintained" old growth is not adequately analyzed. Whitebark pine in unit 93 may not survive the planned prescribe burn.

Emails FOB received from a FOIA (Tami Sabol, Nate Barber, and others - Tuesday, December 19, 2017 1:26:00 PM) state, "During our conversations, it became obvious that it is difficult to definitively say that old growth characteristics would be retained following treatment. Any

treatment activity (e.g., logging, burning, etc.) has the potential to inadvertently remove stands from old growth status due to events beyond our control (e.g. windthrow, unintended prescribed fire effects). Therefore, an alternative that would treat only if we retain old growth characteristics may be more than we can guarantee." This uncertainty was not acknowledged or analyzed in the FEIS or ROD. (E.g., the ROD at 3 states: ". . . all treatment units containing old growth would retain their old growth status under the selected alternative.")

And whereas the DEIS states that 358 acres of old growth were to be regeneration harvested under Alternative 2, the Draft ROD's modified Alternative 2 only accounts for (changes from regeneration to noncommercial or commercial intermediate treatments) 249 of those acres.

The Forest Service cites no scientific information supporting its assumption that what is left behind after this old-growth logging scheme functions as old-growth habitat for wildlife, or is somehow better in any ecological sense. FOB/AWR DEIS comments stated:

> The FS has conducted no research or monitoring comparing pre- and post-logging old growth occupancy by or abundance of the wildlife species with strong biological association with habitat components found in old growth. Nor of the habitat you claim you have been "encouraging toward old growth conditions." Biologically speaking, the FS refuses to check in with the real experts to see if logged old growth is still functioning as habitat.

<u>The Forest Service completely ignored that comment.</u>

In discussing old growth within the managed portion of the Kootenai National Forest, USDA Forest Service, 1987a states:

> Until the end of the rotation, stands …will be managed to retain their old growth characteristics (multi-storied canopy; large trees, snags, down logs, trees with spike tops, heartrot, etc.). Given our current level of knowledge; intermediate harvest, salvage sales, or firewood sales are not compatible with maintenance of old growth characteristics. In the future it may be demonstrated that certain types of logging can occur within old growth stands and still maintain their value to old growth dependent species, but until that time old growth stands should not be scheduled or planned for salvage, pulping or intermediate harvest.

The FEIS fails to cite all the pertinent, applicable forestwide and Management Area (MA) standards, and demonstrate that the project would be consistent with them. The FEIS does not demonstrate that management is consistent with Forest Plan Wildlife and Fish Standard 1: "The amount and distribution of old growth will be used to ensure sufficient habitat for the maintenance of viable populations of existing native and desirable non-native vertebrate species, including two indicator species, the pine marten and pileated woodpecker."

FEIS Table 3.4 indicates that the amount of old growth in some 3rd order drainages of the project area does not meet forest plan standards. Actually, the Table 3.4 numbers representing the amount of old growth in 3rd order drainages of the project area may be overestimates, because as the FEIS admits, "Areas of old growth outside of proposed treatment units used the best available data from previous stand exams and the wildlife database." There is no indication

in the FEIS as to how old those previous stand exams are, and the accuracy of their "old growth determinations" and the "wildlife database" are similarly undisclosed. On the other hand, PF-SILV-006 ("Old Growth Summary Report") reveals that most of the old-growth surveys date back to 1992 or earlier. This makes no sense, since the FS makes statements in the EIS which claim much of the old growth will soon cease to be old growth due to natural conditions. The vast majority of old growth in the analysis area has a quarter-century of change since the stand exams were conducted. So over those 25+ years the old growth has persisted, but for some reason now it is in imminent risk of falling apart? This is arbitrary and capricious.

And the numbers in PF-SILV-006 ("Old Growth Summary Report") document nowhere near the 6,000+ acres of old growth claimed by the EIS. No explanation is given for the vast discrepancy.

Some more recent (and therefore one might presume, more accurate) stand exams were done in 2016, as referenced in the EIS. They are documented in PF-WILD-006, which are old growth surveys of proposed Gold Butterfly treatment units. Yet PF-WILD-006 reveals no plot data was collected with which anyone can compare to the BNF's Green et al old-growth criteria. Instead, old growth was subjectively determined by the surveyor. And no total old growth acres can be determined from most survey sheets—some of the units that ARE said to be old growth are only partially old growth. In short, the numbers of acres of old growth displayed in the EIS are not supported by data and are thus unreliable.

It makes no sense for the FS to be logging the ponderosa pine and Douglas-fir old growth types down to eight trees per acre of large old trees while claiming to still be retaining old-growth status. The stand structure will be greatly simplified, many snags would be taken down under the justification as safety hazards. The ground will be trenched, compacted and weeded. Most other trees of any size and species will be removed. The tree spacing will lack diversity, the wind will blow and only time will tell how long those selected eight live trees will be left standing, some displaying their new cable scars and torn limbs. We assume the BNF would choose eight trees that look like they will live for a long time. Therefore they may be selecting against thinning crowns, heartrot, broken tops, leaning trees, etc. (i.e., true old-growth character). Logging down to 8 trees per acre is not supported by the Green, et al., 1992.

Also the FS fails to address most all other tree species (Engelmann spruce, subalpine fir, aspen, lodgepole and to some degree whitebark pine) importance for old growth considerations.

And this doesn't even consider all the small pockets that the FS will log of large, old ponderosa pine and Douglas-fir that are not of big enough acreage for the FS to label as old growth, and all the big spruce and occasional big subalpine fir that will be too young according to the foresters who do not know site potential for this area even though they are as big as they get on the west slope of the Sapphires. There is no diameter or age limit for any of the non-old growth cutting units.

Forest Plan monitoring requirements have not been followed. The FEIS does not disclose if the management indicator species (MIS) pine marten and pileated woodpecker are at naturally abundant levels. Habitat for those, and other Sensitive species would be reduced by the project in the absence of viability assurance. For viability to be insured, the FS must provide a sound,

scientifically based analysis that determines the quantity and quality of habitat needed for MIS and TES species.

For Management Area 3a, Standard 3(c)(2) requires "Old growth units should be 40 acres and larger, distributed over the management area. …each third order drainage will be maintained in old growth. Provide 40-acre stands of old growth by coordinating management activities in this area with activities in adjacent management areas especially Management Area 3b, riparian areas."

The FEIS completely ignores Forest Plan MA 3b standard 8, which requires "50 percent old growth in fisheries riparian areas and 25 percent old growth in nonfisheries riparian areas. Riparian old growth should be coordinated with adjacent management area old growth to provide for adequate distribution and 40 acre or larger units."

MA 3b "supports abundant and diverse vegetative conditions and the most productive sites on the Forest. It includes 100 feet on either side of smaller streams or the area defined by water-influenced vegetation, whichever is greater. …These riparian areas are surrounded by or are inclusions within Management Areas 1, 2, and 3a." (Forest Plan at III-22.)

In DEIS comments on the BNF's Como Forest Health Project, AWR & FOB raised the issue of the quality of the BNF forestwide old-growth inventory, citing from that DEIS: "Information concerning the condition of old growth stands outside of the project area is incomplete at this time." (3-108.) AWR & FOB asked, "Does this mean that the forestwide inventory of old growth is incomplete or inaccurate?" The FS responded:

> The sentence in the Incomplete and Unavailable Information section on page 3-108 has been re-written for clarification purposes. The original intent of the statement was to disclose that old growth stands outside of the project area have not been analyzed in the same method as the stands examined inside of the project area during field work. ...Stand exams done for this project were done in a more statistically sound data collection protocol than the previous methods used for old growth inventory. The new Regional stand exam protocols contain basic requirements for exams that weren't collected in previous stand-level old growth inventories.

With that response to comments, the FS states there is some other forestwide inventory of old growth other than the invalid FIA estimation, and that its accuracy is lacking.

Forest Plan Monitoring requirements include: "Acres of old growth by habitat type, land class, and management area, to be measured every 3 years and reported every 5 years." The FS has not performed consistent with these requirements. As reported in Juel, 2003, the BNF had stated that the old-growth inventory is almost complete, and provided numbers for areas that had been at least partially surveyed for old growth. However, at that time and now, it is not possible to adequately determine compliance with the quantitative Forest Plan standards. This is especially problematic since, as the FEIS discloses, the BNF now relies upon FIA data to estimate amounts across the Forest.

The BNF's Five Year Review states, "The quantity and distribution of old growth needs to be placed in the context of the range of natural variation to better ensure viability of old growth dependent wildlife species." The FEIS does not do this, as the agency has no estimates of natural range of variation of old growth in the project area, and doesn't cite any data specific to the BNF for any forestwide estimate. Viability of old-growth associated species cannot be reasonably assured with so little historical habitat data.

The FEIS also fails to disclose how much old growth would be destroyed by the road building. The Van Keele Objection states:

> Over 10 miles (10.24) of temp (6.59) and spec/permanent (3.65) are proposed through units containing OG, with proposed permanent roads going through at least 9 units of OG. Additional miles of roads will be constructed or "reconstructed" through OG via reopening of vegetatively reclaimed undetermined roads. Permanent roads are proposed through OG to reach adjacent areas that are harvest units. In sum, there is a large amount of road building or road reconstruction through OG. This will both directly and indirectly—in a significant way—affect OG conditions, OG-associated species, and obviously OG habitat—contradicting the DROD statement that no road construction or undetermined road reconstruction will significantly affect in a direct or indirect way any resource.

Impacts would not only be direct, as in destruction of old-growth habitat components (loss of large old trees, snags, down wood etc. from road building) but also indirect, such as from firewood cutting, windthrow, etc.

McClelland (1977), recommends: "Forest managers should limit firewood cutting to snags less than 15 inches in d.b.h. and discourage use of larch, ponderosa pine, and black cottonwood. Closure of logging roads may be necessary to save high-value snags. Logging slash can be made available for wood gatherers."

FOB/AWR comments on the DEIS stated, "Bate et al. (2007), found that snag numbers were lower adjacent to roads due to removal for safety considerations, removal as firewood, and other management activities. Other literature has also indicated the potential for reduced snag abundance along roads (Wisdom et al. 2000)." This comment was one of the many ignored by the FS.

Remedy: Drop all project activities as proposed in old growth. Disclose the historic range of variability of old growth on the BNF. Update the forestwide inventory to accurately reflect the amount and distribution of 40+ acre patches of old growth.

EXCESSIVE ROAD SYSTEM, ACCESS MANAGEMENT, AND TRAVEL MANAGEMENT

This issue was discussed in detail in FOB/AWR DEIS comments at pp. 16-24 and in FOB/AWR scoping comments at pp. 1-2, 4-5. WildEarth Guardians scoping and DEIS comments also raised numerous road related issues. We incorporate those comments into this objection, and add the following discussion.

A. Failure to Comply with Travel Management Rule (TMR) under Subpart A (36 CFR 212.5(b))

WildEarth Guardians scoping and DEIS comments explained that given the restoration focus of this project and the decaying road system in the project area, the Forest Service should take this opportunity to comply with the TMR Subpart A direction to identify the minimum road system (MRS) and unneeded roads for decommissioning, and provide support for the claimed need. Guardians Scoping Comment at 6, DEIS Comment at 3. We explained the best way to comply with the regulation is to include it in the project's purpose and need statement. Guardians DEIS Comments at 3. In response, the BNF states, "[a] roads analysis was completed during the early planning stages of this project to identify the minimum roads system needed to balance resource concerns and future management use. The roads analysis document is located in the Project File (PF-ROAD-009)." FEIS Appendix C at C-17. There are two major problems with this response.

First, the response is incorrect. The project file did not identify the MRS for the project area. Rather, it provided the information necessary for the Forest Service to consider as part of its project-level analysis, which would inform a decision that meets the requirements under the TMR Subpart A. In fact, the referenced project file provides the following clarification:

> "This analysis does not represent a decision on road management. Any decisions affecting the road system will result from a NEPA analysis and will provide an appropriate level of public involvement opportunity." PF-ROAD-009 at 2.

Upon review of the ROD, the BNF fails to clearly state that the selected alternative in fact identifies the minimum road system and all unneeded roads for the project area. Rather, it simply repeats the ID team completed a minimum roads analysis. ROD at 8. In other words, referencing a travel analysis report (TAR) as part of a project record is not the same as stating in the decision that the project meets the TMR Subpart A requirements.

In addition, we provided a Forest Service memorandum attached to our scoping comments that made it clear the travel analysis reports were to inform future NEPA projects that identify the minimum road system, including proposed actions:

> The next step in identification of the MRS [minimum road system] is to use the travel analysis report to develop proposed actions to identify the MRS. These proposed actions generally should be developed at the scale of a 6th code subwatershed or larger. Proposed actions and alternatives are subject to environmental analysis under NEPA. Travel analysis should be used to inform the environmental analysis.

Here the BNF conflates the TAR and other transportation project files for the actual environmental analysis that is supposed to be included in the Draft and Final EIS. The selected alternative and ROD fail to identify the minimum road system and do not clarify that changes to the transportation system will result in a minimum road system for the project area. We recognize the FEIS Appendix F contains a list of roads that would be stored or decommissioned, and the transportation project files provide information to inform the MRS determination, but simply listing roads in an appendix and tiering to project files is not the same as providing analysis in in the FEIS itself. Again, the BNF cannot substitute the requisite NEPA analysis by tiering to project files. Both the Draft and Final EIS fail to synthesize the risks and benefits

associated with each road in the project area, and fail to provide sufficient discussion, analysis or evidence regarding the environmental consequences of the road system in the project area to support an MRS determination.

The second major flaw is that the Forest Service's responses fails to address the substance of our comment. We urged the Forest Service to revise the statement of purpose and need to address its duty to identify the minimum road system. The Forest Service failed to respond to this comment.

The BNF should revise its EIS to include a purpose and need statement directing the identification of the MRS and unneeded roads. Such an effort must demonstrate consistency with Subpart A of the TMR.

BNF inappropriately adds roads to the system, fails to maximize decommissioning and does not comply with the TMR Subpart A

Our previous comments explained the purpose of the TMR under Subpart A was to reduce the number of roads to in order to alleviate management burdens and minimize harmful environmental consequences from the BNFs over-burdened transportation system. We explained that in order to comply with the travel management rule, the BNF should not add roads to the system and it should identify more roads for decommissioning. Guardians DEIS Comments at 10. In response, the BNF cites its project-level TAR that includes a risk/benefit assessment ranking current system roads and most undetermined roads it proposes to add to the system. FEIS Appendix C at C-50. We explain in section B below the fundamental error with the TAR, especially its lack of fiscal analysis regarding the BNFs ability to maintain its current road system and how adding more roads to the system will affect the Forest Service's ability to maintain the expanded system under the selected alternative.

Remedy: The Forest Service should not add roads to its system, but instead should focus on establishing a right-sized, affordable road network.

B. Failure to analyze the direct, indirect and cumulative impacts associated with system and non-system roads

Roads Analysis

Our previous comments explained the need to fully disclose the direct, indirect, and cumulative impacts, in particular those specific to the road system. Guardians DEIS Comments at 5. We explained the Forest Service failed to disclose crucial information about the roads within the project area, including the recommendations from the Travel Analysis Report, or any information about the risks or benefits of these roads, or details regarding long-term funding expectations to maintain the roads on the system, all of which precluded our ability to provide informed public comment. In response, the BNF states it completed a minimum roads analysis that complies with the TMR Subpart A. FEIS Appendix C at C-50. Yet looking closely at the project's TAR, it lacks any discussion on the fiscal impacts of the current system, it fails to discuss the BNF's current maintenance backlog, or how building 6.4 miles of new permanent roads and adding another 16.5 miles of undetermined roads will affect the BNFs ability to

maintain the road system; we explain below that ML 1 roads still need monitoring and basic custodial maintenance. Storing roads does not equate to abandoning them until needed.

In addition, the TAR contains conflicting statements of fact. Specifically, it claims "Of the 141.57 miles of National Forest System Roads (NFSR) within the Gold Butterfly Roads Analysis area, 21.20 miles are Maintenance Level 1, 35.33 miles are Maintenance Level 2, and 50.37 miles are Maintenance Level 3." PF-ROAD-009 at 4. We assume there are no Maintenance Level 4 or 5 roads. The total system figure conflicts with the number shown in Table 4 of 106.3 miles suggesting the 141.57 number includes non-system roads. *Id. at 31-32.* When subtracting those the total amount of system roads is actually 106.9 miles, which is closer to the number of miles shown in Table 4 (*Id.* at 31). Building 6.4 of new system roads and adding 16.5 undetermined roads increases the total system in the project area to 129.8, which is greater than the 121.55 shown in Table 4. Since the FEIS lacks any dedicated section analyzing the transportation system, it is unclear just how many road system roads will result from the selected alternative.

More concerning are the analysis questions used to determine risks and benefits from the roads in the TAR. Specifically, question AQ(3) asks "How and where does the road system affect mass wasting?" PF-ROAD-009 at 11. The response states, "[n]o data or field observation exists to suggest that the road system is contributing to mass wasting within this analysis area. Review of soils within the analysis area indicates that no known roads cross soils at above-average risk of mass wasting." *Id.* Yet, our scoping comments provided evidence of a road #969 failing, sending a large sediment load into Willow Creek. Guardians Scoping Comments at 2. The Forest Service acknowledged this event in the project's analysis discussing the 2017 landslide. FEIS at 89. Given the plain evidence acknowledged by the Forest Service, it is clear mass wasting is a risk that should have been considered in the TAR, which brings into question all risk ratings for water and soils. Further, we commented on how the road system contributes to increased wildfires from human-starts, and how roads actually change fire behavior. Guardians DEIS Comments at 7. The BNF response was to discount this comment by explaining none of the roads would increase the miles already available for public motorized use. FEIS Appendix C at 78. Not only does this response fail to address changes in fire behavior observed in heavily roaded areas, it also fails to recognize unauthorized use that occurs on closed roads. Besides failing to respond to our comment, the BNF only considered roads as a benefit for fire suppression in its TAR. PF-ROAD-09 at 23-25. Had the TAR recognized the risks from roads in the context of wildfires, the benefit for fire access rankings on certain road segments may have been different.

Finally, the TAR omitted rankings for two undetermined roads the BNF proposes to add to the system:

- Rd. #13729 – no risk/benefit rankings provided, yet the BNF proposes adding this road to the system without any treatments.
- Rd. #73902 - lacks risk rating for elk and T&E species, yet the BNF proposes adding this road to the system without any treatments.

Maintenance

We previously commented that the BNF provides no assurances roads will be properly maintained after project completion. Guardians DEIS Comments at 1. The BNF responded by explaining "[t]imber sale contract provisions require purchaser to restore haul routes to standard conditions following project implementation. Annual maintenance of U.S. Forest Service jurisdiction roads is contingent upon appropriations from U.S. Congress." FEIS Appendix C at C-50. Such a response is hardly sufficient and reveals a fatal flaw in the FEIS, as well as supporting project files, as none actually provide a discussion or synthesis of data that demonstrates the BNF's capacity to maintain the increased road system that would result from the adopted alternative. For example, even though road management was a major issue identified from past comment periods, both the DEIS and FEIS lack any dedicated road section that incorporates or even summarizes road maintenance history or the BNF's ability to perform routine scheduled maintenance past project completion. Even Maintenance Level 1 roads must be monitored and maintained to standard: "[b]asic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs." FSH 7709.59, Ch. 62.32. The Gold-Butterfly TAR and the FEIS failed to include the current maintenance backlog on the BNF, or discuss how expanding the road system under the selected alternative will affect the agency's ability to perform scheduled maintenance after project completion. The latter is especially problematic since many of BNF's assertions about the project's benefits assume perpetual maintenance of road-related BMPs: "[t]he BMP's would reduce sediment contribution to Willow Creek during the timber sale from existing levels and in the long term would reduce sediment contributions by about 50%." FEIS at 66. Without the requisite supporting analysis demonstrating the BNF's ability to maintain those BMPs and others for secondary stream crossings, such a conclusory statement is arbitrary and capricious, and a violation of NEPA.

