

Comments Related to the Gold Butterfly Draft Supplemental Environmental Impact Statement (DSEIS)

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Introduction

Previous comments were submitted on this project's (Gold Butterfly) scoping (July 2017), Draft EIS (July 2018), and Objection to the Final EIS (July 2019). Scoping comments, Draft EIS, Objections to the Final EIA, and comments to the Draft SEIS submitted by Friends of the Bitterroot (FOB), Alliance for the Wild Rockies (AWR), Wild Earth Guardians (WEG), Gail and Stephen Goheen, Larry Campbell, Jeff Lonn, Van Keele, Michele Dieterich, and Gary Milner are incorporated herein and must be considered a portion of this comment document.

Conclusions based upon the most recent scientific research, disagree with claims in the Gold Butterfly DSEIS of June 2021. Furthermore, the DSEIS, along with much of the other Gold Butterfly documentation, misleads the public about the intent of the Gold Butterfly project.

A meticulous reading of the Gold Butterfly documentation reveals that the listed purposes—improve landscape resilience, reduce chronic sediment, and restore/improve key habitat—are assigned minimal value; the principal objective of this project is the short-term production of the largest possible amount of marketable timber.

The Agency, with encouragement and support from the timber industry, is misusing science, transforming research into propaganda and disinformation, and attempting to portray logging/thinning as not only benign, but of assistance to the environment. Destroying wild fish runs, converting forests into tree farms, and pillaging the resources of future generations are advertised as giving mother nature a helping hand, allegedly a virtuous and honorable mission.

The following comments address the Gold Butterfly Draft SEIS proposal for a site-specific Forest Plan amendment to old-growth standards. The principal **reasons for opposition are bold** and requests are underlined.

Summary as Stated in the Draft SEIS

The Bitterroot National Forest proposes a project-specific amendment to the 1987 Bitterroot Forest Plan for direction regarding old growth vegetation for the Gold Butterfly Project. The area affected by the proposal is the Gold Butterfly Project area. This action is needed to use the best available scientific information as presented in Green et al. (1992 errata 2011) for the Gold Butterfly Project.

Green et al. is the Northern Region's best available scientific information to identify old growth because it contains measurable criteria to consistently define old growth based on a national definition that old growth forests are distinguished by old trees and related structural attributes. The old growth definitions are specific to forest type and habitat type group. Key attributes include age, numbers and diameter of the old tree component within the stand and stand density. Minimum thresholds have been established for these attributes and were based on plot data from the Northern Region stand exam inventory. For western Montana Forests which includes the Bitterroot Forest, stand exam plots were screened for those containing large trees over 100 years of age among other criteria, and selected for further analysis resulting in 28,284 plots analyzed to inform what old growth characteristics consist of in western Montana (Green et al., 1992 errata 2011).

The Gold Butterfly Project area encompasses 55,147 acres on the eastside of the Bitterroot National Forest. The project area is primarily on lands administered by the Bitterroot National Forest on the Stevensville Ranger District. The southern end of the project, in the St. Clair Creek drainage, is on the Darby Ranger District but is accessed through the Willow Creek road system on the Stevensville Ranger District, and thus the project is being administered by the latter. (DSEIS at i)

The Agency Uses the Same Purpose and Need for Decades Without Scientific Justification

1. The Draft SEIS describes the Purpose and Need for Action. (DSEIS at 1)
 - (1) improve landscape resilience to disturbances (such as insects, diseases, and fire) by modifying forest structure and composition, and fuels,
 - (2) provide timber products and related jobs,
 - (3) reduce chronic sediment sources in the Willow Creek watershed to improve water quality and bull trout habitat in the long-term, and
 - (4) restore or improve key habitats such as meadows, aspen, and whitebark pine.

The arbitrariness of the Purpose and Need (P&N) assignment by the FS was addressed in previous comments (Scoping, DEIS, and EIS). The P&N is always molded by the Agency to, above all else, support the production of trees for the timber industry. This time is no different— (1) protect trees from natural disturbance and (2) provide timber products. Points (3) and (4) are secondary and always dependent upon future funding. If the ecological systems of the forest were of primary importance, the BNF would fund (3) and (4) BEFORE implementing (1) and (2).

Regulations “allow” the Agency to define the P&N without restriction. However, the public has a right to know and understand the underlying reasoning, especially if motivated by politics rather than science.

Using recent scientific research, please justify the use of the same or similar Purpose and Need by the BNF for more than two decades.

The Forest Service Failed to Rigorously Evaluate Reasonable Alternatives as Required by NEPA (40 CFR 1502.14)

2. The Draft SEIS states that “At the time of publication of this draft supplemental environmental impact statement, no other alternatives have been considered.” Draft SEIS at 9)

The failure to amend the Forest Plan (1987) and use Green et al. for more than 30 years is arbitrary and capricious. Deficiencies in Green et al. have been exposed, including a lack of peer review, new field work, estimates for the range of variation in old growth, or criteria for the evaluation of old-growth quality. (Schultz, Comments on Draft Environmental Impact Assessment, Amendment 16 to Flathead Forest Plan., 1994) (Yanisheysky, 1994)

Green et al. includes only three quantifiable per acre measurements: age, size, and basal area. If the FS wanted to accurately assess old growth, using Green et al. as a basis, the BNF might have developed additional benchmarks as an alternative.

For example, using Green et al. per-acre averages in old-growth ponderosa/Douglas fir stands, the Agency could have increased the trees to 15, specified 6 snags, included a minimum for Coarse Woody Debris (CWD), established a minimum for broken-topped/hollow trees, etc. Such an alternative would be more scientifically sound than the single one offered in the SEIS.

Please explain why the most up-to-date research (more recent than Green et al.) related to old-growth ecosystems was not studied and considered. The fact that it was not is inexcusable.

Please develop another alternative which considers ALL the data from Green et al. and includes more quantifiable criteria than either Green et al. or the current Forest Plan.

A Deliberate Agency Focus on Old-Growth as “Just Trees”

3. The Draft SEIS declares that “It is important to note that the Gold Butterfly Project analyzes various treatments, including commercial harvest, within stands that qualify as old growth. The withdrawn Record of Decision specified that all treatment units containing old growth would retain their old growth status under the selected alternative. This is the intended management in old growth stands in moving forward with this project.” (DSEIS at i)

Those statements are based upon two debatable assumptions, that old growth is nothing more than trees and that the age, size, and number of trees are the sole determinant of old-growth areas. Recent research clearly indicates that forests, including old growth, are a complex combination of ecosystems about which there is little knowledge or understanding. Therefore, no matter whether the BNF uses the current Forest Plan descriptions of old growth or the Green et al (1992) definition, the Agency will continue to categorize old growth as little more than trees.

Using the most recent science, please justify why the BNF continues to focus on the areas of old forest or for that matter, the entire forest, as simply trees.

4. The Draft SEIS states that “The Forest Plan criteria for old growth is not easily measured and therefore is inappropriate as a monitoring tool; the Bitterroot has no way of knowing how much forest would qualify as old growth using the 1987 Forest Plan criteria. Conversely, the Bitterroot has been using Green et al. criteria to inventory and monitor old growth since this best science became available. Monitoring informs us whether we are meeting Forest Plan goals and desired conditions.” (DSEIS at ii)

Again, this only emphasizes the FS belief that it can classify areas of the forest as old growth by counting and/or monitoring tree growth (size and age) plus numbers. Monitoring may inform whether the BNF is meeting Forest Plan goals, but those targets are based upon the outdated notion that the percentages of a forest area defined as old growth should be static. How that percentage was determined is arbitrary, unknown, and therefore questionable.