In addition, we commented that the DEIS includes no alternative to bring the FS into compliance with the specified Forest Plan standards, and thus violates NEPA. AWR DEIS Comments at 18. In response, the BNF cites road accomplishment reports and road management objectives listed in the project files, "…see (PF-ROAD-012) and (PF-ROAD-013) for road maintenance report. Roads are maintained in accordance with their road management objectives (PF-ROAD-010)." FEIS Appendix C at C-17. Not only does this response fail to comply with NFMA, it also demonstrates a failure to provide adequate analysis required under NEPA because the FEIS fails to synthesize, discuss or explain how the project file information demonstrates the BNF's ability to manage its road system to objective maintenance levels. In fact, since the Forest Service provided the road management objectives, it would have been reasonable to expect the FEIS to provide the number of roads not meeting objective maintenance levels, as well as the number of miles that both do and do not comply with Forest Plan standards.

Further, we commented on the fact that the BNF is reconstructing roads under the guise of maintenance to such a degree that those roads will function at an operational level that is higher than their objective maintenance level. Guardians DEIS Comments at 5-6. In response, the BNF states, "[t]here are no proposed actions in the FEIS that would elevate the current maintenance level of existing roads within the project area. Undetermined roads that are added to the Forest Service road system would be maintained as a maintenance level one, the lowest maintenance level. Specialists have accounted for road management activities in effects analysis (see individual specialist reports)." FEIS Appendix C at C-51. Yet, because the FEIS lacks any

dedicated transportation section analyzing the transportation system, and the project files fail to disclose sufficient details regarding the width, drainage or other features of the undetermined roads being added to the system or those being abandoned, the BNF failed to disclose the current operational level of those undetermined roads being utilized as haul roads, or if treating them will require reconstruction. The BNF's response that undetermined roads will be stored as ML 1 road is irrelevant to our comment since any road can have an ML 1 as its objective maintenance level. FSH 7709.59, Ch. 62.32.

Failure to analyze the cumulative effects of unauthorized motorized use

We previously commented that the Forest Service must fully analyze impacts from its road system, and provided a review of pertinent literature citing specific effects from poorly managed transportation systems, which includes negative environmental consequences from off-road vehicle use. Guardians Scoping Comments, Appendix C at 2-3. The BNF did not provide a specific response, and failed to account for illegal motorized use in its cumulative effects analysis. Rather, the BNF states that "[t]here would be no cumulative effects from the no action alternative as no new projects would occur that could create effects to be combined with other past, present or ongoing projects." FEIS at 58. This statement fails to include past and reasonably foreseeable unauthorized use that the BNF recognizes has caused damage: "Designated and dispersed campsites have expanded beyond their initial size as new trails and new sites are constantly pioneered." FEIS at 74. Certainly, known unauthorized roads and trails that provide a vector for illegal motorized use need to be considered in the cumulative effects analysis. "The extensive road system creates many opportunities for illegal off-road vehicle use, and several networks of illegal OHV trails exist within the area. Illegal OHV use reduces habitat, increases erosion and results in disturbance to many wildlife species." PF-ROAD-009 at 22. "There are about 2.1 miles of illegal user-made OHV trails in the project area," that the BNF should have included in its analysis at a minimum. PF-WAT-034. The FEIS should have included these illegal trails in combination with known unauthorized use on system roads and trails in its analysis.

Climate Change

Our DEIS comments explained the need for the Forest Service to analyze the cumulative impacts of changes in climate patterns when combined with its proposal to use, construct, reconstruct, and add new roads (both system and temporary) to the landscape. DEIS Comments at 6. In response the BNF states all roads are built to USFS engineering standards. FEIS Appendix C at 21. This response fails to adequately respond, since it lacks any detail of how those standards will address changes in climate conditions. For example, the Forest Service explains that Willow Creek is extremely cold, which delays Westslope cutthroat spawning until mid-June when the temperatures finally reach 10 degrees Celsius, so the analysis assumes impacts to fish eggs and fry emergence from road-related sedimentation would occur at levels typically observed in June or later rather than earlier in the spring when sedimentation is higher. FEIS at 82. Yet, the FEIS fails to provide data showing the temperature trends for Willow Creek and if those may be increasing or are expected to increase as a result of climate change. Should Willow Creek warm sooner than June, cutthroat spawning could occur earlier, which in turn would make fish eggs and fry emergence more susceptible to road-related sedimentation.

Road inventory

FOB/AWR comments requested, "Please disclose on a map ALL of the roads in the project area the FS is aware of, distinguishing between the various Maintenance Levels or Undetermined status, or other nonsystem status such as County or private. Please disclose closure status on this map." The FS apparently doesn't have a complete inventory, there is no map of all the project area roads showing their Maintenance Levels.

Forest Plan

The FEIS fails to demonstrate consistency with Forest-wide Management Standards J.1 ("Roads will be maintained to design standards") and J.2 ("Roads will be closed to public use if adequate road maintenance funds are not available."

Remedy: Complete the forestwide science-based Travel Analysis Process with public involvement, issue the forestwide Travel Analysis Report, and implement a true MRS.

C. Failure to Comply with the Clean Water Act

Our previous comments explained the Forest Service must demonstrate compliance with Montana's water quality standards, including the state's antidegradation policy, and that it is inappropriate for the Forest Service to rely wholly on best management practices (BMPs) to meet Clean Water Act requirements. Guardians DEIS Comments at 12. In response the BNF doubles down on the use of BMPs stating they "are the foundation for controlling nonpoint sources of surface water pollution." FEIS Appendix C at C-33. The response has two fundamental failures. First it fails to address the fact that the FEIS did not demonstrate compliance with the total daily maximum load allocations for Muddy Springs and Willow Creeks, and second it assumes BMPs would be 100 percent effective in both implementation and effectiveness within the WEPP modeled sediment reductions from log hauling and road maintenance. FEIS at 63-64, Table 3.2-5.

Failure to demonstrate sediment level do not exceed TMDLs

Muddy Springs and Willow Creeks are both water quality limited due to excessive sediment and each has a total allowable load allocation. At the time when Montana DEQ established the Muddy Springs Creek TMDL, the existing load estimations were at 17 tons/yr, and the total allowable load was set at 15 tons/yr. PF-WAT-015 at 5-58. For roads those numbers are 0.16 existing loads and zero for allowable loads. *Id.* For Willow Creek the existing total sediment load was found to be 2,421 tons/yr with a total allowable load allocation of 1,654 tons/yr with existing road sedimentation at 15 tons/yr and total allowable load at 5 tons/yr. Id. at 5-60. The BNF did not model existing sediment loads from roads in the Muddy Springs Creek drainage, or potential sedimentation actions under the selected alternative. Rather, the BNF simply states, "Muddy Springs Creek also has a sediment TMDL, but the forest has completed all potential watershed improvements, leaving it to recover over time." FEIS at 57. Yet, the BNF also explains "[t]here have been no recent watershed improvement projects in this watershed, but older improvements

include hardening a crossing where FR969 crosses Muddy Springs Creek (2004), and aerial straw mulching after the 2003 Gold 1 Fire." PF-WAT-001 at 6. Given the TMDL was established in 2011, those watershed improvements must have been part of the conditions that still contributed an existing sediment load of 17 tons/yr. While there may be limited additional watershed improvement activities the BNF could implement, the fact is the FEIS failed to take a hard look at factors that could be contributing sediment such as miles of road in proximity to Muddy Springs Creek, or unauthorized motorized use. Rather, the BNF decided to forego more detailed analysis.

For Willow Creek the FEIS shows generalized percent changes in sedimentation from log hauling and road maintenance activities (some of which are actually road reconstruction actions that should have been modeled differently in WEPP rather than considered maintenance). FEIS at 63-64, Table 3.2-5. The analysis also states that "WEPP modeling of sediment contributions for each crossing range from about 5 pounds/year during the high traffic haul period to about 3 pounds after the road had vegetated and closed (PF-WAT-022)." *Id.* at 64. The FEIS provides a table showing sedimentation changes to Willow Creek under each alternative assuming 100 percent BMP implementation and effectiveness; the table also shows post project changes assuming all BMPs are maintained. *Id.* The BNF fails to demonstrate it has the capacity to maintain those BMP after project completion so it would be capricious for the agency to assume any sediment reductions. More troubling still is the fact that even with BMPs, secondary crossings will result in a 789% sedimentation increase from the existing condition. *Id.* Further, the selected alternative will result in sediment producing activities for 8 years, with 3 more additional years before roads revegetate, totaling 11 years of potential increased sedimentation. FEIS at 87. At no point in the analysis, or in the over-referenced project files does the BNF actually compare sediment loads with the TMDLs. One project file discloses the following WEPP model predicted sediment loads under the selected alternative: 1689 lbs. without BMPs, 506Lbs w with BMPs, and 151 lbs. after timber sales with BMPs maintained into the indefinite future. PF-WAT-006 at 11. Yet, these numbers fail to show if the additional sedimentation will meet or exceed established TMDLs.

Finally, if we accept the Forest Service's use of the WEPP model, the BNF failed to incorporate its limitations into the analysis. The agency summarizes and discusses the WEPP model results, and states, "[p]eriodic road maintenance needed to keep BMPs functioning would be included in any timber sale contract."PF-WAT-020 at 2. This demonstrates the need to maintain BMPs post project completion through regular road maintenance yet (as we explained) the BNF does not discuss its capacity for routine maintenance, or how that would change under the action alternatives. The omission is especially glaring as the BNF explains that "[t]he long-term reduction due to BMP improvements for the modelled sites was approximately 53 percent…," but, "...true water quality improvement will depend on keeping the BMPs functioning for the long term after any log hauling is finished." PF-WAT-20 at 8. As such the FEIS should have included post-project sedimentation model outputs that reflect the BNF's ability to actually maintain BMPs. Further, the Forest Service explains in regards to the WEPP model output that "[t]hese sediment estimates should not be considered an absolute value, but should be used only for comparison between alternatives. Models should never be used as the sole source of information when making management decisions." *Id.* at 3. In fact, WEPP has several modeling limitations including: "Soil mass movement (landslides, slumps) are not included in erosion

estimates; Large climatic events that may occur within the modeling timeframe (e.g., a 100 year rainfall event the year after treatment) are not predictable; Accuracy is plus or minus 50% from predicted rate, at best. This is typical of erosion and sediment models and represents the state of the art." *Id.*at 4. As such, the FEIS should have included a table that showed a range of potential sedimentation with the 50% accuracy range, and compared that with the sediment TMDL.

The BNF inappropriately relies on BMPs to mitigate sedimentation

In response to our comments regarding the BNF's over-reliance on BMPs to erroneously claim the selected alternative will actually improve water quality, the Forest Service states, [i]mplementation and effectiveness monitoring is routinely conducted during project implementation. The 2016 streamside management zone audits found BMP application on Federal lands was rated as 96% compliant and 98% effective (PF-WAT-001 p. 10-12)." FEIS Appendix C at C-33. The cited project file references the Forestry Best Management Practice (BMP) 2016 Monitoring Report Executive Summary and on p, 2 it states, "[a]s with previous cycles, the greatest frequency of departures from BMPs, and the most impacts, were associated with road maintenance and road surface drainage." The BMP success rate includes all logging BMPs combined, and that "[f]ield review teams rated a total of 1,211 practices to assess how landowners and operators applied BMPs. They found 29 departures, 27 of which were given a rating of "3" (minor), and 2 were rated a "2" (major)." *Id.* The report does not separate road specific BMPs or show their success rates. Further, the full report explains "[t]he assessment is based on visual appraisals of practices and impacts to surface soils and streams. The results are a 'snapshot in time' of the practices and subsequent impacts." Forestry BMP 2016 Monitoring Report at 14. The monitoring report did not include any measures of sedimentation and therefore BMP state audits cannot replace actual calculations that should be in the FEIS to demonstrate compliance with TMDLs.

Further, it is important to note that BMPs are not always consistently applied. "[i]t is worthy of note that in the 2014 cycle there were a total of 17 BMP's that had a total of 38 departures; 31 minor and 7 major. In 2016 those numbers have been reduced to 9 BMP's with 29 departures; 27 minor and only 2 major." *Id.* at 17. While the BMPs collectively have a high success rate, out of 29 departures, 27 were specific to roads as well as stream crossing BMPs with two major departures related to road drainage and maintenance. *Id.* Roads and stream crossing represented all instances where BMP effectiveness departed from providing adequate protection. *Id.* at 19.

Finally, "[p]ercentages alone will not give a clear picture of the application and effectiveness of Montana's forestry BMPs. Even a low percentage of misapplied BMPs can still result in major impacts" *Id.* at 20. "The most frequent departures and impacts, once again, were associated with road maintenance and road surface drainage. The following list ranks rated BMPs by the sum of departures and impacts. Practice III.C.1 is ranked #1 because it had more total departures and impacts than any other practice." *Id.* at 26. To be clear, Practice III.C.1 refers to the BMP of providing adequate road surface drainage for all roads. *Id.* at 27.

In sum, while BMP evaluations by the DNRC show high percentages of proper implementation and adequate percentages, those related to roads have the most departures and the Forest Service cannot assume 100% proper implementation or effectiveness. As such, the WEPP model inputs

should have utilized an adjusted BMP sediment reduction rate that incorporated the 2016 monitoring report findings instead of assuming a blanket success rate for all BMPs.

Without incorporating the model limitations, adjusting potential sedimentation with reasonable BMPs implementation and effectiveness measures, and then comparing the resulting sediment loading with the Muddy Springs and Willow Creeks TMDLs, the BNF has failed to demonstrate compliance with the Clean Water Act.

D. Illustration of inadequate road maintenance

The following photos are meant to illustrate a few of the problems associated with inadequate road maintenance on the BNF. On July 7, 2019 an intense thunderstorm dropped rain and hail on portions of the Forest. These photos are of an open Forest Service Road just south of Lake Como, probably FSR #550. All three were taken a few feet from one another. The first photo shows a stream of stormwater flowing down the road, where water flows off the surface into a draw in the landscape. The length of this stream of water on the road surface was over a quarter-mile—even around curves—essentially cutting a gully instead of flowing off the road within a short distance.

The second photo (above) shows this “stream” at the beginning of its flow off of the road at the location of the discharge of a small culvert (the culvert is not visible in the photo).

The third photo (below) shows the inlet of the culvert—empty of water despite the storm because of the tempering effect of the native forest vegetation in the draw above the road. (It also shows the culvert has begun to plug up since the time of installation or previous maintenance, meaning it is becoming vulnerable to a blowout during a subsequent storm event.)

The photos are not meant to illustrate water quality problems because the flow was not followed downslope to any water body destination, which it may or may not have reached before soaking into the soil. (That point was illustrated well enough by the 2017 Willow Creek Road incident discussed later in this Objection.) Instead, the photos show typical problems of roads without proper drainage features and/or lacking frequent enough maintenance, leading to accelerated erosion during storm or spring runoff events and necessitating more imminent maintenance steps needed to keep the road usable by the public.

Those three photos are in a Folder on the data disk entitled "road damage." That folder also has a short film clip (Road Surface flow 2) taken on the same road a short distance away, showing polluted road surface runoff becoming concentrated in a roadside ditch. This issue is also explained by Forest Service hydrologist Johnson, 1995, cited in FOB/AWR DEIS comments.

Forest roads treated to BMP standards have structures such as rolling dips, waterbars or other features preventing the buildup of such erosive power. Sufficiently maintained, the damage from such storm events (or spring snowmelt runoff) is mostly avoided. During this event in July, the damage occurred in a matter of minutes.

Public comments repeatedly asked the FS how it can possibly afford to maintain the Forest Road System to prevent such ecologically damaging events as the 2017 Willow Creek Road incident. That the FS persistently dodged the question is a strong, tacit admission that it cannot.

WILDLIFE VIABILITY

This issue was discussed in FOB/AWR DEIS comments at pp. 24-25. We incorporate those comments into this objection, and add the following discussion.

The biggest factors impacting wildlife in the project area are the cumulative effects of past management, which has reduced old growth and one of old growth's key characteristics—snag habitat—below levels that can support well-distributed wildlife populations. And the proposed Gold Butterfly project will make the situation worse for the short- and long-term for this habitat.

The FS does not cite any science to support its claims that its management will result in snags and down logs in abundance to someday, maybe, several decades later, support viable populations. No monitoring is cited to support the project claims of benefits to snag and down log-dependent species' population numbers or distribution.

The FS relies upon Region-wide database analyses by Samson to conclude that species viability is assured, although the age and reliability of such data is generally not addressed properly.

Schultz (2010) states that the Sampson assessments "suffers from several problems, the most prominent being that the analysis is based on habitat availability, which alone is insufficient for understanding the status of populations (Noon et al. 2003, Mills 2007)". Schultz (2010) recommendations generally call for more peer review of large-scale assessments and project level management guidelines and suggests that we must adopt more robust scientifically sound monitoring and measurable objectives and thresholds if we are to be successful in meeting

obligation of maintaining viable populations of all native and desirable non-native wildlife species.

An interesting observation of the Sampson assessment is that it focuses on short-term viability and long-term viability using what is called the 50/500 rule (Bessinger 2002). In fact, all six species considered in Sampson's analysis are all evaluated for short-term viability using this "rule of thumb."

Sampson did not evaluate long-term viability for the fisher and marten, but he did do so for the goshawk, pileated woodpecker, flammulated owl and black-backed woodpecker. Sampson concluded that "In regard to long-term viability, this conservation assessment has found that long-term habitat conditions in terms of Representativeness, Redundancy, and Resiliency are "low" for all species." The Gold Butterfly EIS does not disclose Sampson's long-term viability conclusions. In his analysis, Sampson merely uses home range size for each species and makes assumptions of overlap in ranges of males and females. Home range size is then multiplied by the effective population size (n_e - a number that includes young and non-breeding individuals - Allendorf and Ryman 2002) and this is projected as the amount of habitat required to maintain a minimal viable population in the short-term. This simplistic approach ignores a multitude of factors and makes no assumptions about habitat loss or change over time. For the fisher and marten, Samson uses a "critical habitat threshold" as calculated in another publication (Smallwood 2002).

There are several problems with such an approach and the risk to the species would be extremely high if any of the species ever reached these levels in the Northern Region. Surely, all six species would be listed as endangered if this was to occur and the probabilities for their continued existence would be very low. There is also no way that National Forest Management Act (NFMA) and Endangered Species Act (ESA) requirements could be met in an attempt to maintain species across their range and within individual National Forests with such an approach. Mills (2007) captured the futility of such approach in his book on Conservation of Wildlife Populations: "MVP is problematic for both philosophical and scientific reasons. Philosophically, it seems questionable to presume to manage for the minimum number of individuals that could persist on this planet. Scientifically, the problem is that we simply cannot correctly determine a single minimum number of individuals that will be viable for the long term, because of inherent uncertainty in nature and management…"

Samson also admits that "Methods to estimate canopy closure, forest structure, and dominant forest type may differ among the studies referred to in this assessment and from those used by the Forest Service to estimate these habitat characteristics" and that "FIA sample points affected within the prior 10 years by either timber harvest or fire are excluded in the estimates of habitat for the four species" and finally that "FIA does not adequately sample rare habitats". This especially concerning given the reliance on the FIA queries to identify suitable habitat and the fact that the data used in the analysis is now over 20 years old.

Thus, the short-term viability analysis is scientifically unsound and it is very doubtful it could sustain scientific peer review. Schultz (2010) captured this sentiment in her critique: "some

interviewees also thought the work should be peer reviewed, especially if it was conducted by USFS management, and several were skeptical that it would survive such review."

CANADA LYNX (THREATENED SPECIES)

Canada lynx were discussed in FOB/AWR DEIS comments at pp. 25-28. We incorporate those comments into this objection, and add the following discussion.

The DEIS states that Alternative 2 "would affect mapped lynx habitat because many treatment units are located within mapped lynx habitat (PF-WILD-031). In addition, about 2.4 miles of permanent road and 4 miles of temporary road would be constructed within mapped lynx habitat (PF-WILD-032)."

The Montana Federal District Court ruled on 10/15/2018 that the Forest Service must complete forest-wide consultation with the U.S. Fish & Wildlife Service (USFWS) to determine effects Forest Plans may have on lynx. For the BNF, this has not been done.

The USFWS has been directed by the federal court to reconsider the Bitterroot as lynx critical habitat. The FS should be evaluating lynx breeding habitat (Primary Constituent Elements) on the BNF and protecting it. This has not been done. The Forest Service needs to protect all of the old growth and mature forests in case they will be designated as lynx critical habitat.

The Federal District Court of Montana ordered the USFWS to reconsult on lynx critical habitat because they did not base lynx critical habitat on where lynx were at the time of listing in 2000. Lynx were in the BNF and the project area at the time of listing so the Forest Service needs to consult with the USFWS to see if this project could effect lynx critical habitat.

Kosterman, 2014 finds that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts, i.e. trees under 4 inched dbh. This contradicts the agency's assumption in the Lynx Amendment that 30% of lynx habitat can be clearcut, and that no specific amount of mature forest needs to be conserved. It is now the best available science out there that describes lynx habitat in the Northern Rockies related to lynx viability and recovery. Kosterman, 2014 demonstrates that the Northern Rockies Lynx Management Direction (NRLMD) Amendment standards are not adequate for lynx viability and recovery, as assumed by the Forest Service.

The FS also must complete surveys for lynx required by the 2007 BiOp for the NRLMD.

The Forest Service's failure to take a hard look at lynx presence and the Forest Plan's potential impacts on lynx, using the best available science, including the agency's failure to assess the Forest Plan's impacts on lynx travel/ linkage corridors, violates NEPA. The Forest Service's failure to include binding legal standards aimed at conserving and recovering ESA-listed lynx on the Forest in the Forest Plan violates NFMA and the ESA.

The FS approval and implementation of the NRLMD is arbitrary and capricious, violates NEPA's hard look requirement and scientific integrity mandate and fails to apply the best available science necessary to conserve lynx. The NRLMD contains no protection or standard for conservation of winter lynx habitat (old growth forests). This project allows the logging of thousands of acres of old growth without any analysis of whether that forest is necessary for conservation as winter lynx habitat. The FEIS fails to take a hard look at this factor is in violation of NEPA. By failing to include a provision to protect winter lynx habitat, the NRLMD fails to apply the best available science and implement the measures necessary for lynx conservation, as required by the ESA. The NRLMD also arbitrarily exempts WUI lands from lynx habitat protection.

The NRLMD and its Biological Opinion/Incidental Take Statement allow unrestricted logging in the wildland urban interface, which the agencies estimate to compose approximately 6% of the lynx habitat on National Forests. The DEIS states that precommercial thinning under a Wildlife Urban Interface exemption would occur in stem exclusion forest stage of lynx habitat acres in 138 acres of the Project area.

The DEIS also states, "Alternative 2 would reduce the MMS structural stage in lynx habitat outside the WUI by about 282 acres (PF-WILD-030). As a result, it would not comply with NRLMD standard VEG (S6)." However the DEIS claims, "Converting a total of about 1334 acres of MMS (mature multi-story) and SI structural stage to other structural stages in the WUI is well within the BNF's allotted WUI exemption acres, and therefore meets the NRLMD."

The EIS inappropriately uses an LAU that excessively large, allowing the impacts to be minimized. The current best science suggests that female lynx home range as about 10,000 acres. The DEIS states, "The defined cumulative effects area for Canada lynx is the combined area of the Burnt Fork and Willow-Skalkaho Lynx Analysis Units. This 83,518 acre area is appropriate to analyze any incremental effects from the actions of this project on lynx in combination with past, present, and reasonably foreseeable activities because effects of implementing treatments within the project area would be negligible to lynx in more distant areas." The analysis in the EIS is invalid because, along with analyzing the 83,518 acre area, effects to home ranges is not analyzed.

The Forest Plan analysis and impacts on ESA-listed lynx violate ESA, NFMA, and NEPA.

The current science demonstrates that lynx must travel between areas of high hare densities and resist traveling through low cover areas in winter. The EIS fails to identify the amount of non-cover or low-cover areas that will be created from the project.

The Endangered Species Act requires the FS to insure that the project is not likely to result in the destruction or adverse modification of critical habitat. 16 U.S.C. §1536(a)(2). Activities that may destroy or adversely modify critical habitat are those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for lynx. 74 Fed. Reg. 8644. The NRLMD as applied in the project violates the ESA by failing to use the best available science to insure no adverse modification of critical habitat. The NRLMD carves out exemptions from Veg Standards S1, S2, S5, and S6. In particular, fuel treatment projects may

occur in the WUI even though they will not meet standards Veg S1, S2, S5, or S6, provided they do not occur on more than 6% of lynx habitat on each National Forest. See NRLMD ROD Attachment 1, pages 2-3. Allowing the agency to destroy or adversely modify any lynx critical habitat has the potential to appreciably reduce the conservation value of such habitat. The agency cannot simply set a cap at 6% forestwide without looking at the individual characteristics of each LAU to determine whether the project has the potential to appreciably reduce the conservation value. The ESA requires the use of the best available science at the site- specific level. It does not allow the agencies to make a gross determination that allowing lynx critical habitat to be destroyed forestwide while not appreciably reduce the conservation value.

The Project violates the NFMA by failing to insure the viability of lynx. According to the 1982 NFMA regulations, fish and wildlife must be managed to maintain viable populations of Canada lynx in the planning area. 36 C.F.R. 219.19. The FS has not shown that lynx will be well-distributed in the planning area. The FS has not addressed how the project's adverse modification of habitat will impact distribution. The NRLMD ROD at 40 states that: The national forests subject to this new direction will provide habitat to maintain a viable population of lynx in the northern Rockies by maintaining the current distribution of occupied lynx habitat, and maintaining or enhancing the quality of that habitat."

A big problem with the Forest Plan (as amended by the NRLMD) is that it allows with few exceptions the same level of industrial forest management activities that occurred prior to Canada lynx ESA listing. The NRLMD appeal decision requires the FS to consult with the USFWS regarding lynx and lynx critical habitat. The BA states that the effects determination for lynx is "may affect, is not likely to adversely affect." However this is in error; the project is likely to adversely affect the Canada lynx. Lynx are likely to be exposed to project activities and will respond in a negative manner to the exposure. So the project must have an incidental take permit from the USFWS and is in violation of the ESA, NFMA, the APA and NEPA. The ESA (Section 3) defines take as "to harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct". The USFWS further defines "harm" as "significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering", and "harass" as "actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering". The project will harm lynx.

Remedy: The FS must complete forest-wide consultation with the U.S. Fish and Wildlife Service to determine what effects the Forest Plan may have on lynx.

WOLVERINE (SENSITIVE; ALSO PROPOSED FOR LISTING UNDER THE ESA)

This issue was discussed in FOB/AWR DEIS comments at pp. 28-31 and WildEarth Guardians/AWR/Goheen DEIS comments at pp. 2, 5, 11-12. We incorporate those comments into this objection, and add the following discussion.

The wolverine is proposed for listing as a threatened species under the ESA. The proposed rule was issued in 2013. 78 Fed. Reg. 7864 (February 4, 2013). FWS withdrew the rule on August 13,

2014, and the withdrawal of the rule was deemed unlawful and vacated in 2016. *Defenders of Wildlife v. Jewell*, 176 F.Supp.3d 975 (D. Mont. 2016). Thus, the wolverine is currently proposed for listing under the ESA.1 81 Fed. Reg. 71670 (October 18, 2016).

The DEIS at p. 80 states wolverines occupy the Sapphire Mountains in the BNF.

The DEIS at p. 80 states wolverines occupy the Sapphire Mountains in the BNF. Logging and road activities may affect wolverines; published, peer-reviewed research finds: "Roaded and recently logged areas were negatively associated with female wolverines in summer." Fisher et al., 2013. The "analysis suggests wolverines were negatively responding to human disturbance within occupied habitat. The population consequences of these functional habitat relationships will require additional focused research." Id.

There has been no project formal or informal consultation regarding the wolverine, a species proposed for listing under the ESA. The FS didn't even include the wolverine in its Biological Assessment, which is the document submitted to the U.S. Fish & Wildlife Service in consultation or concurrence stages. Therefore the project is in violation of the Endangered Species Act. The Biological Assessment had not even been written or disclosed to the public during the DEIS comment period.

The DEIS dismissed impacts to wolverine based on a programmatic Biological Opinion, stating "Land management activities and other human activities and development are not expected to pose a threat to wolverines (USDI Fish and Wildlife Service 2014). While treatments will change the vegetative structure of these areas, it is likely that they will have only negligible effects to wolverines." This Biological Opinion is now five years old, and doesn't consider new scientific and regulatory information.

The FEIS states, "The cumulative effects of recreation to wolverines at the Forest scale were disclosed in the FEIS for the Bitterroot National Forest Travel Management Planning Project (USDA Forest Service 2016), which is hereby incorporated by reference." The problem with this approach is, the agency incorporates by reference a document that the public had no opportunity to comment on within the context of the Gold Butterfly Draft EIS. This violates NEPA.

The FEIS Response to Comments stated "The Wildlife Specialist Report (PF-WILD-001) evaluated the impacts of proposed actions on (wolverines) and their habitats." However that document, PF-WILD-001 is a 125-page document written in Draft EIS format, including a heading at the top of each even-numbered page "Gold Butterfly Draft Environmental Impact Statement." This begs the question, why wasn't such detail provided in its entirety for the public to comment on in the Draft EIS itself, which contains about 45 pages less of Wildlife analyses? Specifically for the wolverine, there are the equivalent of approximately two pages of wolverine analysis text in PF-WILD-001 (in DEIS format) not included in the DEIS.

The FEIS fails to take a hard look at cumulative impacts to wolverines and properly incorporate best available science in violation of NEPA. The FEIS also, fails to insure viable populations are being maintained on the BNF, in violation of NFMA.

GRIZZLY BEAR

This issue was discussed in FOB/AWR DEIS comments at p. 31. We incorporate those comments into this objection, and add the following discussion.

The Biological Assessment states the Gold Butterfly project "MAY AFFECT - IS NOT LIKELY TO ADVERSELY AFFECT" the threatened grizzly bear. There is no Biological Opinion published on the project website, so we are unable to see if there has been U.S. Fish & Wildlife Service concurrence or formal consultation. The BO must be made available to the public before a draft ROD is published, so the public can be properly informed at the objection stage.

Now that there is solid documentation of there being recent and ongoing grizzly bear occupancy in the Bitterroot National Forest[1] formal consultation on the Forest Plan is out of date. This is one reason why formal consultation is needed for this project.

Schwartz et al. (2010) noted that management for grizzly bears requires provisions for security areas and limits of road densities between security areas. Otherwise, grizzly bear mortality risks will be high as bears attempt to move across highly roaded landscapes to other security areas. The forest plan lacks direction regarding road densities located outside of and between security areas.

The Forest Service is aware of the best Plan direction it has adopted to date, that established in Flathead Forest Plan Amendment 19.[2] This established Open Motorized Route Density (OMRD)/Total Motorized Route Density (TMRD)/Security Core indices. These are based upon the scientific information concerning security from roads and road density requirements for grizzly bears as found in Mace and Manley, 1993 and Mace et al., 1996.

The FEIS does not demonstrate that project implementation is consistent with the best available science, so the FEIS violates the ESA, NFMA, and NEPA.

FISHER (SENSITIVE)

This issue was discussed in FOB/AWR DEIS comments at pp. 31-33 and in FOB/AWR scoping comments at p.3. We incorporate those comments into this objection.

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[1] See newspaper articles "Wandering grizzly leaves Bitterroot, returns to Idaho" (https://helenair.com/news/state-and-regional/wandering-grizzly-leaves-bitterroot-returns-to-idaho/article_9dfe0e30-b6da-5671-9f77-3f2eac4a9c6c.html#tracking-source=home-the-latest) and "Grizzly bear captured Saturday at golf course near Stevensville" (https://ravallirepublic.com/news/local/article_10f3f415-9cc5-5df4-91f8-2bc045650fdc.html).

[2] Although that Forest Plan has been revised and the Amendment 19 direction dropped and/or weakened, some of the Objectors have objected to the Flathead NF's revised forest plan and filed notice on their intent to sue on this issue.

PINE MARTEN (MANAGEMENT INDICATOR SPECIES)

This issue was discussed in FOB/AWR DEIS comments at pp. 33-34. We incorporate those comments into this objection, and add the following.

Forest Plan Monitoring requirements include: "Pine marten …populations will be monitored in relation to habitat changes, based on 3 transects annually, reported annually." The FS has not performed consistent with these requirements.

PILEATED WOODPECKER (MANAGEMENT INDICATOR SPECIES)

This issue was discussed in FOB/AWR DEIS comments at pp. 34-39. We incorporate those comments into this objection, and add the following discussion.

Forest Plan Monitoring requirements include: "(P)ileated woodpecker populations will be monitored in relation to habitat changes, based on 3 transects annually, reported annually." The FS has not performed consistent with these requirements.

NORTHERN GOSHAWK

This issue was discussed in FOB/AWR DEIS comments at pp. 39-40. We incorporate those comments into this objection.

BLACK-BACKED WOODPECKER (SENSITIVE)

This issue was discussed in FOB/AWR DEIS comments at pp. 40-43. We incorporate those comments into this objection. Also:

The Boise National Forest adopted this species as an indicator species in its revised forest plan in 2010:

> The black-backed woodpecker depends on fire landscapes and other large- scale forest disturbances (Caton 1996; Goggans et al. 1988; Hoffman 1997; Hutto 1995; Marshall 1992; Saab and Dudley 1998). It is an irruptive species, opportunistically foraging on outbreaks of wood-boring beetles following drastic changes in forest structure and composition resulting from fires or uncharacteristically high density forests (Baldwin 1968; Blackford 1955; Dixon and Saab 2000; Goggans et al.1988; Lester 1980). Dense, unburned, old forest with high levels of snags and logs are also important habitat for this species, particularly for managing habitat over time in a well-distributed manner. These areas provide places for low levels of breeding birds but also provide opportunity for future disturbances, such as wildfire or insect and disease outbreaks (Dixon and Saab 2000; Hoyt and Hannon 2002; Hutto and Hanson 2009; Tremblay et al. 2009). Habitat that supports this species' persistence benefits other species dependent on forest systems that develop with fire and insect and disease disturbance processes. The black-backed woodpecker is a secondary consumer of terrestrial invertebrates and a primary cavity nester. Population levels of black-backed woodpeckers are often synchronous with insect outbreaks, and targeted feeding by this species can control or depress such outbreaks (O'Neil et al. 2001). The species physically fragments standing and logs by its foraging and nesting

behavior (Marcot 1997; O'Neil et al. 2001). These KEFs influence habitat elements used by other species in the ecosystem. Important habitat elements (KECs) of this species are an association with medium size snags and live trees with heart rot. Fire can also benefit this species by stimulating outbreaks of bark beetle, an important food source. Black-backed woodpecker populations typically peak in the first 3–5 years after a fire. This species' restricted diet renders it vulnerable to the effects of fire suppression and to post-fire salvage logging in its habitat (Dixon and Saab 2000).

… Black-backed woodpeckers are proposed as an MIS because of their association with high numbers of snags in disturbed forests, use of late-seral old forest conditions, and relationship with beetle outbreaks in the years immediately following fire or insect or disease outbreaks. Management activities, such as salvage logging, timber harvest, and firewood collection, can affect KEFs this species performs or KECs associated with this species, and therefore **its role as an MIS would allow the Forest to monitor and evaluate the effects of management activities on identified forest communities and wildlife species.** (Emphasis added.)

FLAMMULATED OWL (SENSITIVE)

This issue was discussed in FOB/AWR DEIS comments at p. 43. We incorporate those comments into this objection.

BOREAL TOAD (SENSITIVE)

This issue was discussed in FOB/AWR DEIS comments at pp. 43-44. We incorporate those comments into this objection.

BIGHORN SHEEP

This issue was discussed in FOB/AWR DEIS comments at p. 45. We incorporate those comments into this objection.

ELK AND OTHER BIG GAME

This issue was discussed in FOB/AWR DEIS comments at pp. 45-46. We incorporate those comments into this objection, and also incorporate our Objection section on Forest Plan Amendments. We also add the following discussion.

Scientific information recognizes the importance of thermal cover, including Lyon et al, 1985. The BNF Forest Plan includes the standard, "The recommendations in the "Coordinating Elk and Timber Management' report will be considered during timber management and transportation planning (Lyon, et al, 1985)." Christensen et al., 1993 (cited in FOB/AWR DEIS comments) also emphasize "maintenance of security, landscape management of coniferous cover, and monitoring elk use…" This USFS Region 1 document also states, "management of winter range to improve thermal cover and prevent harassment may be as important as anything done to change forage quantity or quality."

And Black et al. (1976) provide definitions of elk cover, including "Thermal cover is defined as a stand of coniferous trees 12 m (40 ft) or more tall, with average crown exceeding 70 percent. Such stands were most heavily used for thermal cover by radio-collared elk on a summer range study area in eastern Oregon (R.J. Pedersen, Oregon Department of Fish and Wildlife—personal communication)." Black et al. (1976) also state:

> Optimum size for thermal cover on summer and spring-fall range is 12 to 24 ha (30 to 60 acres). Areas less than 12 ha (30 acres) are below the size required to provide necessary internal stand conditions and to accommodate the herd behavior of elk.
> …Cover requirements on winter ranges must be considered separately and more carefully. Animals distributed over thousands of square miles in spring, summer and fall are forced by increasing snow depths at higher elevations to concentrate into much restricted, lower-elevation areas in mid- to late-winter. Winter range, because of its scarcity and intensity of use, is more sensitive to land management decisions.

Regarding Black et al. (1976) conclusions, Thomas et al., 1988a state, "We concur. New research on elk use of habitat on summer and winter ranges has become available, however (Leckenby 1984). Land-use planning requirements indicate that a model of elk winter-range habitat effectiveness is required."

Thomas et al., 1988a also state:

> Thomas and others (1979, p. 104-127) defined two types of cover: thermal and hiding. Thermal cover was "any stand of coniferous trees 12 meters (40 ft) or more tall, with an average canopy closure exceeding 70 percent" (p. 114). Disproportionate use of such cover by elk was thought to be related to thermoregulation. Whether such thermoregulatory activity occurs or is significant has been argued (Geist 1982,Peek and others 1982). In the context of the model presented here, arguing about why elk show preference for such stands is pointless. They do exhibit a preference (Leckenby 1984; see Thomas 1979 for a review). As this habitat model is based on expressed preferences of elk, we continue to use that criterion as a tested habitat attribute. We cannot demonstrate that the observed preference is an expression of need, but we predict energy exchange advantages of such cover to elk (Parker and Robbins 1984). We consider it prudent to assume that preferred kinds of cover provide an advantage to the elk over nonpreferred or less preferred options.