Please explain the process by which the Agency (BNF and Region 1) determined that Green et al. continues to be the best available science when more recent research indicates otherwise.

Please explain how old growth percentages were established. Justify why those percentages should be followed using recent scientific research.

5. The Draft SEIS declares that “The Bitterroot Forest Plan (p. VI-24) defines old growth as: A forest stand with 15 trees per acre greater than 20 inches dbh (6 inches in lodgepole pine) and canopy closure that is 75 percent of site potential. The stand is uneven-age or multistoried. There should be 1.5 snags per acre greater than 6 inches dbh; 0.5 snags per acre greater than 20 inches dbh; and 25 tons per acre of down material greater than 6 inches diameter. Heart rot and broken tops are common, and mosses and lichens are present.” (DSEIS at 2)

A comparison of the Plan definition to that of Green et al. gives the impression that the reason the BNF is set on adapting Green et al. (1992) as the standard because Green et al. allows the removal of more trees per acre than the current Forest Plan.

For example, in the ponderosa pine, Douglas-fir, and western larch forest type, the Forest Plan states that a forest stand with 15 trees per acre greater than 20" DBH may be old growth. Green, et al. (1992) states that 8 trees per acre 21" DBH may be old growth. (Green et al. at 23, 24)

The Draft SEIS declares: "The withdrawn Record of Decision specified that all treatment units containing old growth would retain their old growth status under the selected alternative. This is the intended management in old growth stands in moving forward with this project." (DSEIS at i)

Because the DSEIS declares that "... all treatment units containing old growth would retain their old growth status..." after treatment, it is logically possible for a stand to "retain old-growth status" with only 8 (21") trees per acre instead of the 15 (21") trees required by the current Forest Plan.

Another example is, in the lodgepole pine forest type, the Plan proclaims that a forest stand with 15 trees per acre greater than 6" DBH may be old growth. Green, et al. (1992) states that 10 trees per acre 13" DBH (moderately cool to cool, dry to wet environments - Green et al. at 25) or 30 trees per acre 9" DBH (cold, moderately dry environments - Green et al. at 29) may be old growth.

Because the Draft SEIS declares that "... all treatment units containing old growth would retain their old growth status..." after treatment, it is logically possible for a stand to "retain old-growth status" with only 10 (13") trees per acre instead of the 15 (6") trees required by the current Forest Plan.

Not only does Green allow for the removal of more trees per acre in this scenario, but to qualify for old-growth status, lodgepole pine stands must have larger (13" vs. 6") trees or more (30 vs. 15) trees than required under the current plan. Both of those factors will limit the number of acres (of lodgepole pine) available for old-growth status.

Although the Agency appears to disregard the fact, Green et al. was establishing "minimums," not advocating that old-growth stands should be reduced to that minimum. (Green, et al. at 12)

"... old growth is valuable for a whole host of resource reasons such as habitat for certain animal and plants, for aesthetics, for spiritual reasons, for environmental protection, for research purposes, for production of unique resources such as very large trees. Unusual natural communities, etc., the resource values associated with potential old growth stands need to be considered in making allocations."

"At the same time, there may be some stands with trees so large or so old that they are unique. We should always maintain a good representation of these very old unique and outstanding stands, because they are irreplaceable within human life spans. Remember to value the truly unique and outstanding, wherever it may be."

Many scientists have provided management recommendations for old growth. It is now accepted that all or nearly all old, large trees should be retained. (Hessburg, 2015) (Fiedler, 2007) (Wales, 2006) (Rapp, 2003)

Other than Green et al., no other research is discussed in the Draft SEIS or FEIS. That omission indicates the proposed amendment will be used to cut, rather than preserve, old growth.

For example, the Mud Creek ROD (p. B-22) states: “while Green et al. (1992) and the Forest Plan provide minimum criteria for identifying old growth, that does not mean all stands will be treated and harvested to the minimum criteria numbers.” That wording from the Mud Creek project (which incorporates the Green et al. amendment) indicates that some old-growth stands in the Mud Creek project area will be cut to the Green et al. minimum.

DellaSala and Baker, two respected Ph. Ds, declare that “... the Forest Service proposes controversial measures that are not scientifically founded. The agency omits the vast majority of the scientific literature that supports large-tree protections in regions where large tree populations remain at greatly reduced numbers ...” (DellaSala, 2020)

Please provide recent scientific research that supports the Green et al. lower number of old, large trees per acre qualifying as old growth.

Please confirm that if the number of old-growth trees in a stand exceeds the Green et al. minimums, they will not be removed.

6. The Draft SEIS claims that “The 1987 [BNF] Forest-wide standard regarding old growth contains elements that are not easily measurable (e.g., canopy closure) ...” (DSEIS at 3)

The practice of science is not supposed to be “easy.” It is expected to be rigorous. Measuring/analysis is not impossible and is therefore not an acceptable reason.

And an internet search reveals several ways to measure canopy closure.¹

Please explain why measuring should be “easy” as opposed to rigorous.

7. The Draft SEIS states, “... the project-specific amendment improves the method for measuring the amount of old growth in the project area and evaluating project effects, by modifying the criteria used to identify old growth based on better scientific information than was used in 1987 when the Bitterroot Plan was developed.” (DSEIS at 5)

It is curious the Forest Service understands that scientific information improves (becomes more rigorous) over time when it suits Agency objectives, in this case the BNF claim that Green et al. is better science than was available in 1987. However, the FS does not concede that better science, based upon more recent research, is now available. Recent science indicates that forest which are not managed (i.e., no

¹ Ecology Center (2021) Measuring Canopy Closure - <https://www.ecologycenter.us/forest-ecology/measuring-canopy-closure.html>

management activities) appear to be more resilient and sequester more carbon, and that old growth areas are complex ecosystems, not just trees.

Please explain why the FS alleges the belief that newer scientific information is better but, in many instances (e.g., cumulative impacts and global warming), acts as if that is not true.

8. The Draft SEIS includes a table which indicates the percentages of old growth by management area. (DSEIS at 12)

Although confusing, the table shows the Forest Plan old growth standards.

Please explain how and when those percentages were determined and, using recent scientific research, justify the continued validity of those numbers.

9. There is a widely held perception that the Agency downplays the amount (percentage of forested areas) of old-growth ecosystems that once populated the Bitterroot and Sapphire Mountains. There is a sense that, in the Forest Plan (1987), the FS arbitrarily established a miniscule percentage of old growth which “should” be a part of the BNF as opposed to what once existed or ought to exist.

During the late 1800s and early 1900s, timber companies harvested an enormous number of old, large trees from the area of the Bitterroot National Forest. That was only possible because the percentage of old growth in the forest was exponentially larger than what the current Forest Plan deems acceptable. Appendix A contains four historic pictures which clearly show the size and number of the trees that were being harvested during that period.

Using scientific research, please justify the percentage of old growth that the current Forest Plan deems acceptable in the Bitterroot National Forest.

10. The Draft SEIS explains that “The Plan criteria do not specify any minimum age for the large trees used to determine whether a stand qualifies as old growth.” (DSEIS at 11)

If “tree age” is so important, does that mean that every tree “suspected of being old” must be cored for verification? If not, the Agency is admitting that age is not as important as size which makes its argument for adopting Green et al. (1992) suspect and suggests that what is vital to the FS is being allowed to cut more big trees from each acre of an old-growth area.

Using recent research, please justify why “tree age” is important.