FRAGMENTATION AND CORRIDORS

This issue was discussed in FOB/AWR DEIS comments at pp. 46-47. We incorporate those comments into this objection.

WATER QUALITY AND FISHERIES

This issue was discussed in FOB/AWR DEIS comments at pp. 47-50, in FOB/AWR scoping comments at p. 2, 4, and additionally in FOB/AWR DEIS comments under the heading "Excessive Road System, Access Management, and Travel Management." We incorporate those comments into this objection, and add the following discussion.

Above, debris flow, Forest Road #969, the Willow Creek Road, a primary haul route for proposed Gold Butterfly timber sale, after a storm event on June 13, 2017. The photo below is of the same area.

This is what can happen even on open roads when maintenance isn't timely. Road design was also likely a contributing factor.

The problem of deferred road maintenance has become routine on the BNF. In the case of Willow Creek road, sediment chronically erodes into "water quality limited" Willow Creek, a bull trout stream.

FOB/AWR comments on the DEIS included:

> The DEIS does not demonstrate it is managing consistent with Forest Plan Wildlife and Fish Standard #9, which is: "Fish passage shall be provided where roads cross fisheries streams." The DEIS doesn't disclose how many fish passage barriers will remain after project implementation.

We still don't know <u>how</u> the FS demonstrates compliance, because mainly the response just says they are in compliance. The FS's position seems to be, compliance is achieved if there are "fewer fish passage barriers following completion of either of the action alternatives." We still don't know how many fish passage barriers will remain post-project, because the FS evaded the question.

FOB/AWR comments on the DEIS asked, "Please disclose how many sites within riparian areas will experience road work disturbance for newly constructed, temporary, and undetermined roads." The FS provides numbers for new and temporary roads—not for undetermined roads.

FOB/AWR comments on the DEIS stated, "The FS is unable to demonstrate it is managing consistent with Forest Plan Wildlife and Fish Standard #7, which is: "Cutthroat trout populations will be used as an indicator of fisheries habitat changes." That must be true, because the FS ignored the comment.

FOB/AWR comments on the DEIS: "Forest Plan Standard #RF-2 requires development and implementation of a Road Management Plan or a Transportation management Plan, which must address, among other items, 'Criteria that govern road …maintenance and management.' What are the project area criteria? Also, 'Requirements for pre-, during, and post storm inspection and maintenances.' What are these requirements?" The FS responded, "The language cited in this comment is not a Bitterroot National Forest Management Plan standard." Apparently the BNF is not aware that the Forest Service amended the Forest Plan (INFISH) 24 years ago. This is also probably why the FS ignored the comment, "The DEIS fails to include any analysis of the trends toward attainment of Riparian Management Objectives, especially of those not currently being met."

The FEIS states, "Log landings, temporary roads and tracked line machine trails will not be located in the RCHAs. There may be locations where temporary roads or tracked line machine trails may cross intermittent headwater channels not indicated on maps." The second sentence contradicts the first. The second sentence demonstrates the Forest Service stands ready to flaunt Forest Plan standards.

In response to comments, the FEIS states, "Long term road maintenance not associated with project related use is not assessed. Maintenance level one roads (including older 'stored' roads and newly constructed roads) will be stabilized after project use and will not require road maintenance until the next time they are opened for a future project." However, the FS does not fund monitoring of culverts that are to remain on closed roads, as is required under the 2015 USFWS Biological Opinion on the Effects to Bull Trout and Bull Trout Critical Habitat From the Implementation of Proposed Actions Associated with Road-related Activities that May Affect Bull Trout and Bull Trout Critical Habitat in Western Montana, which states:

> Culverts that remain in the road behind gates and berms that are not properly sized, positioned, and inspected will be considered for removal. These have an increased risk for failure by reducing awareness of potential maintenance needs. The accumulation of debris has the potential to obstruct culverts and other road drainage structures. Without maintenance and periodic cleaning, these structures can fail, resulting in sediment production from the road surface, ditch, and fill slopes. The design criteria to address drainage structures left behind gates and berms **require annual monitoring of these structures**." (BiOp at page 45, emphasis added.)

The FS also fails to adequately fund road maintenance outside the context of projects.

The Gold Butterfly FEIS fails to provide any reliable estimate of sediment transferred to streams because of log haul and other road use. From an investigation of the Bitterroot Burned Area Recovery Project, hydrologist Rhodes (2002) notes, "On all haul roads evaluated, haul traffic has created a copious amounts of mobile, non-cohesive sediment on the road surfaces that will elevate erosion and consequent sedimentation, during rain and snowmelt events." USDA Forest Service, 2001a also presents an analysis of increased sedimentation because of log hauling, reporting "Increased traffic over these roads would be expected to increase sediment delivery from a predicted 6.30 tons per year to 7.96 tons per year."

USDA Forest Service, 2017c discusses habitat requirements for bull trout and westslope cutthroat trout.

The Gold Butterfly FEIS fails to demonstrate consistency with Forest Plan MA Standard 3b (12): "Manage roads so open road mileage adjacent to fisheries streams is limited to the current level."

PUBLIC HEALTH AND SAFETY

This issue was discussed extensively in the Gail and Stephen Goheen comments on the Draft EIS. We incorporate those comments into this objection, and also we incorporate by reference the Objection of the Gold Butterfly project filed by Gail and Stephen Goheen within this Objection.

The Forest Service responses to comments indicates the agency doesn't take seriously public safety, air quality, and impacts to residents' quality of life, especially along the Willow Creek road.

Remedy: We incorporate the remedy requested in the Gail and Stephen Goheen Objection. Also, withdraw the draft ROD and prepare a Supplemental EIS to properly address these issues.

CLIMATE CHANGE AND CARBON SEQUESTRATION

This issue was discussed in FOB/AWR DEIS comments at pp. 50-52 and in FOB/AWR scoping comments at p. 3, 5. We incorporate those comments into this objection.

Hayward, 1994 essentially calls into question the entire manipulate and control regime, as represented in Gold Butterfly project design. The managed portion of the BNF has been fundamentally changed, as has the climate, so the Forest Service must analyze how much land has been fundamentally changed forest wide compared to historic conditions, and disclose such information to the public in the context of an EIS by completing the Forest Plan Revision.

Comments on the DEIS stated, "The DEIS fails to provide an analysis of how realistic or achievable its desired vegetative conditions are in the context of a rapidly changing climate along an unpredictable but changing trajectory." The FS responded**: "**The Silviculturist Specialist Report (PF-SILV-001) discloses how management actions are designed to shift existing conditions towards desired conditions." Published scientific reports indicate that climate change will be exacerbated by logging, and that climate change will lead to increased wildfire severity

(including drier and warmer conditions that may render obsolete the desired conditions of the Forest Plan). The Forest Service must candidly disclose, consider, and fully discuss the published scientific papers discussing climate change in these two contexts.

The FEIS fails to acknowledge the likelihood that "…high seedling and sapling mortality rates due to water stress, competing vegetation, and repeat fires that burn young stands," which will likely lead to a dramatic increase in non-forest land acres. (Johnson, et al., 2016.)

The District Court of Montana ruled in Case 4:17-cv-00030-BMM that the Federal government was required to evaluate the climate change impacts of the federal government coal program.

In March 2019, U.S. District Judge Rudolph Contreras in Washington, D.C., ruled that when the U.S. Bureau of Land Management (BLM) auctions public lands for oil and gas leasing, officials must consider emissions from past, present and foreseeable future oil and gas leases nationwide. The case was brought by WildEarth Guardians.

In March of 2018 the Federal District Court of Montana found the Miles City (Montana) and Buffalo (Wyoming) Field Office's Resource Management Plans unlawfully overlooked climate impacts of coal mining and oil and gas drilling. The case was brought by Western Organization of Resource Councils, Montana Environmental Information Center, Powder River Basin Resource Council, Northern Plains Resource Council, the Sierra Club, and the Natural Resources Defense Council.

In the recent revised Forest Plan Draft EIS for the Custer-Gallatin National Forest, the FS states, "Climate change is expected to continue and have profound effects on the Earth's ecosystems in the coming decades (IPCC 2007)." As alarming as that might sound, perhaps the Gold Butterfly IDT members should familiarize themselves with the most recent report from the Intergovernmental Panel on Climate Change, which makes that 2007 report seem optimistic.

A landmark report from the United Nations' scientific panel on climate change paints a much darker picture of the immediate consequences of climate change than previously thought and says that avoiding the damage requires transforming the world economy at a speed and scale that has "no documented historic precedent."

The report, issued late last year by the Intergovernmental Panel on Climate Change, a group of scientists convened by the United Nations to guide world leaders, describes a world of worsening food shortages and wildfires, and a mass die-off of coral reefs as soon as 2040 — a period well within the lifetime of much of the global population.

The report "is quite a shock, and quite concerning," said Bill Hare, an author of previous I.P.C.C. reports and a physicist with Climate Analytics, a nonprofit organization. "We were not aware of this just a few years ago." The report was the first to be commissioned by world leaders under the Paris agreement, the 2015 pact by nations to fight global warming.

The authors found that if greenhouse gas emissions continue at the current rate, the atmosphere will warm up by as much as 2.7 degrees Fahrenheit (1.5 degrees Celsius) above preindustrial

levels by 2040, inundating coastlines and intensifying droughts and poverty. Previous work had focused on estimating the damage if average temperatures were to rise by a larger number, 3.6 degrees Fahrenheit (2 degrees Celsius), because that was the threshold scientists previously considered for the most severe effects of climate change.

The new report, however, shows that many of those effects will come much sooner, at the 2.7-degree mark.

The Committee of Scientists, 1999 recognize the importance of forests for their contribution to sustainability and contributing to global carbon cycles. And the 2011 draft NFMA regulations recognize that forests provide "Benefits… including… Regulating services, such as long term storage of carbon; climate regulation…"

In response to comments, the FS states, "Carbon release from proposed activities at the Gold Butterfly project scale in comparison to the continental and global scale would be immeasurable." Comments stated, "Best available science suggests that management involving removal of trees and other biomass increased atmospheric carbon dioxide. The DEIS does not address this information." In response, the FS states, "Literature was not provided offering a counter perspective to that provided in the specialist report." The Forest Service is choosing to miss the point, which is—there is already too much CO_2 in the atmosphere, and any more management-induced short-term increases which might be balanced out decades later are still disastrous.

The bias in FEIS "scientific" discussions concerning climate change is far more troubling than the agency's bias on other topics, because consequences of unchecked climate change will be disastrous for food production, water supplies, and would thus lead to complete turmoil for all human societies. In other words, climate chaos. This is an issue as serious a nuclear annihilation (although at least with the latter we're not already pressing the button).

The FS believes that carbon stored in harvested wood products contributes to the total forest carbon storage associated with national forests in the Northern Region. This myth of carbon storage in wood products has been widely debunked. Since the primacy of logging is so strong in the agency culture, it's not surprising the agency fails to identify conflicting science on these topics. Perhaps only the Forest Service and its enabling profiteers would see the benefit of wood products stored in landfills.

It is clear that the management of the planet's forest is a nexus for addressing this huge crisis of our times. Yet the DEIS fails to even disclose the amount of carbon dioxide (CO_2) emissions created by Forest Plan implementation, or consider the best available science on the topic. This is immensely unethical.

Past conditions will not predict the future in the wake of climate change. The Montana Climate Assessment (MCA) (Found at http://montanaclimate.org/) is an effort to synthesize, evaluate, and share credible and relevant scientific information about climate change in Montana. It must be considered in development of the revised forest plan. Following are key messages and conclusions:

KEY MESSAGES

- Annual average temperatures, including daily minimums, maximums, and averages, have risen across the state between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period. [high agreement, robust evidence]

- Winter and spring in Montana have experienced the most warming. Average temperatures during these seasons have risen by 3.9°F (2.2°C) between 1950 and 2015. [high agreement, robust evidence]

- Montana's growing season length is increasing due to the earlier onset of spring and more extended summers; we are also experiencing more warm days and fewer cool nights. From 1951-2010, the growing season increased by 12 days. In addition, the annual number of warm days has increased by 2.0% and the annual number of cool nights has decreased by 4.6% over this period. [high agreement, robust evidence]

- Despite no historical changes in average annual precipitation between 1950 and 2015, there have been changes in average seasonal precipitation over the same period. Average winter precipitation has decreased by 0.9 inches (2.3 cm), which can mostly be attributed to natural variability and an increase in El Niño events, especially in the western and central parts of the state. A significant increase in spring precipitation (1.3-2.0 inches [3.3-5.1 cm]) has also occurred during this period for the eastern portion of the state. [moderate agreement, robust evidence]

- The state of Montana is projected to continue to warm in all geographic locations, seasons, and under all emission scenarios throughout the 21st century. By mid century, Montana temperatures are projected to increase by approximately 4.5-6.0°F (2.5-3.3°C) depending on the emission scenario. By the end-of-century, Montana temperatures are projected to increase 5.6-9.8°F (3.1-5.4°C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nationally. [high agreement, robust evidence]

- The number of days in a year when daily temperature exceeds 90°F (32°C) and the number of frost-free days are expected to increase across the state and in both emission scenarios studied. Increases in the number of days above 90°F (32°C) are expected to be greatest in the eastern part of the state. Increases in the number of frost-free days are expected to be greatest in the western part of the state. [high agreement, robust evidence]

- Across the state, precipitation is projected to increase in winter, spring, and fall; precipitation is projected to decrease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to occur during summer in the central and southern parts of the state. [moderate agreement, moderate evidence]

USDA Forest Service, 2017b discusses some effects of climate change on forests, including "In many areas, it will no longer be possible to maintain vegetation within the historical range of variability. Land management approaches based on current or historical conditions will need to be adjusted." The FEIS has no scientific basis for its claims that vegetation "treatments" will result in sustainable vegetation conditions under likely climate change scenarios.

Carbon sequestration may be defined as the process by which atmospheric carbon dioxide is taken up by vegetation through photosynthesis and stored as carbon in biomass (tree trunks, branches, foliage and roots) and soils. The FS grossly misleads the public in promoting the idea that logging increases carbon sequestration when in fact a vast body of science demonstrates that such tree farming is a net source of greenhouse gas emissions—regardless of the eventuality of fire and other natural processes.

The FS ignores the large body of science on forest management's adverse effects on carbon sequestration. The Forest Service has never analyzed and disclosed the cumulative effects of overall agency management contributions to the reduction in stored carbon and thus, to climate change.

We incorporate the Battle Creek Alliance et al., 2017 comments on the January 20, 2017 Draft California Forest Carbon Plan within this Objection. (Attachment 1.) It contains headings such as "The …assertion that increased thinning/logging will increase carbon storage in forests is unsupported by the best available science."

The FS fails to provide comprehensive estimates of the total amount of CO_2 or other greenhouse gas emissions caused by Forest Service management actions and policies—forestwide, regionally, or nationally. Instead, the agency makes selective use of science to suggest its agency actions and policies would be net neutral or would even help carbon sequestration, flying in the face of science and common sense. Forest Service policymakers seem comfortable maintaining a position that they need not take any leadership on this issue, and obfuscate to justify their failure of leadership.

The best scientific information strongly suggests that management that involves removal of trees and other biomass is a strong net source of atmospheric CO_2—unsurprisingly the FEIS doesn't state that simple fact. If the Forest Service really believes its carbon modeling can provide meaningful information, it should model the carbon flux over time for all of its proposed stand management scenarios for each of the forest types found on the BNF.

The FEIS fails to quantify CO_2 and other greenhouse gas emissions from several other common human activities related to forest management and recreational uses. These include emissions associated with machines used for logging and associated activities, vehicle use for administrative actions, recreational motor vehicles, and most emissions associated with livestock grazing. The Forest Service is simply ignoring the impacts of these management and other authorized activities.

Such greenhouse gas sources can be quantified. Kassar and Spitler (2008) for example, provide an analysis of the carbon footprint of off-road vehicles in California. They determined that:

> Off-road vehicles in California currently emit more than 230,000 metric tons — or 5000 million pounds — of carbon dioxide into the atmosphere each year. This is equivalent to the emissions created by burning 500,000 barrels of oil. The 26 million gallons of gasoline consumed by off-road vehicles each year in California is equivalent to the amount of gasoline used by 1.5 million car trips from San Francisco to Los Angeles.
>
> . . . Off-road vehicles emit considerably more pollution than automobiles. According to the California Air Resources Board, off-road motorcycles and all-terrain vehicles produce 118 times as much smog-forming pollutants as do modern automobiles on a per-mile basis.
>
> . . . Emissions from current off-road vehicle use statewide are equivalent to the carbon dioxide emissions from 42,000 passenger vehicles driven for an entire year or the electricity used to power 30,500 homes for one year.

Also, Sylvester, 2014 provides data on the amount of fossil fuel being consumed by snowmobiles in Montana, from which one can calculate the carbon footprint. The study finds that resident snowmobilers burn 3.3 million gallons of gas in their snowmobiles each year and a similar amount of fuel to transport themselves and their snowmobiles to and from their destination. Non-residents annually burn one million gallons of gas in snowmobiles and about twice that in related transportation. So that adds up to 9.6 million gallons of fuel consumed in the pursuit of snowmobiling each year in Montana alone. Multiply that by 20 pounds of carbon dioxide per gallon of gas (diesel pickups spew 22 pounds per gallon) and snowmobiling releases 192 million pounds (96 thousand tons) of climate-warming CO_2 per year into the atmosphere.

The FEIS also ignores the cumulative CO_2 emissions from forest management on other ownerships in the region or beyond. Clearly timber management continues to be a net source of CO_2. Omitting such a cumulative effects analysis allows the agency to avoid describing the opportunity found on national forests to counterbalance some CO_2 emissions from other forest ownerships, resulting in a range of alternatives where none really address climate change. This violates NEPA, as well as the public trust.

The FEIS does not analyze or disclose the body of science that implicates logging activities as reducing carbon stocks in forests and increasing greenhouse gas (GHG) emissions. The agency misleads the public, distracting from the emerging scientific consensus that removing wood or <u>any</u> biomass from the forest only makes the problem worse. The science on climate change strongly indicates that forest policies must shift away from logging if carbon sequestration is a genuine emphasis. All old-growth forest areas, other unlogged or lightly logged forests, and healthy grasslands must be preserved indefinitely for their carbon storage value. Forests that have been logged should allowed to eventually revert to old-growth condition. This type of management has the potential to double the current level of carbon storage in some regions. (Harmon et al., 2002; Harmon, 2001; Harmon et al., 1990; Homann, et al., 2005; Law, 2014; Solomon et al., 2007; Turner et al., 1995; Turner et al., 1997; Woodbury et al., 2007.)

Kutsch et al., 2010 provide an integrated view of the current and emerging methods and concepts applied in soil carbon research. They use a standardized protocol for measuring soil CO_2 efflux,

designed to improve future assessments of regional and global patterns of soil carbon dynamics. The authors state:

> Excluding carbonate rocks, soils represent the largest terrestrial stock of carbon, holding approximately 1,500 Pg (1015 g) C in the top metre. This is approximately twice the amount held in the atmosphere and thrice the amount held in terrestrial vegetation. Soils, and soil organic carbon in particular, currently receive much attention in terms of the role they can play in mitigating the effects of elevated atmospheric carbon dioxide (CO_2) and associated global warming. Protecting soil carbon stocks and the process of soil carbon sequestration, or flux of carbon into the soil, have become integral parts of managing the global carbon balance. This has been mainly because many of the factors affecting the flow of carbon into and out of the soil are affected directly by **land-management practices**.

(Emphasis added.) That leads to the following scientific discussion of the effect of "**land-management practices"** (ignored in the FEIS) because the latter are contributing to increased atmospheric CO_2 and thus climate change. Van der Werf, et al. 2009 state:

> (T)he maximum reduction in CO_2 emissions from avoiding deforestation and forest degradation is probably about 12% of current total anthropogenic emissions (or 15% if peat degradation is included) - and that is assuming, unrealistically, that emissions from deforestation, forest degradation and peat degradation can be completely eliminated.
>
> ...reducing fossil fuel emissions remains the key element for stabilizing atmospheric CO_2 concentrations.
>
> (E)fforts to mitigate emissions from tropical forests and peatlands, and maintain existing terrestrial carbon stocks, remain critical for the negotiation of a post-Kyoto agreement. Even our revised estimates represent substantial emissions ...

Keith et al., 2009 state:

> Both net primary production and net ecosystem production in many old forest stands have been found to be positive; they were lower than the carbon fluxes in young and mature stands, but not significantly different from them. Northern Hemisphere forests up to 800 years old have been found to still function as a carbon sink. Carbon stocks can continue to accumulate in multi-aged and mixed species stands because stem respiration rates decrease with increasing tree size, and continual turnover of leaves, roots, and woody material contribute to stable components of soil organic matter. There is a growing body of evidence that forest ecosystems do not necessarily reach an equilibrium between assimilation and respiration, but can continue to accumulate carbon in living biomass, coarse woody debris, and soils, and therefore may act as net carbon sinks for long periods. Hence, process-based models of forest growth and carbon cycling based on an assumption that stands are even-aged and carbon exchange reaches an equilibrium may underestimate productivity and carbon accumulation in some forest types. Conserving forests with large stocks of biomass from deforestation and degradation avoids significant carbon emissions to the atmosphere. Our insights into forest types and forest conditions that result in high biomass carbon density can be used to help identify priority areas for conservation and restoration.

Harmon, 2009 reviews how the forest ecosystem stores carbon, the issues that must be addressed when assessing any proposed course of action, and some common misconceptions that need to be avoided. He also reviews and assesses some of the more common proposals as well as his general scientific concerns about the forest system as a place to store carbon.

Hanson, 2010 addresses the false notion that wildland fires should be managed against:

> Our forests are functioning as carbon sinks (net sequestration) where logging has been reduced or halted, and wildland fire helps maintain high productivity and carbon storage.
>
> Even large, intense fires consume less than 3% of the biomass in live trees, and carbon emissions from forest fires is only tiny fraction of the amount resulting from fossil fuel consumption (even these emissions are balanced by carbon uptake from forest growth and regeneration).
>
> "Thinning" operations for lumber or biofuels do not increase carbon storage but, rather, reduce it, and thinning designed to curb fires further threatens imperiled wildlife species that depend upon post-fire habitat.

Campbell et al., 2011 also refutes the notion that fuel-reduction treatments increase forest carbon storage in the western US:

> It has been suggested that thinning trees and other fuel-reduction practices aimed at reducing the probability of high-severity forest fire are consistent with efforts to keep carbon (C) sequestered in terrestrial pools, and that such practices should therefore be rewarded rather than penalized in C-accounting schemes. By evaluating how fuel treatments, wildfire, and their interactions affect forest C stocks across a wide range of spatial and temporal scales, we conclude that this is extremely unlikely. Our review reveals high C losses associated with fuel treatment, only modest differences in the combustive losses associated with high-severity fire and the low-severity fire that fuel treatment is meant to encourage, and a low likelihood that treated forests will be exposed to fire. Although fuel-reduction treatments may be necessary to restore historical functionality to fire-suppressed ecosystems, we found little credible evidence that such efforts have the added benefit of increasing terrestrial C stocks.

Mitchell et al. (2009) also refutes the assertion that logging to reduce fire hazard helps store carbon, and conclude that although thinning can affect fire, management activities are likely to remove more carbon by logging than will be stored by trying to prevent fire.

How can our national forest be considered “suitable” for activities that contribute to—rather than reduce—the greatest threat to the Earth’s biosphere? The present level of carbon dioxide (CO_2) in Earth’s atmosphere is already dangerous and not sustainable under any definition of the word.

Moomaw and Smith, 2017 identify the need for forest protection to be an urgent, national priority in the fight against climate change and as a safety net for communities against extreme weather events caused by a changing climate. As those authors explain,

> Global climate change is caused by excess CO_2 and other greenhouse gases transferred to the atmosphere from other pools. Human activities, including combustion of fossil fuels

and bioenergy, forest loss and degradation, other land use changes, and industrial processes, have contributed to increasing atmospheric CO_2, the largest contributor to global warming, which will cause temperatures to rise and stay high into the next millennium or longer.

The most recent measurements show the level of atmospheric carbon dioxide has reached 400 parts per million and will likely to remain at that level for millennia to come. Even if all fossil fuel emissions were to cease and all other heat-trapping gases were no longer emitted to the atmosphere, temperatures close to those achieved at the emissions peak would persist for the next millennium or longer.

Meeting the goals of the Paris Agreement now requires the implementation of strategies that result in negative emissions, i.e., extraction of carbon dioxide from the atmosphere. In other words, we need to annually remove more carbon dioxide from the atmosphere than we are emitting and store it long-term. Forests and soils are the only proven techniques that can pull vast amounts of carbon dioxide out of the atmosphere and store it at the scale necessary to meet the Paris goal. Failure to reduce biospheric emissions and to restore Earth's natural climate stabilization systems will doom any attempt to meet the Paris (COP21) global temperature stabilization goals.

The most recent U.S. report of greenhouse gas emissions states that our forests currently "offset" 11 to 13 percent of total U.S. annual emissions. That figure is half that of the global average of 25% and only a fraction of what is needed to avoid climate catastrophe. And while the U.S. government and industry continue to argue that we need to increase markets for wood, paper, and biofuel as climate solutions, the rate, scale, and methods of logging in the United States are having significant, negative climate impacts, which are largely being ignored in climate policies at the international, national, state, and local levels.

The actual carbon stored long-term in harvested wood products represents less than 10 percent of that originally stored in the standing trees and other forest biomass. If the trees had been left to grow, the amount of carbon stored would have been even greater than it was 100 years prior. Therefore, from a climate perspective, the atmosphere would be better off if the forest had not been harvested at all. In addition, when wood losses and fossil fuels for processing and transportation are accounted for, carbon emissions can actually exceed carbon stored in wood products.

Like all forests, the BNF is an important part of the global carbon cycle. Clear scientific information reinforces the critical need to conserve all existing stores of carbon in forests to keep it out of the atmosphere. Given that forest policies in other countries and on private lands are politically more difficult to influence, the Forest Service must take a leadership role to maintain and increase carbon storage on publicly owned forests, in order to help mitigate climate change effects.

Global climate change is caused by the cumulative buildup of greenhouse gases, including CO_2, in the atmosphere. Logging only adds to the cumulative total carbon emissions so it must be

minimized. Logging will not only transfer carbon from storage to the atmosphere but future regrowth cannot make up for the effects of logging, because carbon storage in logged forests will lag behind carbon storage in unlogged forests for decades or centuries.

Global warming and its consequences may be effectively irreversible, which implicates certain legal consequences under the National Environmental Policy Act (NEPA), the National Forest Management Act (NFMA) and the Endangered Species Act (ESA) (e.g., 40 CFR § 1502.16; 16 USC §1604(g); 36 CFR §219.12; ESA Section 7; 50 CFR §§402.9, 402.14) which must be analyzed and disclosed. All net carbon emissions from logging represent "irretrievable and irreversible commitments of resources."

Respected experts say that the atmosphere might be able to safely hold 350 ppm of CO_2.[3] So when we were at pre-industrial levels of about 280 ppm, we had a cushion of about 70 ppm which represents millions of tons of greenhouse gas (GHG) emissions. Well, now that cushion is completely gone. We are already above 400 ppm CO_2 and rising, so what's the safe level of additional emissions (from logging or any other activity)? It's negative. There is no safe level of additional emissions that our earth systems can tolerate. In fact, we need to be removing carbon, not adding carbon to the atmosphere.[4] How could we do that? By growing forests. Logging moves us away from our objective while conservation moves us toward our objective.

Depro, et al., 2008 found that ending commercial logging on U.S. national forests and allowing forests to mature instead would remove an additional amount of carbon from the atmosphere equivalent to 6 percent of the U.S. 2025 climate target of 28 percent emission reductions.

Forest recovery following logging and natural disturbances are usually considered a given. But forests have recovered under climatic conditions that no longer exist. Higher global temperatures and increased levels of disturbance are contributing to greater tree mortality in many forest ecosystems, and these same drivers can also limit forest regeneration, leading to vegetation type conversion. (Bart et al. 2016.)

The importance of trees for carbon capture will rise especially if, as recent evidence suggests, hopes for soils as a carbon sink may be overly optimistic. (He et al., 2016.) Such a potentially reduced role of soils doesn't mean that forest soils won't have a role in capture and storage of carbon, rather it puts more of the onus on aboveground sequestration by trees, even if there is a conversion to unfamiliar mixes of trees.

Law and Harmon, 2011 conducted a literature review and concluded:

> Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict with carbon sequestration goals, and, if implemented, would result in a net emission of CO_2 to the atmosphere because the amount of carbon removed to change fire behavior is often far

[3] http://www.350.org/about/science.

[4] "To get back to 350 ppm, we'll have to run the whole carbon-spewing machine backwards, sucking carbon out of the atmosphere and storing it somewhere safely. … By growing more forests, growing more trees, and better managing all our forests, …" http://blog.cleanenergy.org/2013/11/26/exploring-biocarbon-tools/comment-page-1/#comment-375371

larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.

Moomaw and Smith, 2017 state:

> Multiple studies warn that carbon emissions from soil due to logging are significant, yet under-reported. One study found that logging or clear-cutting a forest can cause carbon emissions from soil disturbance for up to fifty years. Ongoing research by an N.C. State University scientist studying soil emissions from logging on Weyerhaeuser land in North Carolina suggests that "logging, whether for biofuels or lumber, is eating away at the carbon stored beneath the forest floor."

Moomaw and Smith, 2017 examined the scientific evidence implicating forest biomass removal as contributing to climate change:

> All plant material releases slightly more carbon per unit of heat produced than coal. Because plants produce heat at a lower temperature than coal, wood used to produce electricity produces up to 50 percent more carbon than coal per unit of electricity.
>
> Trees are harvested, dried, and transported using fossil fuels. These emissions add about 20 percent or more to the carbon dioxide emissions associated with combustion.

In 2016, Professors Mark Harmon and Bev Law of Oregon State University wrote the following in a letter to members of the U.S. Senate in response to a bill introduced that would essentially designate the burning of trees as carbon neutral:

> The [carbon neutrality] bills' assumption that emissions do not increase atmospheric concentrations when forest carbon stocks are stable or increasing is clearly not true scientifically. It ignores the cause and effect basis of modern science. Even if forest carbon stocks are increasing, the use of forest biomass energy can reduce the rate at which forest carbon is increasing. Conservation of mass, a law of physics, means that atmospheric carbon would have to become higher as a result of this action than would have occurred otherwise. One cannot legislate that the laws of physics cease to exist, as this legislation suggests.

(Harmon and Law, 2016.) Moomaw and Smith, 2017 conclude:

> With the serious adverse consequences of a changing climate already occurring, it is important to broaden our view of sustainable forestry to see forests …as complex ecosystems that provide valuable, multiple life-supporting services like clean water, air, flood control, and carbon storage. We have ample policy mechanisms, resources, and funding to support conservation and protection if we prioritize correctly.
>
> …We must commit to a profound transformation, rebuilding forested landscapes that sequester carbon in long-lived trees and permanent soils. Forests that protect the climate also allow a multitude of species to thrive, manage water quality and quantity and protect our most vulnerable communities from the harshest effects of a changing climate.
>
> Protecting and expanding forests is not an "offset" for fossil fuel emissions. To avoid serious climate disruption, it is essential that we simultaneously reduce emissions of carbon

dioxide from burning fossil fuels and bioenergy along with other heat trapping gases and accelerate the removal of carbon dioxide from the atmosphere by protecting and expanding forests. It is not one or the other. It is both!

Achieving the scale of forest protection and restoration needed over the coming decades may be a challenging concept to embrace politically; however, forests are the only option that can operate at the necessary scale and within the necessary time frame to keep the world from going over the climate precipice. Unlike the fossil fuel companies, whose industry must be replaced, the wood products industry will still have an important role to play in providing the wood products that we need while working together to keep more forests standing for their climate, water, storm protection, and biodiversity benefits.

It may be asking a lot to "rethink the forest economy" and to "invest in forest stewardship," but tabulating the multiple benefits of doing so will demonstrate that often a forest is worth much more standing than logged. Instead of subsidizing the logging of forests for lumber, paper and fuel, society should pay for the multiple benefits of standing forests. It is time to value U.S. forests differently in the twenty-first century. We have a long way to go, but there is not a lot of time to get there.

We incorporate the following article from the *Missoulian* ("Fire study shows landscapes such as Bitterroot's Sapphire Range too hot, dry to restore trees") written by Rob Chaney (March 11, 2019):

Burned landscapes like this drainage in the Sapphire Mountains hasn't been able to grow new trees since the Valley Complex fire of 2000, due to lack of soil moisture, humidity and seed trees, as well as excess heat during the growing season. University of Montana students Erika Berglund and Lacey Hankin helped gather samples for a study showing tree stands are getting replaced by grass and shrubs after fire across the western United States due to climate change.

Courtesy Kim Davis

Fire-scarred forests like the Sapphire Range of the Bitterroot Valley may become grasslands because the growing seasons have become too hot and dry, according to new research from the University of Montana.

“The drier aspects aren’t coming back, especially on north-facing slopes,” said Kim Davis, a UM landscape ecologist and lead investigator on the study. “It’s not soil sterilization. Other vegetation like grasses are re-sprouting. It’s too warm. There’s not enough moisture for the trees.”

Davis worked with landscape ecologist Solomon Dobrowski, fire paleoecologist Philip Higuera, biologist Anna Sala and geoscientist Marco Maneta at UM along with colleagues at the U.S. Forest Service and University of Colorado-Boulder to produce the study, which was released Monday in the Proceedings of the National Academy of Sciences journal.

“What’s striking is if you asked scientists two decades ago how climate warming would play out, this is what they expected we’d see,” Higuera said. “And now we’re starting to see those predictions on the impact to ecosystems play out.”

The study concentrated on regrowth of Ponderosa pine and Douglas fir seedlings in Montana, Idaho, Colorado, New Mexico, Arizona and northern California. Field workers collected trees from 90 sites, including 40 in the northern Rocky Mountains, scattered within 33 wildfires that had occurred within the past 20 years.

“We did over 4,000 miles of road-tripping across the West, as well as lots of miles hiking and backpacking,” Davis said. The survey crews brought back everything from dead seedlings to 4-inch-diameter tree rings; nearly 3,000 samples in total. Then they analyzed how long each tree had been growing and what conditions had been when it sprouted. Before the 1990s, the test sites had enough soil moisture, humidity and other factors to recruit new seedlings after forest fires, Dobrowski said.

"There used to be enough variability in seasonal conditions that seedlings could make it across these fixed thresholds," Dobrowski said. "After the mid-'90s, those windows have been closing more often. We're worried we'll lose these low-elevation forests to shrubs or grasslands. That's what the evidence points to."

After a fire, all kinds of grasses, shrubs and trees have a blank slate to recover. But trees, especially low-elevation species, need more soil moisture and humidity than their smaller plant cousins. Before the mid-90s, those good growing seasons rolled around every three to five years. The study shows such conditions have evaporated on virtually all sites since 2000.

"The six sites we looked at in the Bitterroots haven't been above the summer humidity threshold since 1997," Higuera said. "Soil moisture hasn't crossed the threshold since 2009."

The study overturns some common assumptions of post-fire recovery. Many historic analyses of mountain forests show the hillsides used to hold far fewer trees a century ago, and have become overstocked due to the efforts humans put at controlling fire in the woods. Higuera explained that some higher elevation forests are returning to their more sparse historical look due to increased fires.

"But at the lower fringes, those burn areas may transition to non-forest types," Higuera said, "especially where climate conditions at the end of this century are different than what we had in the early 20th Century."

The study also found that soil sterilization wasn't a factor in tree regrowth, even in the most severely burned areas. For example, the 2000 Sula Complex of fires stripped forest cover in the southern end of the Bitterroot Valley. While the lodgepole pine stands near Lost Trail Pass have recovered, the lower- elevation Ponderosa pine and Douglas firs haven't.

Another factor driving regeneration is the availability of surviving seed trees that can repopulate a burn zone. If one remains within 100 meters of the burned landscape, the area can at least start the process of reseeding. Unfortunately, the trend toward high-severity fires has reduced the once-common mosaic patterns that left some undamaged groves mixed into the burned areas.

Higuera said he hoped land managers could use small or prescribed fires to make landscapes more resilient, as well as restructure tree-planting efforts to boost the chances of heavily burned places.

The Resources Planning Act of 1974 (RPA) and National Forest Management Act of 1976 (NFMA) mandate long-range planning which impose numerous limitations on timber extraction practices and the amount of timber sold annually. These long range plans are based on assumptions, which are based on data, expert opinion, public participation and other factors

which mostly view from a historical perspective. So it's time to peer into the future to examine closely (NEPA: "take a hard look at") those assumptions.

Clearly, the Forest Service is not considering best available science on this topic.

The FEIS fails to reexamine the assumptions relating to timber suitability, resilience and sustainability as a result of recent fires, past regeneration success/failures, and climate-risk science.

Conventional wisdom dictates that forests regenerate and recover from wildfire. If that's true, then it's logical to conclude that forests can regenerate and recover from logging. And these days, "resilience" is a core tenant of Forest Service planning. Unfortunately, assumptions of the FEIS relating to desired conditions are incorrect. NEPA requires a "hard look" at the best available science relating to future concentrations of greenhouse gasses and gathering climate risk as we move forward into an increasingly uncertain and uncharted climate future. This has not been done.

The Forest Plan and Gold Butterfly FEIS do not include a legitimate climate-risk analysis.

Scientific research indicates that increasing CO_2 and other greenhouse gas concentrations may preclude maintaining and attaining the anticipated forest conditions in the project area and across the BNF. The agency downplays the implications across the entire Northern Rockies bioregion and beyond, seeming unaware of the likelihood that its desired conditions are at great risk.

No amount of logging, thinning and prescribes burning will cure the cumulative effects (irretrievable loss) already baked into today's climate reality. "Treatments" must be acknowledged for what they are: Adverse cumulative environmental effects. Logging can neither mitigate, nor prevent, the effects of wildfire or logging. Both cause disturbance to forests that cannot be restored or retrieved—the resilience assumed no longer exists. It is way too late in the game to pretend to ignore the elephant in the room.

The Forest Service ignores best available science indicating prescribed fire, thinning and logging are actually cumulative with the dominant forces of increased heat, drought, and wildfire.

NEPA requires analysis of an alternative that reflects our common understanding of climate risk. A considerable amount of data and scientific research repeatedly confirms that we may be looking in the wrong direction (back into history, e.g., "natural range of variability") for answers to better understand our forest future.

The Forest Service fails to analyze an alternative projecting climate science into the forest's future. It fails to adequately consider that the effects of climate risk represent a significant and eminent loss of forest resilience already, and growing risk into the "foreseeable future."