11. The Draft SEIS declares that “As the amount of old-growth habitat cannot be accurately measured using forest plan criteria, we use inventories based on Green et al. which indicate that there were approximately 6,714 acres of old growth habitat on Bitterroot

National Forest lands in the third order drainages that are wholly or partially within the Gold Butterfly project area, including all Management Areas (most recent data collection occurred in 2016 and 2017). Many of the third order drainages include areas that are inside and outside of the Gold Butterfly project area.” (DSEIS at 11)

Please provide maps of the 6,714 acres of old-growth habitat associated with this project. The declaration, “Many of the third order drainages include areas that are inside and outside of the Gold Butterfly project area” is confusing and obscures the amount of old growth that actually resides within the project area.

12. Current threats to old growth habitat in the Gold Butterfly area include (DSEIS at 12,13):

- The trend away from the desired future condition is continuing in the warmer, drier habitat types at lower elevations. This includes decreasing ponderosa pine composition, little or no regeneration of ponderosa pine, and increasing stand density as young Douglas-fir or even sub-alpine fir encroach into ponderosa pine stands.
- The risk of losing existing ponderosa pine and/or Douglas-fir old growth habitat stands in the warm and dry broad potential vegetation types to mortality caused by intense competition for moisture making them more susceptible to insects and disease ([Sala and Callaway 2004](#)).
- The risk of losing existing ponderosa pine-dominated old growth stands in the warm and dry broad potential vegetation types to mortality caused by the ongoing mountain pine beetle outbreak.
- The risk of losing existing Douglas-fir and spruce-dominated old growth stands in the cool and moist broad potential types to mortality caused by Douglas-fir dwarf mistletoe and/or bark beetles.
- The risk of losing existing white bark pine-dominated old growth stands in the cold broad potential vegetation type to mortality caused by the ongoing mountain pine beetle outbreak.
- The risk of a severe fire event is high due to large numbers of recently dead and dying trees across the area, and high fuel loadings in some areas. Fuel loadings include fuel amassed over decades of fire suppression. If a wildfire occurred it could result in stand replacing fires in existing old growth or mature stands, which could return stands that are old growth or approaching old growth habitat characteristics to an early seral stage. Within forests, stand-replacement fires usually alter the animal community more dramatically than understory fires ([Smith 2000](#)).
- The threat of losing old growth to stand replacing fires and to insects and disease is supported by recent history on the Bitterroot National Forest and other National Forests in Montana. In the fires of 2000 approximately 33,000 acres of old growth

habitat was lost to stand-replacing fires. In the Middle East Fork area on the Sula Ranger District 56% of the old growth habitat in the area was lost in a five-year period (2000 to 2005) due to the Douglas-fir bark beetle epidemic ([USDA Forest Service 2005](#)). The current mountain pine beetle epidemic has killed upwards of 90% of the lodgepole and ponderosa pines in some areas in western Montana since about 2005.

It is unclear why the above list of threats is included in the Draft SEIS.

Each of the above details references risks to trees, trees the Agency wants to protect until they can be provided to the timber industry. It must be recognized these are the same “threats” to which the entire BNF is subject. It is worth declaring that those references are to an article or research performed before 2006, not exactly the latest science.

The above points are immediately followed by the statement that “Old-growth forest, like all forest conditions, is dynamic, with stands moving into and out of old growth forest conditions and the proportion and distribution of old growth forest across the landscape changing naturally over time.” (DSEIS at 13)

The Agency acknowledges that forest conditions are dynamic but simultaneously insists on doing everything it can to halt forest dynamism at an arbitrarily selected stage of development.

Please explain and justify how the Green et al. amendment will reduce the above risks.

Please explain the difference in management that will occur under Green et al. vs. the current Forest Plan standards.

Please analyze and disclose the effects from the combination of the two amendments, Green et al. and Course Woody Debris (CWD).

Please explain in detail why the Gold Butterfly project area should not be allowed to progress through natural successional stages.

Please provide maps of old growth that was burned during the 2000 to 2005 seasons and provide what methods were used to define those old-growth areas.

Please explain why the most recent science is not used to support Agency reasoning to obstruct natural forest succession.

13. The Draft SEIS declares that “Old growth forest is one component of the shifting mosaic of stand conditions across the Bitterroot National Forest’s ecosystem. The time it takes for a forest stand to develop into old growth forest conditions depends on many local variables, such as forest composition, density, habitat type, and climate. Natural chance events involving forces of nature such as weather, insects, disease, fire, and the actions of humans, such as harvest, also affect the rate of development of old growth forest conditions. Under the natural disturbance regimes of the Bitterroot, old growth forest

can develop through multiple different successional pathways, usually with fire and other disturbances along the way.” (DSEIS at 13)

While acknowledging the natural succession of forests, the BNF remains intent on putting a stop to that progression.

Using scientific research, please justify the reason for making attempts to freeze natural forest succession at an arbitrary point in time.

Forest Service ignores Effects of Management Activities on Wildlife Species and Violates NEPA and NFMA Requirements

Species likely to suffer detrimental effects from management activities in old-growth stands include cutthroat trout, bull trout, grizzly bear, lynx, fisher, elk, multiple migratory bird species, boreal toads, cavity-nesting birds (snag habitat), bats, raptors, red squirrels, wolverine, pine marten, and pileated woodpeckers.

In addition, the Draft SEIS does not acknowledge that whitebark pine is being proposed for listing under the Endangered Species Act (ESA).

The minimum number of old growth trees suggested by Green et al. may be too low for Flammulated Owls, a Montana Species of Concern and a U.S. Forest Service Sensitive Species.

The Montana Field Guide states that "Territories consistently occupied by breeding pairs were those containing the largest portion (more than 75%) of old-growth (200 to 400 years), whereas territories occupied by unpaired males and rarely breeding pairs contained 27% to 68% old-growth." (Montana Field Guide, n.d.) If the Green et al. standards result in more commercial timber harvest than the Forest Plan standards allows, habitat would likely be fragmented and degraded.

Please explain why the Draft SEIS does not include a thorough analysis of management activity impact on wildlife species that currently inhabit the project area.

Please explain why the Draft SEIS includes no reference to consultation with the USFWS regarding whitebark pine.

14. The Draft SEIS states that “This project-specific amendment would not affect the amount of habitat available for species such as pileated woodpeckers or marten that are associated with habitat components that are most common in mature or over-mature forests.” (DSEIS at ii)

The phrase “mature or over-mature forest” is repeated numerous times in the Draft SEIS.² Please explain exactly what that expression means. Is it a reference to trees that are either ready to be cut or should have already been cut for lumber? No matter what

² Draft SEIS at ii, 18, and 20

“mature or over-mature” means, a person could be tempted to relate such a concept to humans. When is a person mature or over-mature? Are humans useful for only a single purpose when they reach maturity? What about “over maturity?” Are people no longer useful? A detailed explanation is required.

15. The Draft SEIS states that “There is no substantial adverse effect of this proposed project-specific amendment and thus no direct relationship between the rule and the amendment based on adverse effects (§ 219.13(b)(5)(ii)(B)). The proposed amendment does not substantially lessen protections for a specific resource or use (§ 219.13(b)(5)(ii)(A)) or have any substantial impacts to a species or substantially lessen protections for a species (36 CFR 219.13(b)(6).” (DSEIS at 5,6)

The assertion that management activities (thinning and logging) of old-growth stands, once the project-specific plan amendment has been adopted, will somehow “Maintain sufficient old growth on suitable timberland to support viable populations of old growth dependent species” or “have any substantial impacts to a species or substantially lessen protections for a species” is magical thinking which has not been supported by on-the-ground monitoring of past, similar projects.³

Please provide on-the-ground monitoring from past, similar BNF projects that supports the assertion that the implementation of Green et al. will “... have any substantial impacts to a species or substantially lessen protections for a species.”

16. The Draft SEIS states that “The 1987 Forest Plan requirement that old growth stands meet a minimum of 40 acres could be detrimental to wildlife species associated with mature or over-mature forests or old forest components because patches of old growth less than 40 acres could be removed and still meet the 1987 Forest Plan standard. Many wildlife species such as pileated woodpeckers and marten are associated with some components of older forests such as large snags or large logs. Removal of these smaller patches of old growth would reduce the number and distribution of these components, which would in turn limit the amount of suitable habitat available for these species.” (DSEIS at 18)

Put forth as a reason that this project-specific FP amendment should be enacted, is this claim that the proposed amendment will allow the retention of smaller patches of old growth than the 1987 FP, thereby providing more suitable habitat for certain species.⁴ Totally ignored by that argument is any factual basis for the implied assumption that modifying/removing some old-growth habitat will not have a detrimental impact on

³ Because Green et al. has been used by BNF for 30+ years, many opportunities for monitoring exist.

⁴ The current Forest Plan (1987) does not preclude the retentions of old-growth patches smaller than 40 acres. There is no FP directive that old-growth patches must not be retained, the FP only “allows” those patches to be removed.

wildlife. That reinforces the widely held impression that, before any other considerations, the FS is dedicated to providing trees for commercial harvest.

Thinning and logging old-growth stands to the point that they barely retain old-growth status (by either the FP or the Green definition) is a concentrated attack on old-growth ecosystems. (Yanisheysky, 1994). The DSEIS declares (at 18) that thinning and logging will leave “suitable habitat” for “desirable vertebrate species.” That is analogous to saying the area around a person’s home can be bulldozed to the subsoil, but will still be “suitable habitat” because the driveway remains useful. Such a notion is subjective and outrageous. And, because no definition is offered for a “desirable vertebrate species,” the public has no idea which species are considered “desirable” by the Agency.

Animal species live in certain habitats because the environment which already exists is suitable. Management activities that change a local environment can only make that habitat “less suitable.”

Please explain how lowering the standards for old growth (as previously explained at #4 and #5), does not adversely impact old-growth dependent species. The logic of such an assertion is not apparent.

17. The DSEIS (at 20) states that, “A project-specific amendment to support using the old growth definitions in Green et al. for the Gold Butterfly project rather than the existing Plan old growth criteria would not result in negative direct or indirect effects to old growth or to wildlife species associated with mature or over-mature forest structure.”⁵ (DSEIS at 20)

That statement does not constitute a “hard look” as required by NEPA. The Draft SEIS includes no documentation which indicates the Agency performed any research or post-project monitoring of past management actions that allows for a comparison of wildlife impacts from FP (1987) old-growth treatments vs. the proposed Green et al. amendment old-growth treatments.

Courts have held that a “hard look” includes studying not only research that affirms a specific management action but analyzing research which contradicts that same action.

“NEPA’s ‘hard look’ obligation requires agencies to consider potential environmental impacts, including all foreseeable direct and indirect impacts, and should involve a discussion of adverse impacts that does not improperly minimize negative side effects.” *WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 2020 WL 2104760, at 3 (D. Mont. 2020) (quotations and citations omitted).

NEPA’s “hard look” requirement does not permit “a soft touch or brush-off of negative effects.” *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1241 (9th Cir. 2005).

⁵ Repeatedly referring to forest structure as “mature or over-mature” emphasizes the Agency’s singular focus on the production of timber for commercial harvest.

In the case Ecology Center inc. v. Austin (2005), the 9th Circuit Court held that "... the Forest Service's decision to treat old-growth violates, both NFMA and NEPA," Specifically, the Court said that:

"While Ecology Center does not offer proof that the proposed treatment causes the harms it fears, the Service does not offer proof that the proposed treatment benefits—or at least does not harm—old-growth dependent species. Ecology Center argues that because the Forest Service has not assessed the effects of old-growth treatment on dependent species, the Service cannot be reasonably certain that treating old-growth is consistent with NFMA's substantive mandate to ensure species diversity and viability. As a result, especially given the scientific uncertainty surrounding the treatment of old-growth stands, the Forest Service's decision to treat additional old-growth stands was arbitrary and capricious.

"The EIS did not address in any meaningful way the various uncertainties surrounding the scientific evidence" upon which the decision to treat the Lolo National Forest old-growth rests. Seattle Audubon Soc'y v. Espy, 998 F.2d 699, 704 (9th Cir. 1993). Although the EIS identifies the public's concerns regarding the impact of treatment on dependent species as "key" or "driving" issues, the EIS does not actually explain in any detail the bases of those concerns, much less address them. ... The EIS discusses in detail only the Service's own reasons for proposing treatment, and it treats the prediction that treatment will benefit old-growth dependent species as a fact instead of an untested and debated hypothesis. Even if the Service considered these issues but concluded that it need not or could not "undertake further scientific study" regarding the impact of treatment on dependent species, it should have "explain[ed] in the EIS why such an undertaking [wa]s not necessary or feasible." Id. For these reasons, we also find that the Service's analysis of the impact of treating old-growth to be inadequate under NEPA."

It is revealing that the Reference List of the DSEIS contains nothing with a publication date more recent than 2006. Such an omission suggests the FS does not believe that scientific research performed since that date has value. Could it be that the Agency does not understand that science is "a dynamic, never ending, self-correcting process?" An unwillingness to accept that science is a dynamic process that self-corrects over time and then act accordingly, is unprofessional and analogous to religion. (DSEIS References at 24, 25, 26)

Valid scientific research builds upon previous research. In other words, research (especially that which is peer reviewed) completed after 2006 is likely to have more legitimacy. There is an abundance of readily available wildlife research published after 2006 which is applicable to this proposed project. (See [References](#) at the end of this comment document). Unfortunately, those who prepared this Draft SEIS seem to have discounted that fact.

Please explain in detail how the Gold Butterfly information made available (by the Agency) to the public constitutes a "hard look."

Please explain and justify the FS's seeming refusal to acknowledge that science is a dynamic, never ending, self-correcting process and that the latest research has more validity than old.

Recent research related to wildfire, prescribed burning, management activities, and elk includes:

- Long et al. evaluated the effects of mechanical thinning and prescribed fire on forage availability for elk.

Use of mechanical thinning and prescribed fire to reduce fuels in dry forest ecosystems has become increasingly common in western North America. Nevertheless, few studies have quantified effects of fuels reduction treatments on wildlife. We evaluated effects of fuels reduction on quantity and quality of forage available to elk (*Cervus elaphus*) in northeastern Oregon.

Quantity and quality of forage were lower in summer than spring in both stand types. In contrast, total cover of forage was higher in treatment than in control stands during spring, whereas the opposite was true during summer. (Long, 2008)

- Proffitt et al. performed a study comparing the impact of wildfire, prescribed burning, and management practices on elk forage quantity and quality. They found that wildfire produced higher summer forage quality than prescribed fire.

Summer forage quality peaked in recently burned forests and decreased as time since burn increased. Summer forage abundance peaked in dry forests burned 6–15 years prior and mesic forests burned within 5 years. Forests recently burned by wildfire had higher summer forage quality and herbaceous abundance than those recently burned by prescribed fire. These results suggest that the nutritional carrying capacity for elk varies temporally with fire history and management practices.

Wildfires tended to increase the quality and abundance of nutritional resources, with the highest-quality forage occurring in forests burned within the past 5 years and the highest abundance generally occurring in forests burned 6–15 years ago. Prescribed fires in recently burned forests less strongly increased the quality and more strongly reduced the abundance of nutritional resources than wildfires in same-stage forests. (Proffitt, 2019)

- A study by Cook et al. found that summer forage is the most important factor for the winter health and survival of elk.