Funk et al., 2014 indicate that at least five common tree species, including aspens and four conifers, are at great risk unless atmospheric greenhouse gases and associated temperatures can

be contained at today's levels of concentration in the atmosphere. It is indeed time to speak honestly about unrealistic expectations relating to desired conditions.

And according to scientific literature it seems highly unlikely that greenhouse gas concentrations and the heat they trap in the atmosphere will be held at current levels.

The Forest Service fails to analyze and disclose conditions we can realistically expect as heat trapped by increasing greenhouse gas concentrations steadily tightens its grip—and impacts on forests accrue locally, regionally, nationally, and globally.

The FEIS fails to assess and disclose all risks associated with vegetative-manipulation as proposed.

NEPA requires disclosure of impact on "the human environment." Climate risk presents overarching adverse impacts on cultural, economic, environmental, and social aspects of the human environment—people, jobs, and the economy—adjacent to and near the Forests. Challenges in predicting responses of individual tree species to climate are a result of species competing under a never-before-seen climate regime that we have not seen before—one forests may not have experienced before either.

Golladay et al., 2016 state, "In an uncertain future of rapid change and abrupt, unforeseen transitions, adjustments in management approaches will be necessary and some actions will fail. However, **it is increasingly evident that the greatest risk is posed by continuing to implement strategies inconsistent with and not informed by current understanding of our novel future**… (Emphasis added).

In the face of increasing climate risk, growing impacts of wildfire and insect activity, plus scientific research findings, the Forest Service must disclose the significant trend in post-fire regeneration failure. The FEIS fails to do so. The national forests have already experienced considerable difficulty restocking on areas that have been subjected to clear-cut logging, post-fire salvage logging and other even-aged management "systems." NFMA (1982) regulation 36CFR 219.27(c)(3) implements the NFMA statute, and requires restocking in five years.

It's time to analyze and disclose the fact that the BNF can no longer "insure that timber will be harvested from the National Forest system lands only where…there is assurance that such lands can be restocked within five years of harvest." [NFMA §6(g)(3)(E)(ii)].

Davis et al., 2019 state: "At dry sites across our study region, seasonal to annual climate conditions over the past 20 years have crossed these thresholds, such that conditions have become increasingly unsuitable for regeneration. High fire severity and low seed availability further reduced the probability of postfire regeneration. Together, our results demonstrate that climate change combined with high severity fire is leading to increasingly fewer opportunities for seedlings to establish after wildfires and may lead to ecosystem transitions in low-elevation ponderosa pine and Douglas-fir forests across the western United States."

Forests are already experiencing emissions-driven deforestation, on both the post-fire and post-logging acreage.

The FEIS does not disclose restocking monitoring data and analysis.

Stevens-Rumens et al., (2018) state: "In the US Rocky Mountains, we documented a significant trend of post-fire tree regeneration, even over the relatively short period of 23 years covered in this analysis. Our findings are consistent with the expectation of **reduced resilience of forest ecosystems to the combined impacts of climate warming and wildfire activity**. Our results suggest that predicted **shifts from forest to non-forested vegetation**. (Emphases added.)

The Forest Plan and Gold Butterfly FEIS are based on assumptions largely drawn from the past. These assumptions must be rejected where overwhelming evidence demonstrates a change of course is critical. It is time to take a step back, assess the future and make the necessary adjustments, all in full public disclosure to the Congress and the public.

Remedy: Please study the scientific findings of the research presented above. Analyze the likely consequences of moving forward. Then, disclose your findings. We sincerely believe that an overwhelming body of evidence compels us all to reconsider the assumptions, goals and expected conditions in the Forest Plan. The Forest Plan must be revised in the awareness that the current Plan's assumptions are no longer valid. Plan expectations must be amended at the programmatic level. According to best available science, implementing the project as written will accomplish the opposite of the desired conditions unless major management adjustments are made. Getting this wrong is an irretrievable commitment of resources and a violation of NEPA for failing to analyze and disclose the (foreseeable future) climate risks as best we can by relying on what we now know to be true. We can adjust as we monitor and find out more. However, to willfully ignore what we do know and fail to disclose it to the public is a serious breach of public trust and an unconscionable act.

FIRE SUPPRESSION AND FIRE ECOLOGY

This issue was discussed in FOB/AWR DEIS comments at pp. 52-57 and in FOB/AWR scoping comments at p. 2. We incorporate those comments into this objection, and add the following discussion.

The EIS does not disclose that the BNF is not being managed consistent with Forest Plan forestwide k(1) Protection standard in regards to Forest Plan Appendix M, which states, "The Fire Management Action Plan will be revised annually to identify the differences between the most cost efficient fire management program determined by the Level II analysis and the fire management program funded in the current fiscal year."

The current direction for wildfire management on the BNF comes from the Forest Plan. And the Forest Plan contains standard 1(k): "Fire management standards, including the expected average annual acreage burned by management area, are contained in the Bitterroot Forest 'Fire Management Action Plan', see Appendix M." In other words, the 1987 Forest Plan sets the Bitterroot National Forest's fire policy.

Fire suppression doesn't really mean "no action", but could be included in the no action alternative if the environment impacts of fire suppression were properly analyzed and disclosed at the programmatic level, such as in the Forest Plan EIS. But **the broad scale** of ecological damage the EIS alleges from the wide-scale fire suppression program that began almost 100 years ago wasn't recognized until **after the Forest Plan was adopted in 1987**. It certainly wasn't adequately disclosed in the Forest Plan EIS. This constitutes significant new information that has not resulted in any new forest plan amendments, revisions, or other programmatic NEPA decisions or direction.

The Forest Plan EIS itself did not contemplate a range of possible fire planning scenarios—there was little fire suppression difference between the alternatives analyzed. Nor did the Forest Plan EIS present anything like an analysis of the impacts of fire suppression/fire exclusion on the pattern, composition, and succession of vegetation as do project-level NEPA documents since the mid-1990s. That scientific information became a major theme of the Interior Columbia Basin Ecosystem Management Project (ICBEMP) in the 1990s: "Aggressive fire suppression policies of Federal land-managing agencies have been increasingly criticized as more has been learned about natural fire cycles." (USDA FS & USDI BLM 1996, p. 22.)

Also, "Substantial changes in disturbance regimes—especially changes resulting from fire suppression, timber management practices, and livestock grazing over the past 100 years—have resulted in moderate to high departure of vegetation composition and structure and landscape mosaic patterns from historical ranges." (USDA FS & USDI BLM 2000, Ch. 4. P. 18.)

It may be that fire suppression in the project area has not, in reality, caused a significantly elevated risk of abnormal fire in the project area. We believe the agency is playing this fire-scare card in the EIS largely to justify logging as "restoration." However, playing the fire scare card is not just a project area issue—it's forestwide. The agency puts the joker in the deck, changing the whole game—not just one hand as the FS pretends.

The no-action alternative contemplated under the ICBEMP EIS is the management direction found in the Forest Plan: "Alternative S1 (no action) continues management specified under each existing Forest Service and BLM land use plan, as amended or modified by interim direction—known as Eastside Screens (national forests in eastern Oregon and Washington only), PACFISH, and INFISH—as the long-term strategy for lands managed by the Forest Service or BLM." (USDA FS & USDI BLM 2000. Ch. 5, pp 5-6.)

To the degree that the Gold Butterfly project implements the direction in the 1987 Forest Plan, it is continuing to implement the scale of ongoing ecological damage disclosed under "no-action" alternative for ICBEMP—but not analyzed for the 1987 Forest Plan, its EIS, or any other programmatic NEPA document for this Forest.

To the degree that the Gold Butterfly project implements new direction not contemplated by the 1987 Forest Plan in response to the scientific studies and analyses from ICBEMP, it does so without completing programmatic, forestwide NEPA analysis—the only way planning decisions (amendments or revisions) can legitimately be implemented.

So what we see these days are project-level NEPA documents such as this EIS, which implement a hybrid, reactionary management scheme, that continues to attempt replacing wildland fire with logging and burning, but again not in the context of an analysis of the cumulative, forestwide impacts.

The philosophy driving the FS strategy to replicate historic vegetative conditions (i.e. desired conditions) is that emulation of the results of disturbance processes would conserve biological diversity. McRae et al. 2001 provide a scientific review summarizing empirical evidence that illustrates several significant differences between logging and wildfire—differences which the Gold Butterfly EIS fails to address. Also, Naficy et al. 2010 found a significant distinction between fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 and paired fire-excluded, unlogged counterparts:

> We document that fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 have much higher average stand density, greater homogeneity of stand structure, more standing dead trees and increased abundance of fire-intolerant trees than paired fire-excluded, unlogged counterparts. Notably, the magnitude of the interactive effect of fire exclusion and historical logging substantially exceeds the effects of fire exclusion alone. These differences suggest that historically logged sites are more prone to severe wildfires and insect outbreaks than unlogged, fire-excluded forests and should be considered a high priority for fuels reduction treatments. Furthermore, we propose that **ponderosa pine forests with these distinct management histories likely require distinct restoration approaches**. We also highlight **potential long-term risks of mechanical stand manipulation in unlogged forests and emphasize the need for a long-term view of fuels management.**

(Emphasis added.) Since the fire suppression and fuel reduction regime being implemented was not a planning scenario dealt with in sufficient detail during Forest Plan development, the cumulative ecological and economic costs and impacts go unexplained and undisclosed. The EIS does not disclose how much of the Forest is considered to be out of whack in "forest health" terms due to fire suppression, nor does it disclose the implications of ever-increasing fire suppression costs that rob the agency's budgets for true restoration that its past road building and logging have necessitated.

The FS has failed to manage consistently with Forest Plan Standard 1 k(1), which requires that the agency's "Fire Management Action Plan ...be revised annually to identify the differences between the most cost efficient fire management program determined by the Level II analysis[5] and the fire management program funded in the current fiscal year."

The EIS is not consistent with Forest Plan Appendix M standard "Direction to ensure that fire use programs are cost-effective, compatible with the role of fire in Forest ecosystems and responsive to resource management objectives."

[5] "The (Fire Management Action Plan) was developed after completion of the Level II fire management analysis as outlined in Forest Service Manual 5109.19." (Id.)

The EIS also failed to provide a genuine analysis and disclosure of the varying amounts and levels of effectiveness of fuel changes attributable to: the varying ages of the past cuts, the varying forest types, the varying slash treatments, etc.

We incorporate "A New Direction for California Wildfire Policy—Working from the Home Outward" dated February 11, 2019 from the Leonard DiCaprio Foundation. It criticizes policies from the state of California, which are essentially the same Forest Service fire policies on display in the BNF. From the Executive Summary: "These policies try to alter vast areas of forest in problematic ways through logging, when instead they should be focusing on helping communities safely co-exist with California's naturally fire-dependent ecosystems by prioritizing effective fire-safety actions for homes and the zone right around them. This new direction—working from the home outward—can save lives and homes, save money, and produce jobs in a strategy that is better for natural ecosystems and the climate." It also presents an eye-opening analysis of the Camp Fire, which destroyed the town of Paradise.

We also incorporate the John Muir Project document "Forest Thinning to Prevent Wildland Fire …vigorously contradicted by current Science" (Attachment 2).

We likewise incorporate "Open Letter to Decision Makers Concerning Wildfires in the West" signed by over 200 scientists (Attachment 3).

And also see "Land Use Planning More Effective Than Logging to Reduce Wildfire Risk" (Attachment 4).

The EIS assumes natural fire regimes would maintain much of the project area in open conditions with widely spaced mature and old trees including ponderosa pine and to some degree Douglas-fir. This fails to acknowledge that mixed-severity and even low-severity fire regimes result in much more variable stand conditions across the landscape through time. Assumptions that drier forests did not experience stand-replacing fires, that fire regimes were frequent and nonlethal, that these stands were open and dominated by large well-spaced trees, and that fuel amounts determine fire severity (the false thinning hypothesis that fails to recognize climate as the overwhelming main driver of fire intensity) are not supported by science (see for example Baker and Williams 2015, Williams and Baker 2014, Baker et al. 2006, Pierce et al. 2004, Baker and Ehle 2001, Sherriff et al. 2014). Even research that has uncritically accepted the questionable ponderosa pine model that may only apply to the Mogollon Rim of Arizona and New Mexico (and perhaps in similar dry-forest types in California), notes the inappropriateness of applying that model to elsewhere (see Schoennagel et al. 2004). Any assertion that fuel treatments will result in likely or predictable later wildland fire effects is of considerable scientific doubt (Rhodes and Baker, 2008).

Baker, 2015, states: "Programs to generally reduce fire severity in dry forests are not supported and have significant adverse ecological impacts, including reducing habitat for native species dependent on early-successional burned patches and decreasing landscape heterogeneity that confers resilience to climatic change."

Baker, 2015 concluded: "Dry forests were historically renewed, and will continue to be renewed, by sudden, dramatic, high-intensity fires after centuries of stability and lower-intensity fires."

Baker, 2015 writes: "**Management issues…** The evidence presented here shows that efforts to generally lower fire severity in dry forests for ecological restoration are not supported."

In his book, "Fire Ecology in Rocky Mountain Landscapes" William Baker writes on page 435, "…a prescribed fire regime that is too frequent can reduce species diversity (Laughlin and Grace 2006) and favor invasive species (M.A. Moritz and Odion 2004). Fire that is entirely low severity in ecosystems that historically experience some high-severity fire may not favor germination of fire-dependent species (M.A. Moritiz and Odion 2004) or provide habitat key animals (Smucker, Hutto, and Steele 2005)." And on page 436: "Fire rotations equal the average mean fire interval across a landscape and are appropriate intervals at which individual points or the whole landscape is burned. Composite fire intervals underestimate mean fire interval and fire rotation (chap 5) and should not be used as prescribed burning intervals as this would lead to too much fire and would likely lead to adversely affect biological diversity (Laughlin and Grace 2006)."

Baker estimates the high severity fire rotation to be 135 - 280 years for lodgepole pine forests. (See page 162.). And on pp. 457-458: "Fire rotation has been estimated as about 275 years in the Rockies as a whole since 1980 and about 247 years in the northern Rockies over the last century, and both figures are near the middle between the low (140 years) and high (328 years) estimates for fire rotation for the Rockies under the HRV (chap. 10). These estimates suggest that since EuroAmerican settlement, fire control and other activities may have reduced fire somewhat in particular places, but a general syndrome of fire exclusion is lacking. Fire exclusion also does not accurately characterize the effects of land users on fire or match the pattern of change in area burned at the state level over the last century (fig. 10.9). In contrast, fluctuation in drought linked to atmospheric conditions appear to match many state-level patterns in burned area over the last century. Land uses that also match fluctuations include logging, livestock grazing, roads and development, which have generally increased flammability and ignition at a time when the climate is warming and more fire is coming."

Schoennagel et al., 2004 state: "High-elevation subalpine forests in the Rocky Mountains typify ecosystems that experience infrequent, high-severity crown fires []. . . The most extensive subalpine forest types are composed of Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), and lodgepole pine (Pinus contorta), all thin-barked trees easily killed by fire. Extensive stand-replacing fires occurred historically at long intervals (i.e., one to many centuries) in subalpine forests, typically in association with infrequent high-pressure blocking systems that promote extremely dry regional climate patterns."

Schoennagel et al., 2004 state:

> (I)t is unlikely that the short period of fire exclusion has significantly altered the long fire intervals in subalpine forests. Furthermore, large, intense fires burning under dry conditions are very difficult, if not impossible, to suppress, and such fires account for the majority of area burned in subalpine forests.

> Moreover, there is no consistent relationship between time elapsed since the last fire and fuel abundance in subalpine forests, further undermining the idea that years of fire suppression have caused unnatural fuel buildup in this forest zone.
>
> No evidence suggests that spruce–fir or lodgepole pine forests have experienced substantial shifts in stand structure over recent decades as a result of fire suppression. Overall, variation in cli-mate rather than in fuels appears to exert the largest influence on the size, timing, and se-verity of fires in subalpine forests []. We conclude that large, infrequent stand replacing fires are 'business as usual' in this forest type, not an artifact of fire suppression.
>
> Contrary to popular opinion, previous fire suppression, which was consistently effective from about 1950 through 1972, had only a minimal effect on the large fire event in 1988 []. Reconstruction of historical fires indicates that similar large, high-severity fires also occurred in the early 1700s []. Given the historical range of variability of fire regimes in high- elevation subalpine forests, fire behavior in Yellowstone during 1988, although severe, was neither unusual nor surprising.
>
> Mechanical fuel reduction in subalpine forests would not represent a restoration treatment but rather a departure from the natural range of variability in stand structure.
>
> Given the behavior of fire in Yellowstone in 1988, fuel reduction projects probably will not substantially reduce the frequency, size, or severity of wildfires under extreme weather conditions.
>
> The Yellowstone fires in 1988 revealed that variation in fuel conditions, as measured by stand age and density, had only minimal influence on fire behavior. Therefore, we expect fuel- reduction treatments in high-elevation forests to be generally unsuccessful in reducing fire frequency, severity, and size, given the overriding importance of extreme climate in controlling fire regimes in this zone. Thinning also will not re-store subalpine forests, because they were dense historically and have not changed significantly in response to fire suppression. Thus, fuel-reduction efforts in most Rocky Mountain subalpine forests probably would not effectively mitigate the fire hazard, and these efforts may create new ecological problems by moving the forest structure out-side the historic range of variability.

Cohen, 1999 reviewed current scientific evidence and policy directives on the issue of fire in the wildland/urban interface and recommend the focus be on structure ignitability in the Home Ignition Zone rather than extensive wildland fuel management. Cohen, 1999 also recognizes "the imperative to separate the problem of the wildland fire threat to homes from the problem of ecosystem sustainability due to changes in wildland fuels" (Id.). In regards to the latter—ecosystem sustainability—Cohen and Butler (2005) state:

> Realizing that wildland fires are inevitable should urge us to recognize that excluding wildfire does not eliminate fire, it unintentionally selects for only those occurrences that defy our suppression capability—the extreme wildfires that are continuous over extensive areas. If we wish to avoid these extensive wildfires and restore fire to a more normal ecological condition, **our only choice is to allow fire occurrence under conditions other**

> **than extremes. Our choices become ones of compatibility with the inevitable fire occurrences rather than ones of attempted exclusion.** (Emphasis added.)

Large fires are weather-driven events, not fuels-driven. When the conditions exist for a major fire—which includes drought, high temperatures, low humidity and high winds—nothing, including past logging, halts blazes. Such fires typically self-extinguish or are stopped only when less favorable conditions occur for fire spread. As noted in Graham, 2003:

> The prescriptions and techniques appropriate for accomplishing a treatment require understanding the fuel changes that result from different techniques and the fire behavior responses to fuel structure**. Fuel treatments, like all vegetation changes, have temporary effects and require repeated measures, such as prescribed burning, to maintain desired fuel structure.**

Fire Regimes are often used by the Forest Service to support the position that there are significant departures of the forest from historic fire processes and vegetation conditions. This methodology likely has very limited accuracy and tends to overestimate the risk of higher-severity fire posed by fuel loads, as documented by studies of recent fires (Odion and Hanson, 2006).

Rhodes, 2007 states: "The transient effects of treatments on forest, coupled with the relatively low probability of higher-severity fire, makes it unlikely that fire will affect treated areas while fuel levels are reduced." (Internal citations omitted.) See also Rhodes and Baker (2008). And Rhodes, 2007 also points out that management with mechanical fuel treatments (MFT) to restore natural fire regimes must take into consideration the root causes of the alleged problem:

> In order to be ultimately effective at helping to restore natural fire regimes, fuel treatments must be part of wider efforts to address the root causes of the alteration in fire behavior. At best, MFT can only address symptoms of fire regime alteration. Evidence indicates that primary causes of altered fire regimes in some forests include changes in fuel character caused by the ongoing effects and legacy of land management activities. These activities include logging, post-disturbance tree planting, livestock grazing, and fire suppression. Many of these activities remain in operation over large areas. Therefore, unless treatments are accompanied by the elimination of or sharp reduction in these activities and their impacts in forests where the fire regime has been altered, MFT alone will not restore fire regimes. (Internal citations omitted.)