..., summer nutrition set limits to rates of body fat accrual of lactating females that in turn limited body condition across the annual cycle.

Overall, our data failed to support 2 common assumptions: 1) summer and early autumn foraging conditions are typically satisfactory to prevent nutritional limitations to adult fat accretion, pregnancy rates, and calf and yearling growth; and

2) winter nutrition and winter weather are the principal limiting effects on elk productivity. Instead, a strong interaction existed among level of summer nutrition, lactation status, and probability of breeding that was little affected by winter conditions—adequacy of summer nutrition dictated reproductive performance of female elk and growth as well as growth and development of their offspring in the Northwest and Rocky Mountains. (Cook, 2013)

The proposed Gold Butterfly project includes a substantial amount of prescribed burning, much of it in old-growth stands. Taken together, these three studies indicate that springtime, prescribed burning does not produce the most nutritious summer forage when compared to either wildfire or control areas that receive no management activities. Also revealed is the fact that the quality and quantity of summer forage is the most important factor for the over-winter health and survival of elk, especially pregnant females.

Please justify why the BNF continues to believe springtime prescribed burns should be performed in the proposed-project area when recent research indicates that specific management activity degrades elk summer forage quantity and quality.

-
- A study by Schwartz et al. confirmed that the presence of roads, human development, and hunters results in an increased mortality of grizzly bears.

Our top models suggested that survival of independent (age ≥ 2 yr) grizzly bears was best explained by the level of human development of the landscape within the home ranges of bears. Survival improved as secure habitat and elevation increased but declined as road density, number of homes, and site developments increased. Bears living in areas open to fall ungulate hunting suffered higher rates of mortality than bears living in areas closed to hunting. Our top model strongly supported previous research that identified roads and developed sites as hazards to grizzly bear survival. We also demonstrated that rural homes and ungulate hunting negatively affected survival, both new findings. (Schwartz, 2010)

This proposed project includes a substantial number of new and reopened road miles. The types of road closures, currently in use, have been found to be entirely inadequate for eliminating use of those (closed) roads.

Please explain how new and newly opened roads, to be used for project activities, will be permanently closed to ensure they will not be used by the public.

- Bader and Sieracki researched the impact of human activity on denning grizzly bears.
Terrain features, distance to roads and land cover best explained suitable denning habitats in northern Idaho and western Montana.
Human activities within 200m of an occupied den can cause physiological changes such as increased heart and breathing rate, wakefulness and even den abandonment leading to increased cub mortality (Linnell, 2000).

The Sapphire and Pintler Ranges, where there have been persistent verified observations of grizzly bears (Jonkel, 2021) and where berry-producing shrubs important to grizzly bears are abundant (Hogg, 2001) has the largest amount of secure core habitat in the largest sizes ...

Maintaining existing roadless secure areas and limiting road and motorized trail densities above 1800m [5,900'] would provide some protection for denning habitats.

Recreation activity has the potential to disturb denning grizzly bears, beginning with the site selection and den excavation process.

This [denning] period overlaps the general rifle hunting season when hunters access high elevation roads closed to motor vehicles by foot and on mountain bike and these roads are subject to illegal motorized use (USFS, 2020).

Mountain biking allows access to high elevation roads and trails closed to motorized use.

Seasonal restrictions on snowmobile use are intended to protect emergent bears, yet the practice of illegal off-trail "high-marking" on steep alpine slopes is common and could disturb the denning process due to noise, vibrations, and avalanches. (Bader, 2021)

The proposed Gold Butterfly project includes a substantial number of new and reclaimed road miles to access old growth and other cutting areas. The recent research by Bader and Sieracki clearly indicates that the presence of roads increases the risk to grizzly bear denning and survival. The addition of substantially more road miles in the Gold Butterfly project area will jeopardize the wellbeing of grizzly bears.

Using the latest and best scientific research, please justify how the BNF established that adding more miles of road to the Gold Butterfly project area, to enable logging and thinning both old growth and other forested units, is more important than preserving the habitat of grizzly bears and other endangered species.

-
- Squires et al. researched the impact of human recreation on Lynx.

The functional response of Canada lynx to increasingly avoid areas selected by motorized recreationists and share landscapes at fine scales with nonmotorized users provides land managers a useful framework to consider recreation impacts. The environmental gradients that are most important for managers to consider when evaluating potential disturbance between lynx and recreationists are forest canopy closure, road density, annual precipitation, and slope.

For example, given the sensitivity of Canada lynx and winter recreationists to changes in forest canopy cover, management actions that modify forest canopy cover through tree removal in recreation areas, whether for silviculture or fire/fuels management, could increase the spatial footprint of motorized winter recreation

and decrease critical habitat for Canada lynx, especially in mid-elevation forests located on north-facing slopes. (Squires, 2019)

The acreage covered by the proposed Gold Butterfly project is heavily used for recreation. Heavily roaded, it is used by Off Road Vehicles (ORV), hunters, and during the winter months, Snowmobiles. The trail systems are used by hikers, runners, and equestrians. As Squires et al. points out, modifications/reductions to forest canopy cover increase motorized winter use and decrease critical habitat for Canada lynx. This proposed project will be detrimental to Canada lynx.

Please explain in detail how increasing road density (in an already overly roaded area) and modifying/reducing forest canopy cover are acceptable practices for maintaining the health and survivability of Canada lynx.

-
- Hickenbottom et al. assessed the effects of lynx habitat fragmentation.

Peripheral populations may contain valuable genetic, physiological, or behavioral adaptations that are unique to their ecological success. Because suitable habitats in areas where populations are spatially separated, the persistence of a metapopulation is dependent on the efficiency and success of dispersing animals. When patches are fragmented and connections do not exist, recolonization is problematic and the metapopulation may be unable to persist, even though patches of suitable habitat remain. (Hickenbottom, 1999)

Many management activities cause habitat fragmentation and isolation.

Please explain how the management activities propose for the Gold Butterfly project will not contribute to lynx habitat fragmentation.

-
- Espinosa et al. addressed the relationship between Best Management Practices (BMPs) and salmon.

Available data and analyses consistently indicate that the vast majority of watersheds managed for "multiple uses" exhibit degraded conditions in their fish habitats (Sedell and Everest, 1990; Platts and Chapman, 1992; and Isaacson, 1994).

..., recovery is an anticipated spin-off from further development. For example, by harvesting trees in a floodplain, rehabilitation funds for use in the riparian zone can be generated. Or, rather than building a new primitive unsurfaced road, gravel is added to the road surface to lower sediment delivery in a watershed where cumulative sediment delivery is already above impact thresholds. BMPs then are merely means to reduce the level of impact given a decision to proceed with development.

An integral part of that prevailing management effort that has persisted into today's thinking is the idea that BMPs adequately protect aquatic resources. Stanford and Ward (1992) have labeled the BMP paradigms a prime example of the "illusion of technique" process that is in vogue today ([R. Behnke, Colorado State University, as cited in Stanford and Ward, 1992](#)). The authors describe the process as a mere formalization and synthesis of best professional judgment" with no ecological rationale that is empirically based.

A great deal of the failure to protect salmon habitat can be attributed to this philosophy and illusion. It could be more appropriately named "least management practices." BMPs are subject to a wide spectrum of interpretation--frequently by disciplines not qualified to apply measures to protect salmon habitat or that have other resource objectives in mind. Therefore, the least effective practices are frequently applied. BMPs are contingent upon economic considerations and are habitually diluted or dropped because they are not economically feasible. BMPs do not deal with cumulative effects and the recovery of impacted watersheds. In fact, they promote cumulative effects and do not allow recovery because there are no watershed or fish habitat standards (criteria) regulate or stop the application of practices. As long as BMPs are applied, habitat conditions are assumed to be fine regardless of existing watershed conditions and regardless how much land is subjected to impacts provided that BMPs are employed. Subjective assessments are too easily influenced by managers looking for facile answers to complex problems (the free lunch syndrome). Mechanistically, the concept functions like a perpetual motion machine. BMPs cannot protect a watershed from excessive development. This philosophy has unequivocally failed to provide adequate protection for salmon habitat.

In dealing with severely degraded water sheds and habitats, it is likely that zero sediment delivery over natural is the appropriate threshold for recovery ([Heede, 1980](#)). With degraded watersheds, the notion that moderated logging would allow recovery simply did not work ([Phase I Report, 1992](#)). Watersheds did not recover, or they were further degraded ([op. cit., 1992](#)).

"Recovery" was predicted from modeling efforts and not real data. In addition, modeled recovery in the distant future was traded for near-term continued improvement in habitat quality. (Espinosa, 1997)

- Further confirming the older findings of Espinosa et al., the USDA Forest Service performed its own study and found that only:

..., 61 percent of the BMP implementation evaluations were rated as "Fully Implemented" or "Mostly Implemented," 65 percent of the BMP effectiveness evaluations were rated as "Effective" or "Mostly Effective," and 56 percent of the

sites where BMP implementation and effectiveness were both monitored had composite ratings of “Excellent” or “Good.” (Carlson, 2015) ⁶

The FS has ignored these findings (Espinosa et al.) for more than two decades. Although claiming one of the purposes for this proposed project is to reduce chronic sediment sources, the Agency has a long history of ignoring the upkeep of previous BMP installations. Although this proposed project included BMPs, given its history of negligence, there is no reason to believe the Agency will miraculously begin the maintenance required to keep BMPs installations operating correctly.

Please justify how BMPs in the proposed-project area will be maintained in the future given the Agency’s past and current inability to maintain existing installations on the BNF.

-
- Copeland et al. studied the relationship between wolverine and spring snow coverage.

We propose a fundamental geographic distribution for the wolverine (*Gulo gulo* (L., 1758)) based on the hypothesis that the occurrence of wolverines is constrained by their obligate association with persistent spring snow cover for successful reproductive denning and by an upper limit of thermoneutrality.

All 562 reproductive dens from Fennoscandia and North America occurred at sites with persistent spring snow cover. Ninety-five percent of summer and 86% of winter telemetry locations were concordant with spring snow coverage.

Reductions in spring snow cover associated with climatic warming will likely reduce the extent of wolverine habitat, with an associated loss of connectivity. (Copeland, 2010)

- McKelvey et al. researched wolverine dispersal patterns in relationship to global warming.

Areas that retain snow cover throughout the 21st century are British Columbia, north-central Washington, northwestern Montana, and the Greater Yellowstone Area. By the late 21st century, dispersal modeling indicates that habitat isolation at or above levels associated with genetic isolation of wolverine populations becomes widespread. Overall, we expect wolverine habitat to persist throughout the species range at least for the first half of the 21st century, but populations will likely become smaller and more isolated.

We expect that the geographic extent and connectivity of suitable wolverine habitat in western North America will decline with continued global warming.

⁶ The Forest Service expects the Public to believe that when BMPs are implemented, they are forever 100% effective. That is not the case.

... conservation efforts should focus on maintaining wolverine populations in the largest remaining areas of contiguous habitat and, to the extent possible, facilitating connectivity among habitat patches. (McKelvey, 2011)

Rather than do everything possible to conserve suitable habitat for wolverine (including the retention of canopy cover to slow the spring snow melt), with this proposed project, management activities will certainly reduce or completely remove habitat that the wolverine who currently live in the project's area depend upon.

Please justify FS reasoning on why the public should find such attacks on wolverine habitat to be acceptable.

-
- The Draft SEIS declares that "Pileated woodpeckers, an old growth management indicator species, live primarily in warm and very dry and warm and dry habitat type groups. These are habitats that characteristically had low severity, high frequency or mixed severity fire (Bull and Jackson 1995). The old growth stand structure produced by frequent low severity fires was a relatively open forest stand with large live trees, scattered large snags (used for nesting, roosting and feeding) and large down logs (used for foraging, primarily on carpenter ants).

"Pine marten, an old growth management indicator species, occupy primarily the warm and moist, cool and wet, cool and dry to moist, cool and moist to wet and warm to cool and dry habitat types. Their typical habitat is high density mature or old stands with a relatively closed canopy and abundant down woody material that provides cover for small mammals and access to subnivean (under snow) habitat (Douglas and Strickland 1987)." (DSEIS at 15)

Wild animals inhabit specific environments because those areas provide what they need to thrive. Wild animals will move to new areas as the need arises, situations usually caused by naturally occurring disturbance (e.g., drought, wildfire, changes to annual temperature range, food availability, etc.).

By introducing management activities into wildlife habitat, the FS is causing unnatural and unnecessary disturbance. Many animals will adapt by moving but the life cycles of many more will be drastically disrupted or destroyed.

Please justify why management activities that will disrupt the lives of many animal species are being introduced into poorly understood natural ecosystems.

The above (wildlife) examples reveal the Agency is ignoring the most recent science while continuing to maintain the deception that management actions of all kinds, including thinning and logging of old-growth stands, have no meaningful impact on wildlife. That charade is unacceptable.

Recently, the FS hired a group of forestry and legal experts, headed by Martin Nie,⁷ to research who had the ultimate responsibility for managing and protecting wildlife—the states or the federal government—on federally managed lands. Using extensive research of U.S legal documents and case law, the group established that federal agencies have the ultimate responsibility for managing and protecting wildlife.⁸ Although the Agency attempted to hide the research by Nie et al. from the public, the fact remains that the FS has the ultimate responsibility to not only manage and protect wildlife habitat, but to directly manage and protect the wildlife. (Nie, 2017)

The prevailing pretense that wildlife management on federally managed public land is the purview of the State (Montana) and not federal agencies is not supported by caselaw. The BNF must admit to that responsibility and, when designing this and other projects, act accordingly.

Please analyze and disclose the cumulative effects of Montana’s new trapping laws and hunting regulations as related to management activities that will substantially increase hunter and trapper access to the project area.

Please explain why the Agency does not immediately and continuously implement its legal responsibility to protect both wildlife and wildlife habitat on the BNF.

18. The Draft SEIS states that “The 1987 Forest Plan requirement that old growth stands meet a minimum of 40 acres could be detrimental to wildlife species associated with mature or over-mature forests or old forest components because patches of old growth less than 40 acres could be removed and still meet the 1987 Forest Plan standard. Many wildlife species such as pileated woodpeckers and marten are associated with some components of older forests such as large snags or large logs. Removal of these smaller patches of old growth would reduce the number and distribution of these components, which would in turn limit the amount of suitable habitat available for these species.” (DSEIS at 18)

The Forest Plan minimum of 40 acres for old growth is only detrimental IF management activities are performed in the forest. In other words, if the Agency does not log/thin, no old-growth stands smaller than 40 acres would be removed. It is only the insistence on performing management activities that puts smaller, old-growth stands at risk.

Please justify, using the latest scientific research, why management activities that change naturally occurring conditions must be performed in the Gold Butterfly project area.