If the predictions of uncharacteristically severe fire attributed to past suppression were accurate, one might think that the results of scientific validation of such assumptions would have been cited in the EIS. We find no data or scientific analysis of such fire effects validating EIS assumptions of uncharacteristically severe fire effects.

DellaSala, et al. (1995) state:

> Scientific evidence does not support the hypothesis that intensive salvage, thinning, and other logging activities reduce the risk of catastrophic fires if applied at landscape scales … At very local scales, the removal of fuels through salvage and thinning may hinder some fires. However, applying such measures at landscape scales removes natural fire breaks such as moist pockets of late-seral and riparian forests that dampen the spread and intensity of fire

and has little effect on controlling fire spread, particularly during regional droughts. … Bessie and Johnson (1995) found that surface fire intensity and crown fire initiation were strongly related to weather conditions and only weakly related to fuel loads in subalpine forest in the southern Canadian Rockies. . . . Observations of large forest fires during regional droughts such as the Yellowstone fires in 1988 (Turner, et al. 1994) and the inland northwest fires of 1994 . . . raise serious doubts about the effectiveness of intensive fuel reductions as "fire-proofing" measures.

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.

Those Forest Service biologists emphasize, "the importance of wildfire, including large-scale, intense wildfire, in creating and maintaining stream systems and stream habitat. …(I)n 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."

Noss et al. (2006) state:

> Forest landscapes that have been affected by a major natural disturbance, such as a severe wildfire or wind storm, are commonly viewed as devastated. Such perspectives are usually far from ecological reality. Overall species diversity, measured as number of species–at least of higher plants and vertebrates – is often highest following a natural stand replacement disturbance and before redevelopment of closed-canopy forest (Lindenmayer and Franklin 2002). Important reasons for this include an abundance of biological legacies, such as living organisms and dead tree structures, the migration and establishment of additional organisms adapted to the disturbed, early-successional environment, availability of nutrients, and temporary release of other plants from dominance by trees. Currently, early-successional forests (naturally disturbed areas with a full array of legacies, i.e. not subject to post-fire logging) and forests experiencing natural regeneration (i.e. not seeded or planted), are among the most scarce habitat conditions in many regions.

Baker et al., 2006 state:

> Because multiple explanations exist for the presence and abundance of young, shade-tolerant trees, these trees need to be dated and linked definitively to a particular land use (e.g. livestock grazing, logging, fire exclusion) before their removal is ecologically appropriate in restoration, and so that the correct land use, as discussed later, can be modified.

> …Identification of which land uses affected a stand proposed for restoration is essential. Fire exclusion, logging and livestock grazing do not have the same effects on these forests, their effects vary with environment, and they require different restoration actions. Before restoration begins, it makes sense to modify or minimize the particular land uses that led to the need for restoration, to avoid repeating degradation and ongoing, periodic subsidies that merely maintain land uses at non-sustainable levels (Hobbs & Norton, 1996). For example, thinning an overgrazed forest, without restoring native bunchgrasses lost to grazing, may simply lead to a new pulse of tree regeneration that will have to be thinned again.

The EIS is not clear as to how the fluid WUI boundary and the Community Wildfire Protection Plans comprise policy and direction the Forest Service must comply with. Our understanding is that the WUI has been defined, and can be re-defined, without any NEPA process. Given the uncertain location of the WUI, an EIS cannot possibly analyze the implication of plan implementation of WUI management.

Experience shows the countless dangers faced by firefighters, to the degree that public safety ought to be genuinely at risk before decisions are made to risk firefighter safety. And though we disagree about the extent of the WUI, we welcome a dialogue that would result in agreement where firefighting will be understood as likely (a more reasonably defined WUI) vs. where potential losses to lives would be nonexistent if a fire is allowed to burn and where private property risks are minimal. Because of the importance of dealing with this issue, such "management area" classifications are highly important. As stated above, however, they must be established in the context of NEPA and therefore be subject to the test of good science and full and fair analysis.

The EIS fails to adequately analyze and disclose the forestwide impacts of the proposed fire suppression policy. There is scant evidence the management of wildland fire in the BNF has evolved from the time the forest plan was written.

The scale of ecological damage claimed to have occurred due to the wide-scale fire suppression program that began almost 100 years ago isn't properly analyzed or disclosed in the EIS. The EIS includes nothing like a best available science discussion weighing the ecological and financial costs and benefits of wildland fire.

The EIS does not disclose how the vegetation patterns that result from past logging, other management actions, and revised plan implementation would influence future fire behavior.

The vast majority of acres burn under weather conditions that make control impossible, and that result in fires burning through treated areas as well as untreated. The EIS also doesn't recognize the temporal gradients in vegetative recovery following proposed "fuel treatments."

The premise that thinning and other mechanical treatments replicate natural fire is contradicted by science (for example see Rhodes and Baker 2008, McRae et al 2001, and Rhodes 2007).

DellaSala, et al. (1995) are skeptical about the efficacy of intensive fuels reductions as fire-proofing methods. Veblen (2003) states:

> The premise behind many projects aimed at wildfire hazard reduction and ecological restoration in forests of the western United States is the idea that unnatural fuel buildup has resulted from suppression of formerly frequent fires. This premise and its implications need to be critically evaluated by conducting area-specific research in the forest ecosystems targeted for fuels or ecological restoration projects. Fire regime researchers need to acknowledge the limitations of fire history methodology and avoid over-reliance on summary fire statistics such as mean fire interval and rotation period.

Kauffman (2004) identifies wildland fires as beneficial and suggests current Forest Service fire suppression policies are the catastrophe:

> Large wild fires occurring in forests, grasslands and chaparral in the last few years have aroused much public concern. Many have described these events as "catastrophes" that must be prevented through aggressive increases in forest thinning. **Yet the real catastrophes are not the fires themselves but those land uses, in concert with fire suppression policies that have resulted in dramatic alterations to ecosystem structure and composition**. The first step in the restoration of biological diversity (forest health) of western landscapes must be to implement changes in those factors that have resulted in the current state of wildland ecosystems. Restoration entails much more than simple structural modifications achieved through mechanical means. **Restoration should be undertaken at landscape scales and must allow for the occurrence of dominant ecosystem processes, such as the natural fire regimes achieved through natural and/or prescribed fires at appropriate temporal and spatial scales.** (Emphases added.)

The EIS indicates fire suppression will continue under any alternative, meaning that further timber management and fuels treatments would occur perpetually in intervals. The Forest Service contends a high density of roads also facilitates fire suppression. These are cumulative effects issues, all across the managed portion of the BNF. Project-level NEPA documents such as Gold Butterfly then implement a hybrid, reactionary management scheme which continues to attempt replacing wildland fire with logging and burning, but not in the context of conducting the necessary analyses of cumulative, forestwide impacts.

Hutto (2008) states:

> (C)onsider the question of whether forests outside the dry ponderosa pine system are really in need of "restoration." While stem densities and fuel loads may be much greater today than a century ago, those patterns are perhaps as much of a reflection of human activity in the recent past (e.g., timber harvesting) as they are a reflection of historical conditions (Shinneman and Baker 1997). Without embracing and evolutionary perspective, we run the risk of creating restoration targets that do not mimic evolutionarily meaningful historical conditions, and that bear little resemblance to the conditions needed to maintain populations of native species, as mandated by law (e.g., National Forest Management Act of 1976).

There has been extensive research in forests about the ecological benefits of mixed-severity (which includes high-severity) fire over the past two decades, so much so that in 2015 science

and academic publishers Elsevier published a 400-page book, *The Ecological Importance of Mixed-Severity Fires: Nature's Phoenix* which synthesizes published, peer-reviewed science investigating the value of mixed- and high-severity fires for biodiversity (DellaSala and Hanson, 2015). The book includes research documenting the benefits of high-intensity wildfire patches for wildlife species, as well as a discussion of mechanical "thinning" and its inability to reduce the chances of a fire burning in a given area, or alter the intensity of a fire, should one begin under high fire weather conditions, because overwhelmingly weather, not vegetation, drives fire behavior (DellaSala and Hanson, 2015, Ch. 13, pp. 382-384).

Scientific information contradicts some of the premises upon which the Gold Butterfly project is based. Bradley, et al. 2016 "found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading." Among the major findings were that areas undisturbed by logging experienced significantly less intensive fire compared with areas that have been logged. From a news release announcing the results of the study (http://www.biologicaldiversity.org/publications/papers/):

> "We were surprised to see how significant the differences were between protected areas managed for biodiversity and unprotected areas, which our data show burned more severely," said lead author Curtis Bradley, with the Center for Biological Diversity.
>
> The study focused on forests with relatively frequent fire regimes, ponderosa pine and mixed-conifer forest types; used multiple statistical models; and accounted for effects of climate, topography and regional differences to ensure the findings were robust.
>
> "The belief that restrictions on logging have increased fire severity did not bear out in the study," said Dr. Chad Hanson, an ecologist with the John Muir Project. "In fact, the findings suggest the opposite. The most intense fires are occurring on private forest lands, while lands with little to no logging experience fires with relatively lower intensity."
>
> "Our findings demonstrate that increased logging may actually increase fire severity," said Dr. Dominick A. DellaSala, chief scientist of Geos Institute. "Instead, decision-makers concerned about fire should target proven fire-risk reduction measures nearest homes and keep firefighters out of harm's way by focusing fire suppression actions near towns, not in the back country."

Whereas the EIS claims to be reducing risk of wildfire by reducing forest canopy density—particularly (but not exclusively) in old growth—the proposed action will result in increased fire severity and more rapid fire spread. This common sense is recognized in a news media discussion of the 2017 Eagle Creek fire in Oregon:

> **Old growth not so easy to burn:**
>
> Officials said the fire spread so rapidly on the third and fourth days because it was traveling across lower elevations.
>
> The forests there aren't as thick and as dense as the older growth the fire's edge is encountering now - much of it in the Mark O. Hatfield Wilderness, Whittington said.

> Whittington said because **there's more cover from the tree canopy, the ground is moister -- and that's caused the fire to slow. Also, bigger trees don't catch fire as easily**, he said.

(Emphasis added.) The FS also likes to trot out the premise that tree mortality from native insect activity and other agents of tree mortality increase risk of wildfire. Again, this is not supported by science. Meigs, et al., 2016 found "that insects generally reduce the severity of subsequent wildfires. … By dampening subsequent burn severity, native insects could buffer rather than exacerbate fire regime changes expected due to land use and climate change. In light of these findings, we recommend a precautionary approach when designing and implementing forest management policies intended to reduce wildfire hazard and increase resilience to global change."

Also *see* Black, S.H. 2005 (Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests." A Synthesis of Independently Reviewed Research) and Black, et al., 2010 (Insects and Roadless Forests: A Scientific Review of Causes, Consequences and Management Alternatives) as well as DellaSala (undated), Kulakowski (2013), Hanson et al., 2010, and Hart et al., 2015. And for an ecological perspective from the FS itself, see Rhoades et al., 2012, who state: "While much remains to be learned about the current outbreak of mountain pine beetles, researchers are already finding that **beetles may impart a characteristic critically lacking in many pine forests today: structural complexity and species diversity**." (Emphasis added.)

Ultimately the DFP and DEIS reflect an overriding bias favoring vegetation manipulation and resource extraction via "management" needed to "move toward" some selected desired conditions, along the way neglecting the ecological processes driving these ecosystems. Essentially the Forest Service rigs the game, as the "desired conditions" would only be achievable by resource extractive activities. But since desired conditions must be maintained through repeated management/manipulation the management paradigm conflicts with natural processes**—**the real drivers of the ecosystem. McClelland (undated) criticizes the aim to achieve desired conditions by the use of mitigation measures calling for retention of specific numbers of certain habitat structures:

> 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.).

(Emphases added.) Further discussion of desired future dynamics is found in FOB/AWR DEIS comments.

Churchill, 2011 points out:

> Over time, stand development processes and biophysical variation, along with low and mixed-severity disturbances, **break up these large patches into a finer quilt of patch**

> **types. These new patterns then constrain future fires**. Landscape pattern is thus generated from a blend of finer scale, feedback loops of vegetation and disturbance and broad scale events that are driven by extreme climatic events.

(Emphasis added.) Churchill describes above the ongoing natural processes that will alleviate the "continuous" "dense" forest "problems" alleged in the EIS—without expensive and ecologically risky logging and road building. Since no proper spatial analysis of the landscape pattern's departure has been completed, the EIS has no scientifically defensible logging solution.

And given that BNF timber sale NEPA documents repeat this same mantra of overly continuous and overstocked forest everywhere—and have been doing so for over a decade—once again we ask: Why is there no reference in this EIS to studies of showing the "uncharacteristic" effects of recent fires on the BNF?

The EIS is in violation of NEPA, NFMA, the ESA and the APA because the project will adversely affect biological diversity, is not following the best available since and the purpose and need will not work.

Remedy: Before preparing a Supplemental EIS for this project, complete the long-delayed forest plan revision for the BNF, and in the process take a long, hard look at the cumulative forestwide impacts of fire suppression.

FOREST "VEGETATION" AND "RESILIENCE"

This issue was discussed in FOB/AWR DEIS comments at pp. 57-60. We incorporate those comments into this objection. More discussion follows.

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.

Frissell and Bayles (1996) ask:

> From the point of view of many aquatic species, the range of natural variability at any one site would doubtless include local extirpation. At the scale of a large river basin,

management could remain well within such natural extremes and we would still face severe degradation of natural resource and possible extinction of species (Rhodes et al., 1994). The missing element in this concept is the landscape-scale *pattern* of occurrence of extreme conditions, and patterns over space and time of recovery from such stressed states. How long did ecosystems spend in extreme states vs. intermediate or mean states? Were extremes chronologically correlated among adjacent basins, or did asynchrony of landscape disturbances provide for large-scale refugia for persistence and recolonization of native species? These are critical questions that are not well addressed under the concept of range of natural variability as it has been framed to date by managers.

…The concept of range of natural variability also suffers from its failure to provide defensible criteria about **which factors ranges should be measured**. Proponents of the concept assume that a finite set of variables can be used to define the range of ecosystem behaviors, when ecological science strongly indicates many diverse factors can control and limit biota and natural resource productivity, often in complex, interacting, surprising, and species-specific and time-variant ways. **Any simple index for measuring the range of variation will likely exclude some physical and biotic dimensions important for the maintenance of ecological integrity and native species diversity.** (Emphasis added.)

Wales, et al. 2007 modeled various potential outcomes of fire and fuel management scenarios on the structure of forested habitats in northeast Oregon. They projected that the **natural disturbance scenario resulted in the highest amounts of all types of medium and large tree forests combined** and best emulated the Natural Range of Variability for medium and large tree forests by potential vegetation type after several decades. Restoring the natural disturbances regimes and processes is the key to restoring forest structure and functionality similar to historical conditions.

The EIS does not adequately justify the proposed vegetation treatments, neither for "increasing forest resilience" as a reaction to fire suppression nor considering the impacts of fuel reduction as part of the ongoing fire suppression program.

The EIS does not view ecological damage through the same lens as it does for vegetative conditions. Here is a list other factors that have been heavily influenced by management, and their historical range of variability (HRV):

FACTOR	HRV
Road density	zero
Noxious weed occurrence	zero
Miles of long-term stream channel degradation ("press" disturbance)	zero
Culverts	zero
Human-induced detrimental soil conditions	<1%
Maximum daily decibel level of motorized devices	zero
Acres of significantly below HRV snag levels for many decades	zero
Roadless extent	100%
Extent of veg. communities affected by exotic grazers (livestock)	zero
Extent of veg. communities affected by fire suppression	zero

The FS's strategy to "move towards historical patterns and vegetative structure across the Project Area") essentially focuses upon achieving static conditions, instead of fostering the natural dynamics of the ecosystem.

Noss 2001, believes "If the thoughtfully identified critical components and **processes of an ecosystem are sustained**, there is a high probability that the ecosystem as a whole is sustained." (Emphasis added.) Noss 2001 describes basic ecosystem components:

> Ecosystems have **three basic components: composition, structure, and function**. Together, they define biodiversity and ecological integrity and provide the foundation on which standards for a sustainable human relationship with the earth might be crafted.

(Emphasis added.) Noss 2001 goes on to define those basic components:

> **Composition** includes the kinds of species present in an ecosystem and their relative abundances, as well as the composition of plant associations, floras and faunas, and habitats at broader scales. We might describe the composition of a forest, from individual stands to watersheds and regions.
>
> **Structure** is the architecture of the forest, which includes the vertical layering and shape of vegetation and its horizontal patchiness at several scales, from within stands (e.g., treefall gaps) to landscape patterns at coarser scales. Structure also includes the presence and abundance of such distinct structural elements as snags (standing dead trees) and downed logs in various size and decay classes.
>
> **Function** refers to the **ecological processes** that characterize the ecosystem. These processes are both biotic and abiotic, and include decomposition, nutrient cycling, disturbance, succession, seed dispersal, herbivory, predation, parasitism, pollination, and many others. Evolutionary processes, including mutation, gene flow, and natural selection, are also in the functional category.

(Emphasis added.) Hutto, 1995 also addresses natural processes, referring specifically to fire:

> 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.) Noss and Cooperrider (1994) state:

> **Considering process is fundamental to biodiversity conservation because process determines pattern**. Six interrelated categories of ecological processes that biologists and managers must understand in order to effectively conserve biodiversity are (1) energy flows, (2) nutrient cycles, (3) hydrologic cycles, (4) disturbance regimes, (5) equilibrium processes, and (6) feedback effects.

(Emphasis added.) The Environmental Protection Agency (1999) recognizes the primacy of natural processes: (E)cological processes such as natural disturbance, hydrology, nutrient cycling, biotic interactions, population dynamics, and evolution determine the species composition, habitat structure, and ecological health of every site and landscape. **Only through the conservation of ecological processes will it be possible to (1) represent all native ecosystems within the landscape and (2) maintain complete, unfragmented environmental gradients among ecosystems.**

(Emphasis added.) Forest Service researcher Everett (1994) states:

> To prevent loss of future options we need to simultaneously **reestablish ecosystem processes and disturbance effects that create and maintain desired sustainable ecosystems**, while conserving genetic, species, community, and landscape diversity and long-term site productivity.
>
> …We must address **restoration of ecosystem processes and disturbance effects** that create sustainable forests before we can speak to the restoration of stressed sites; otherwise, we will forever treat the symptom and not the problem. … **One of the most significant management impacts on the sustainability of forest ecosystems has been the disruption of ecosystem processes** through actions such as fire suppression (Mutch and others 1993), dewatering of streams for irrigation (Wissmar and others 1993), truncation of stand succession by timber harvest (Walstad 1988), and maintaining numbers of desired wildlife species such as elk in excess of historical levels (Irwin and others 1993). Several ecosystem processes are in an altered state because we have interrupted the cycling of biomass through fire suppression or have created different cycling processes through resource extraction (timber harvest, grazing, fish harvest).

(Emphasis added.) Hessburg and Agee 2003 also emphasize the primacy of natural processes for management purposes:

> Ecosystem management planning must acknowledge **the central importance of natural processes and pattern–process interactions, the dynamic nature of ecological systems** (Attiwill, 1994), the inevitability of uncertainty and variability (Lertzman and Fall, 1998) and cumulative effects (Committee of Scientists, 1999; Dunne et al., 2001).