⁷ Professor, Natural Resource Policy; Director, Bolle Center for People & Forests; Undergraduate Program Director, Resource Conservation, University of Montana

⁸ Nie, M. et al. (2017) Fish and Wildlife Management on Federal Lands Debunking State Supremacy - https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2980807

19. The Draft SEIS states that “A project-specific amendment to support using the old growth definitions in Green et al. for the Gold Butterfly project rather than the old growth criteria in the Plan would better achieve the Forest Plan intent for old growth management because it would provide a consistent, non-subjective method of determining whether stands currently qualify or are close to qualifying as old growth and as noted in the vegetation effects would result in greater identification and retention of old growth. Additionally, the Forest and the public could be more confident that stands identified as old growth provide the range of stand characteristics associated with old growth in their respective habitat type groups.” (DSEIS at 20)

Clearly, any definition of old growth is arbitrary and in the case of FS classifications, refers exclusively to trees. Whether it is the existing Forest Plan or the Green et al. definition, all references are to trees. Completely missing from either is any recognition that areas of forest that have survived natural disturbance for a long time (sometimes centuries), is a complicated arrangement of numerous ecosystems. Because most of those ecosystems are unrecognized or unresearched, the Agency continues to ignore the complexity that exists in old sections of forest.

Given that extensive lack of understanding, please explain how using Green et al. vs. Forest Plan definitions can possibly be a non-subjective method of qualifying sections of forest as old growth.

20. The Draft Seis states “A project-specific amendment to support using the old growth definitions in Green et al. for the Gold Butterfly project rather than the existing Plan old growth criteria would not result in negative direct or indirect effects to old growth or to wildlife species associated with mature or over-mature forest structure. (DSEIS at 20)

Using recent scientific research, please justify how the Agency can be sure that performing management actions in areas defined by either the Forest Plan or Green et al. as “old growth” would not have negative or indirect effects to those “old-growth” areas or the wildlife that inhabit those areas.

21. The Draft SEIS asserts that “A project-specific amendment to support using the old growth definitions in Green et al. for the Gold Butterfly project rather than the 1987 Forest Plan old growth criteria would not result in any negative cumulative effects when considering the foreseeable Mud Creek and Bitterroot Front projects. Since old growth stands have been identified in all three project areas using the definitions in Green et al., a project-specific amendment to support using the Green et al. definitions for the Gold Butterfly project would not result in changes to the amount of old growth identified or managed in any of these projects. Likewise, a project-specific amendment to support using the old growth definitions in Green et al. for the Gold Butterfly project would not affect the amount of habitat available for species such as pileated woodpeckers or marten that are associated with habitat components that are most

common in mature or over-mature forests, but also occur in stands that do not meet old growth definitions.” (DSEIS at 20)

The above claim that adopting Green et al. would not have cumulative effects is dishonest. As previously discussed in these comments (at #5), the adoption of Green et al. allows the Forest Service to remove more trees per acre than the current Plan does. To state that there would be no cumulative effect is disingenuous at best.

In addition, NEPA requires that not only foreseeable projects be considered when acknowledging cumulative effects, but past projects also must be considered. Interestingly, the Draft SEIS does not mention or include projects from the past (East Fork, West Side, etc.) or currently being performed (Pickett Creek, Darby Lumber Lands II, Buckhorn, etc.). Also missing is a reference to the currently proposed gigantic Eastside Project.

Please provide an analysis of cumulative effects that includes all previous BNF projects, all current projects, and all foreseeable projects.

Please provide an even more complete analysis of cumulative effects that includes all previous, current, and foreseeable projects on U.S. soil.

NEPA requires that such analyses be performed.

Agency Ignores the Fact that Cutting Old-Growth Trees Reduces the Global Warming Mitigation Effect of Forests and Reduces Carbon Sequestration

22. Issued on August 1, 2016, this directive from Executive Office of the President, Council on Environmental Quality has been reimplemented as national direction. [See 86 Fed Reg. 10252 (Feb. 19, 2021).]

The 2016 CEQ guidance acknowledges, “changes in our climate caused by elevated concentrations of greenhouse gases in the atmosphere are reasonably anticipated to endanger the public health and public welfare of current and future generations.” It directs federal agencies to consider the extent to which a proposed action such as this Gold Butterfly project would contribute to climate change. It rejects as inappropriate any notion that this project is of too small a scale for such consideration:

“Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but is exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated

with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.”⁹

The FS must quantify GHG emissions. The agency can only use a qualitative method if tools, methodologies, or data inputs are not reasonably available. If that is the case, there needs to be rationale as to why a quantitative analysis is not warranted. However, quantitative tools are readily available, so the FS must comply.¹⁰

Judging by its actions—the refusal to act as if global warming is not extremely important—the Agency is a huge, bureaucratic, global-warming denier.

Please explain why the FS does not take global warming as seriously as the current situation demands and incorporate the mitigation strategies (as identified by the most recent science) into all project proposals.

Please quantify, using the available tools, the GHG emissions from this project and the cumulative GHG emissions from all past, present, and reasonably foreseeable projects on the BNF.

23. The Gold Butterfly DSEIS documentation includes no rigorous analysis of climate change. The documentation included with the DEIS and FEIS sidestep the increasingly important issue of global warming. Those omissions are ecologically dangerous and morally abhorrent.

Given the urgency of minimizing additional greenhouse gas emissions and increasing carbon sequestration to protect the earth’s climate system, it would be best to protect trees for their carbon stores, co-benefits of habitat for biodiversity, resilience to drought and fire, and microclimate buffering under the expected future climate extremes.

Large, old trees store disproportionately large amounts of carbon, as carbon storage dramatically increases with size. (Mildrexler, 2020) (Stephenson, 2014). Retaining old-growth stands will help mitigate (buffer) global warming and benefit ecosystems through biodiversity and resilience to fire, disease, and drought.

According to a 2021 article, “Keeping trees in the ground where they are already growing is an effective low-tech way to slow climate change.” (Law B. E., 2021)

“Compared with other terrestrial ecosystems, forests store some of the largest quantities of carbon per surface area of land.” Much of the carbon stored is within the soils, with a smaller part in the vegetation. Forest management can modify soil organic carbon stocks. For example, conventional harvests like clearcutting or shelterwood cutting cause soils to lose organic carbon which is not the case for soils

⁹ Fed Reg. 10252 (Feb. 19, 2021) - <https://www.govinfo.gov/content/pkg/FR-2021-02-19/pdf/2021-03355.pdf>

¹⁰ Greenhouse Gas (GHG) Accounting Tools - <https://ceq.doe.gov/guidance/ghg-accounting-tools.html>

in unharvested forests. Not only does it lose the carbon stored in the soils, but cutting trees eliminates the trees' potential to continue to sequester carbon. (Achat, 2015)

"Our study showed that, compared with conventional stem-only harvest, removing the stem plus the harvesting residues generally increases nutrient outputs thereby leading to reduced amounts of total and available nutrients in soils and soil acidification, particularly when foliage is harvested along with the branches. Losses of available nutrients in soils could also be explained by reduced microbial activity and mineralization fluxes, which in turn, may be affected by changes in organic matter quality and environmental conditions (soil compaction, temperature, and moisture). Soil fertility losses were shown to have consequences for the subsequent forest ecosystem: tree growth was reduced by 3–7% in the short or medium term (up to 33 years after harvest) in the most intensive harvests (e.g., when branches are exported with foliage). Combining all the results showed that, overall, whole-tree harvesting has negative impacts on soil properties and trees that may have an impact on the functioning of forest ecosystems." (Achat, 2015)

The project documentation (DEIS, FEIS, DSEIS) provides trivial analysis of the interaction and connection between the proposed management actions and global warming.