(Emphasis added.) Further, Collins and Stephens (2007) suggest direction to implement restoring the process of fire by educating the public:

> (W)hat may be more important than restoring structure is restoring the process of fire (Stephenson 1999). By allowing fire to resume its natural role in limiting density and reducing surface fuels, competition for growing space would be reduced, along with potential severity in subsequent fires (Fule and Laughlin 2007). As a result, we contend that the forests in Illilouette and Sugarloaf are becoming more resistant to ecosystem perturbations (e.g. insects, disease, drought). This resistance could be important in allowing these forests to cope with projected changes in climate. … Although it is not ubiquitously applicable, (wildland fire use) could potentially be a cost-effective and ecologically sound tool for "treating" large areas of forested land. Decisions to continue fire suppression are politically safe in the short term, but ecologically detrimental over the long term. Each time the decision to suppress is made, the risk of a fire escaping and causing damage (social and

economic) is essentially deferred to the future. Allowing more natural fires to burn under certain conditions will probably mitigate these risks. If the public is encouraged to recognize this and to become more tolerant of the direct, near-term consequences (i.e. smoke production, limited access) managers will be able to more effectively use fire as a tool for restoring forests over the long term.

Typically, attempts to control or resist the natural process of fire have been a contributor to deviations from DCs. The EIS analyses skew toward considering fire as well as native insects and other natural pathogens as threats to the ecosystem rather than rejuvenating natural processes. It seems to need the obsolete viewpoint in order to justify and prioritize the proposed vegetation manipulations, tacitly for replacing natural processes with "treatments" and "prescriptions." However the scientific support for assuming that ecosystems can be restored or continuously maintained by such manipulative actions is entirely lacking.

Biologist Roger Payne has the following to say about the same kind of hubris represented by the FS's view that it can manipulate and control its way to a restored forest by more intensive management:

> One often hears that because humanity's impact has become so great, the rest of life on this planet now relies on us for its succession and that we are going to have to get used to managing natural systems in the future—the idea being that since we now threaten everything on earth we must take responsibility for holding the fate of everything in our hands. This bespeaks a form of unreality that takes my breath away… The cost of just finding out enough about the environment to become proper stewards of it—to say nothing of the costs of acting in such a way as to ameliorate serious problems we already understand, as well as problems about which we haven't a clue—is utterly prohibitive. And the fact that monitoring must proceed indefinitely means that on economic grounds alone the only possible way to proceed is to face the fact that by far the cheapest means of continuing life on earth as we know it is to **curb ourselves instead of trying to take on the proper management of the ecosystems we have so entirely disrupted.**

(Payne 1995, emphasis added.) Not accompanying all the EIS's hypothetical promises of improving nature are any acknowledgments of the potential or degree of unintended side effects that pose risk or present likely damage to some other composition, structure, or function of the ecosystem. Regarding this characteristic agency hubris, Frissell and Bayles (1996) comment:

> 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.

The Forest Service has recognized natural processes are vital for ecological integrity. USDA Forest Service, 2009a incorporates "ecological integrity" into its concept of "forest health" thus:

> "(E)cological integrity": Angermeier and Karr (1994), and Karr (1991) define this as: The capacity to support and maintain a balanced, integrated, and adaptive biological system having the full range of elements and processes expected in a region's natural habitat. "…the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region." That is, an ecosystem is said to have high integrity if its full complement of native species is present in normal distributions and abundances, and if normal dynamic functions are in place and working properly. In systems with integrity, the "…capacity for self-repair when perturbed is preserved, and minimal external support for management is needed."

That last sentence provides a measure of resilience that the EIS doesn't acknowledge. In their conclusion, Hessburg and Agee, 2003 state "Desired future conditions will only be realized by planning for and creating the desired ecosystem dynamics represented by ranges of conditions, set initially in strategic locations with minimal risks to species and processes."
NEPA regulations at 40 CFR § 1502.24 state, under **Methodology and scientific accuracy**: "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." The EIS violates NEPA in terms of methodology, scientific accuracy, and scientific integrity.

SCIENTIFIC INTEGRITY

This issue was discussed in much detail in FOB/AWR DEIS comments at pp. 60-67. We incorporate those comments into this objection.

SOIL PRODUCTIVITY

This issue was discussed in FOB/AWR DEIS comments at pp. 67-79. We incorporate those comments into this objection.

ROADLESS EXPANSE

This issue was discussed in FOB/AWR DEIS comments at pp. 79-80 and in FOB/AWR scoping comments at p. 3, 5. We incorporate those comments into this objection.

PROPOSED FOREST PLAN AMENDMENTS

This issue was discussed in FOB/AWR DEIS comments at pp. 80-81 and in FOB/AWR scoping comments at p. 5. We incorporate those comments into this objection, and add the following.

The ROD states, "Implementation of the Selected Alternative, as modified, will require a project-specific forest plan amendment to the 1987 Bitterroot Forest Plan to suspend certain Forest Plan standards relating to elk habitat effectiveness and thermal cover."

Amending the BNF Forest Plan to sidestep the winter range thermal cover and elk habitat effectiveness standards has become routine for the FS. Since project proposals that invoke these standards result in amending away the standards for the alleged reasons that they no longer need apply, the agency must conduct an analysis of removing these standards completely from the Forest Plan.

The BNF's Five Year Review recommended, "Update Guidelines and change Standards to reflect most recent works of Hillis, Christensen, and Lyons, and tie to ecosystem management, including the concepts of corridors, fragmentation, and patch size and distribution. Forest Plan Goals and Objectives are needed." And "Incorporate elk vulnerability analysis (Hillis) into the Forest Plan." Despite these issues identified a quarter-century ago, the BNF has not undertaken forestwide forest plan revision, including public involvement and involvement of the independent scientific community.

The FEIS states, "Recent research, however has questioned the necessity of thermal cover for survival of wintering elk (Cook et al. 1998)." Twenty-one year old research is "recent"? And furthermore, in their research Cook et al. 1998 used tame elk, confined in 8 x 25 meter pens which is far from natural environmental conditions. Elk use thermal cover at much larger landscape scales than Cook et al. 1998, and involves a multitude of habitat components. And the elk were calves and yearlings—not adults. Finally, those researchers fed the elk daily, thus ignoring the influences of foraging costs on the selection of forage and cover in wild elk.

The FEIS doesn't explain the limitations of Cook et al. 1998 study nor explain why, despite its limitations, the research still applies to wild elk in the Bitterroot National Forest. The FEIS's reliance on Cook et al. 1998 to amend the Forest Plan cannot pass scrutiny of independent scientific peer review.

The Forest Plan FEIS defines thermal cover as: "Cover used by animals to ameliorate chilling effects of weather; for elk, a stand of coniferous trees 40 feet or taller with an average crown closure of 70 percent or more."

The FEIS states, "Whether thermal cover is necessary for individual elk survival or elk population viability seems open to question. As discussed in Chapter 3 of the DEIS, large amounts of winter range thermal cover do not seem necessary to support the State's elk population goals on the Bitterroot National Forest." Yet even the FEIS admits that "the combination of reduced cover and increased human access in some parts of the project area could displace more elk onto adjacent private land during some parts of the year." So the FEIS fails to support with best available science the premise that thermal cover is irrelevant for supporting elk on the BNF landscape. It appears the Forest Service is content to push elk onto private land, regardless of the cumulative effects the FEIS doesn't even analyze.

Regarding the amendment of the Elk Habitat Effectiveness (EHE) standard, the FEIS cites Hillis et al., 1991. This is cited in the FEIS as:

> Hillis, J.M., et al. 1991. Defining elk security. Pp. 38-43 **in Christensen, A.G., L.J. Lyon**, and T.N. Lonner, comps. Proceedings Elk Vulnerability Symp., Montana State University, Bozeman, MT, April 10-12, 1991. 330 pgs. [0242] (Emphasis added.)

Currently, best available science still says thermal cover is important, including Lyon et al., 1985 of which the Forest Plan requires consideration, as well as Christensen et al., 1993 which states:

> In recent years, our understanding of animal physiology on winter ranges has modified this view. Forage is important, but in severe weather many animals substitute an energy-conservation strategy for forage intake. Thus, management of winter range to improve thermal cover and prevent harassment may be as important as anything done to change forage quantity or quality.

Christensen, et al., 1993[6] is a Region One publication on elk habitat effectiveness which we cited in our DEIS comments. The FS ignored this comment.

The real purpose of the Amendments is to justify and increase the level of logging, beyond what the Forest Plan allows to protect other resources, including old growth. The Forest Plan FEIS states, "At least 10 percent of lands assigned to this (winter range) prescription must be old growth." And we know the project includes logging within old-growth stands, which results in lowering or totally removing the thermal and hiding cover value.

USDA Forest Service, 1987a recognizes: "Often excellent thermal cover is associated with old growth stands and is important to many birds and mammals in winter and summer."

The DEIS fails to analyze the cumulative effects of this FS management intent, and fails to document an analysis consistent with the 2012 Planning Rule regarding amendments.

The BNF has repeatedly proposed such amendments in the context of projects, which raises issues of forestwide management—not specific only to this project area. The lawful context for making such amendments is forestwide, not in project-specific planning.

The highly adverse security conditions for elk that exist now, which would be made worse with the action alternatives, reveal the proposed Amendments to be arbitrary and capricious.

The amendment process is not in conformance with requirements as explained in the Federal Register Vol. 81, No. 241 at pp. 90723-90739. The FS did not "use the best available scientific information to inform the amendment process." Our DEIS comments stated: "There is no Assessment identifying best available science. If the FS has identified best available science on the elk/MIS issues (including those species on the Forest the MIS are said to represent) then please disclose your list." This comment was ignored.

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[6] **Christensen, Alan G.; L. Jack Lyon** and James W. Unsworth, 1993. Elk Management in the Northern Region: Considerations in Forest Plan Updates or Revisions. United States Department of Agriculture, Forest Service Intermountain Research Station, General Technical Report INT-303 November 1993.

Other requirements explained in the Federal Register the FS failed to comply with include:

- (T)he responsible official is required to apply those substantive requirements that are directly related to the plan direction being added, modified, or removed by the amendment.
- The determination of which requirements are directly related to an amendment must be based on the purpose and effects (beneficial or adverse) of the changes being proposed, and informed by the best available scientific information, scoping, effects analysis, monitoring data or other rationale.
- The decision document for an amendment must include a rationale for the responsible official's determination of the scope and scale of the amendment, which requirements within §§ 219.8 through 219.11 are directly related, and how they were applied.

The explanation of the purpose of the amendments is flawed. Whereas the FEIS states the proposed amendments are "**likely** related to the Forest Planning consideration of habitat conditions for wildlife commonly used and enjoyed by the public at § CFR 219.10(a)(5)" (emphasis added) the amendment will provide no benefit to elk or other wildlife. he choice of 2012 Planning Rule section is flawed.

The purpose of the amendments, as stated in the FEIS, is "to allow six third order drainages in the analysis area to not meet EHE standards" and "to apply the best available science to the Gold Butterfly project's thermal cover design and adapt to changes that have occurred on the landscape…"

To merely "allow" deviation of the Forest Plan is not adequate justification, nor is use of vague language to describe purpose. This speaks volumes of the FS's unstated but actual purpose, which is to simply remove Forest Plan barriers to be able increase timber production from public land.

The FS has not properly identified a need to amend the Forest Plan, which violates the 2012 NFMA Planning Rule at 36 CFR § 219.13 219.16, and 219.17. The EIS also fails to properly document how the best available scientific information was used to in the preparation of the amendments, in violation of the Planning Rule at 36 CFR § 219.14.

Remedy: Redesign the project to no Forest Plan Amendments are needed.

WEEDS

This issue was discussed in FOB/AWR DEIS comments at p. 81. We incorporate those comments into this objection. More discussion follows.

Despite the legacy of heavy-handed management and other anthropogenic activities—actions known to cause the spread of noxious weeds and other invasive plants—the EIS fails to disclose the amount of noxious weed infestation in the project area. This is consistent with the EIS's overall failure to analyze cumulative effects of noxious weeds and the factors contributing to their spread in the project area.

Unfortunately, beyond recognition of the problems and its causes, a limitation of the Forest Plan is that there are no Standards or Forest Plan monitoring items related to noxious weeds. This was recognized during the Five Year Review in the mid-1990s. To this day, the behavior of the BNF still seems to be constant denial. The BNF seems to believe that it can disturb all the land it wants and still deal with the consequential noxious weed invasion with later control actions. The EIS fails to cite any science or BNF monitoring data that demonstrates the Forest Service can significantly reduce noxious weed occurrence.

The Forest Plan requires that "The primary means of preventing, containing, or controlling noxious weeds will be through vegetative management practices and by the use of biological agents such as insects, rusts, molds and other parasites on host plants. However, herbicides may be utilized to provide short term protection on specific sites, after appropriate environmental analysis." The EIS does not demonstrate compliance with that Standard. The agency is unable to prevent, contain, or control noxious weeds without the use of herbicides as routine practice. The problem only gets worse with each large-scale soil disturbance, such as what is proposed for the Gold Butterfly project.

The EIS does not disclose the degree to which 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. The BNF's noxious weed treatment program is mitigation for management activities which exacerbate the spread of noxious weeds. The EIS fails to disclose the effectiveness of this mitigation.

Again, the agency had no response showing it can competently get a handle on noxious weed infestations its management actions have caused.

Noxious weeds are the proverbial Pandora's Box loosed on the forest ecosystem—no amount of herbicide use reverses their spread for long. The financial costs of noxious weeds are another part of this elephant in the room. The agency does not account for the economic impacts of increased weed treatments due to projects such as this one, nor of the loss of ecosystem services attributed to noxious weeds being cultivated by project activities.

The impacts of noxious weeds are exacerbated by every action that disturbs soil or otherwise upsets the balance of native vegetation. Weed spread from management activities such as logging and burning and use of mechanized vehicles or equipment are a constant symptom of resource extraction management.

Remedy: Select the No-Action alternative. Alternately, prepare a Supplemental EIS that corrects the errors noted, including correcting the noted errors of analysis (including cumulative effects) and failure to use best available science.

ECONOMICS

FOB/AWR comments on the DEIS mentioned the lack of economic analysis (p. 80). Economics was also raised in the context of long-term road maintenance (p. 20), the costs of following up

consistent with the proposed management regime (p. 58), in context of the Willow Creek road maintenance (p. 81), and in other regards (including p. 82). As was the case with other issues, several comments were largely ignored. We incorporate those comments into this objection.

SCENERY

This issue was discussed in FOB/AWR DEIS comments at pp. 82-83. We incorporate those comments into this objection.

MONITORING

This issue was raised in FOB/AWR scoping comments at pp. 3-4. We incorporate those comments into this objection.

ALTERNATIVES

This issue of appropriate inclusion of and consideration of a reasonable alternative to the Forest Service's proposed action was raised in: FOB/AWR July 30, 2018 comments on the DEIS at pp. 1-3, 11, 18, 19, 24, 58; a November 29, 2017 letter from AWR regarding the Alternative Workshop; a November 30, 2017 letter from WildEarth Guardians regarding the Alternative Workshop; an undated comment by Jeff Lonn regarding the Alternatives Workshop; the December 4, 2017 comments of Larry Campbell regarding Alternative Development; the undated comments of Michele Dieterich regarding the Alternatives Workshop. We incorporate those comments into this objection, and add the following discussion.

The only substantive changes to Alternative 2, purported to be responsive to public comments on the DEIS in regards to old growth, were made simply as an attempt to comply with the clear mandate of the Healthy Forest Restoration Act to "maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to the pre-fire suppression old growth conditions characteristic of the forest type, taking into account the contribution of the stand to landscape fire adaptation and watershed health, and retaining the large trees contributing to old growth structure." That the BNF project team didn't even know such a mandates existed until after the DEIS was published is reflected in the Response to Comments (FEIS C-45) where an editing error resulted in text showing someone in the agency asking Interdisciplinary Team Leader Jeff Shearer about a public comment citing the above HFRA requirement, "jeff is this (true) or taken out of context?"

In choosing to develop this project under the HFRA, the Forest Service thus limited the range of alternatives to its proposed action and one other to be developed collaboratively. But the Forest Service failed to make a genuine attempt at formulating an alternative to their proposed action which reflected a consensus among public participants attending the Alternative Workshop, or even one that accurately responded to significant issues or reflected any of the strong sentiment so expressed. It appears the agency was merely interested in perfunctorily checking the box on Healthy Forest Restoration Act "collaboration" requirements with the intent of ignoring the results and moving forward with their proposed action which eventually became selected Alternative 2.

By arbitrarily narrowed the range of issues the agency used to drive alternatives the Forest Service could ignore the strong sentiment expressed against road construction. It wasn't even properly reflected in Alternative 3, purportedly designed to include no new road construction. This happened because the FS arbitrarily pretended the road construction on presently recovered road templates ("undetermined" roads) featured in both action alternatives is not road construction, even though those activities result in practically the same adverse impacts of new road construction. Furthermore, Alternative 3 failed to minimize impacts of roads and downsize the road network to a level that would be fully affordable to maintain on a timely basis—a sentiment expressed very early and repeatedly at the scoping phase, at the Open House, and during the Alternatives Workshop.

The failure to include an action alternative with no Forest Plan Amendments means the FS has not analyzed a sufficiently wide range of alternatives. The FS has insufficient justification, based upon analysis, that it cannot manage the Forest without the two amendments.

The Forest Service thus failed to respond to highly significant issues in the design of DEIS alternatives, in violation of NEPA. It also failed to comply with HFRA alternative requirements regarding old growth and collaboration.

VIOLATION OF HEALTHY FOREST RESTORATION ACT (HFRA)

The HFRA requires the agency to fully develop an alternative to their proposed action if interested segments of the public express interest in developing one. Objectors' comments at every stage of the development of the Gold Butterfly project revealed keen public interest, expressed the desire for the agency to manage with appropriate actions, and suggested features of the project, alternatives to the proposal, and/or changes to the agency proposal.

The HFRA further requires the agency to design this aforementioned alternative in the context of collaboration. What we got, however, was the Forest Service holding an Alternatives Workshop and considering that (and the rest of the routine public involvement steps) as all the collaboration that was needed to conform to the HFRA.

For collaborative groups to function properly, it takes time. A lot of time. Meetings—for weeks, months, sometimes years. This is because it often takes so long for people with varying and sometimes conflicting interests to build up the trust and working relationships it takes to find agreement on critical issues affecting shared public land and the precious things found there.

In this case, the Forest Service cannot point to documentation of the development of a collaborative process, because there was none.

Even the Bitterroot Restoration Committee has filed an objection to the project, because the FS did not respond to issues they repeatedly expressed concerning wildlife, habitat, old growth, and road-related sediment.

If what the FS did with Gold Butterfly can be called collaboration, then anything can be called collaboration. That's not how the HFRA reads, however.

Objectors strongly criticized many features of Alternative 3 as not responsive to clearly expressed concerns. None of us liked Alternative 3 as specified in the DEIS, and apparently neither does anyone else.

Also, as discussed in the Old Growth section of this Objection, the elements of the project which degrade old growth are in violation of the HFRA.

Remedy: Withdraw the draft ROD and prepare a Supplemental EIS after a legitimate collaboration concludes. If the public sentiment is such that collaboration is not possible, the FS should take the hint and scrap this giant, controversial idea called Gold Butterfly, or develop the proposal outside the context of the HFRA.

Submitted respectfully,

/S/

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