Numerous researchers found that, on an annual basis, logging emits significantly more atmospheric carbon than wildfires. (Harris, 2016) (Hicke, 2013) (Howard, 2021) (Smith, 2019) (Wilson, 2020) (Stenzel, 2019) (Law B. E., 2018) (See also Appendix B illustrations)

Please compare and disclose estimates of carbon emissions and sequestration of Green, et al. vs. Forest Plan old-growth standards for the project area

24. Vegetation management efforts that attempt to replicate how the FS thinks forests looked pre-European influence, ignores the larger pattern of climate, global warming, and natural succession. The documentation for this project clearly shows that the Agency continues its attempts to replicate an imagined past and reveals its refusal to accept that global warming has made such an endeavor impossible and irrational. (Churchill, 2017) (Lindbladh, 2013) (Hammer, 2001)

Please provide the most recent scientific research which supports the Agency's belief that the FS should continue its (so far unsuccessful) attempts to replicate (unsubstantiated) pre-European forest conditions and how those conditions are more resilient and healthier than current forest conditions.

Please justify, with the most recent scientific research, how attempts to replicate imagined historical conditions contribute to mitigating the effects of global warming.

25. The Draft SEIS states that "NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by the Congress, this includes using all

practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101)." (DSEIS at 10,21)

It is interesting that paragraph was included in the Draft SEIS. It is as if the Agency is offering a rationalization for logging/thinning in areas defined (by whatever classification) as old growth. However, a judicious person could focus on a portion of the above as a mandate from Congress to "foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

Removing trees and other vegetation from forests may provide very short-term "social and economic benefits" but, as the preponderance of recent scientific research reveals, such activities do not help "man and nature exist in productive harmony" nor benefit "future generations of Americans." (DellaSala, 2020)

Using recent scientific research, please justify why the Agency should continue management actions that disturb the balance of naturally occurring ecosystems and contribute to global warming.

26. The Draft SEIS (pages 2,3) states that, "The need to update management direction in the Forest Plan was identified in 1994 during the "Five-Year Review" on the Forest Plan (USDA 1994). The review acknowledged that "Analyzing old growth on a landscape level and specific to various ecosystems may be more appropriate than the current Forest Plan Standard (old growth percentage required within a Management Area and third order drainage)" (USDA 1994, p. 22). It further acknowledged there were issues with the standards as written since they "may have little ecological significance in a broader landscape context". It identified several options to address the issue, including:

1. Replace existing old growth definitions in the 1987 Forest Plan with the newer Northern Region old growth definitions (Green. et al 1992).
2. Identify processes that create and describe old growth patterns across the landscape. Include potential ecosystem management treatments in existing old growth habitat designed to perpetuate old growth characteristics in the short term by reducing risk of loss to fire or insects and disease, rather than salvage treatments. Use GIS to Identify and track existing and future old growth stands over time to ensure progress towards historic ranges.
3. Replace old growth standards with more ecologically sound direction (Goals, Objectives or Standards) which will provide for old growth habitats.

"During the Bitterroot Forest Plan Five-Year Review (USDA 1994) it was determined that updating plan direction to incorporate information presented in Green et al. was needed. Old growth is defined in Green et al. based on capabilities of different habitat

types which are more comprehensive than the definition written into the Bitterroot Forest Plan in 1987. Originally issued in 1992, Green et al. has been updated four times, with a date of December 2011 being the most recent issuance.

“This science has already been adopted by the majority of the National Forests in the Northern Region, including those who have revised or are currently revising their forest plans using the 2012 Planning Rule.

“The 1987 [BNF] Forest-wide standard regarding old growth contains elements that are not easily measurable (e.g., canopy closure) and are inconsistent with what the Northern Region considers the best available scientific information. Using the criteria as currently written does not allow for accurate inventory of old growth on the Forest. As such, the 2019 EIS for the Gold Butterfly project used Green et al. to determine the amount of old growth affected by project activities and consistency with Forest Plan. This project-specific amendment is needed to accommodate this modification of the plan definition and direction.” (DSEIS at 2,3)

Please explain why, if the change to the Green et al. definition of old growth is so important, more than three decades have passed and the BNF has yet to amend the Forest Plan.

DSEIS fails to consider the effect of large openings on fire behavior

27. The Gold Butterfly Project includes 14 regeneration cuts (clearcuts) over 40 acres totaling 1,508 acres. Nine openings are over 100 acres with one of 234 acres.

A recent study shows that large openings can affect wind entrainment speeding up localized and mean wind speeds resulting in “faster fire spread” (Atchley at 9). And “turbulent wind conditions in large openings resulted in a disproportional increase in TKE [Turbulence Kinetic Energy] and crosswinds that maintain fire line width (ibid at 9). (Atchley, 2021)

A FS publication, “Living with Fire,” states (at 4) that with 20 mph winds and open forest, fire will burn at 1.5 mph while a dense conifer forest will burn at 0.5 mph per hour. Those speeds translate to 150 acres per hour for an open forest and 15 acres per hour for a dense forest. (Living with Fire - A guide for the Homeowner, 2001)

The FS claims it must log and thin the project area to reduce the threat of catastrophic wildfire.

Please justify why the Agency makes that claim even though, if wildfire occurs in the area, the result is likely to be a faster spread of fire.

DSEIS fails to adequately explore potential for impacts to human health and environment

28. An abandoned vermiculite mine lies within the Gold Butterfly project area.

“The top of Skalkaho Mountain, in the Sapphire Mountains about ten miles directly east of Hamilton, exposes an extraordinary igneous intrusion almost identical to the Rainy Creek stock near Libby.” A deposit of vermiculite occurs within that igneous complex. (Hyndman)

The presence of (amphibole) asbestos at the Hamilton vermiculite mine has not been tested, but should be assumed to occur until proven otherwise, as is indicated by the following statement. “Several early attempts to mine vermiculite in the Skalkaho intrusion went poorly. While at one time that seemed unfortunate, now it is clear that we narrowly escaped having another major environmental disaster.” (Hyndman)

In existence for decades is a significant patch of bare ground created by mining and exploration. If asbestos present the wind will have distributed it throughout the nearby environment and fire would liberate it into the smoke. Roads cut into the ultramafic complex also expose soil and rock that may amphibole asbestos.

Although the area is generally downwind of the Bitterroot Valley, an east wind or katabatic wind¹¹ could carry asbestos fibers into the Valley. Smoke from fires in the area could also settle into the Valley.

Please publicize the results of a thorough survey of amphibole asbestos in and near the mine.

Agency Ignores Court Directive Regarding Misuse of Site-specific Plan Amendments

29. This project includes project-specific amendments (elk habitat effectiveness [EHE], thermal, and hiding cover plus old-growth and coarse-woody debris) to the current Forest Plan. Project-specific amendments are intended to address unique characteristics of a particular area, not conditions common to an entire forest. In a situation similar to the proposed Gold Butterfly project, a court held that the FS failed to explain how conditions within a project area supported a site-specific amendment over a forest-wide amendment. The court explained that a site-specific amendment “must be based on unusual or unique aspects of the site itself when compared to the forest generally.”¹²

Over a recent 12-year period, the BNF used EHE site-specific amendments on more than 226,000 acres of the almost 390,00 suitable timberland acres. Therefore, the Agency is

¹¹ Katabatic winds flow downhill. Also known as fall winds, katabatic winds are usually caused by gravity pulling higher density air downslope to lower density air.

¹² *League of Wilderness Defenders, et. al. v. Connaughton, et al.*, plaintiffs challenged that the Snow Basin project area did not have distinguishing characteristics, and therefore, a site-specific amendment was not justified. No. 3:12-cv-02271-HZ (D. Or. Dec. 9, 2014). The court agreed with the plaintiffs, holding the agency’s decision to make site-specific amendments arbitrary and capricious because the Forest Service failed to explain what conditions within the project area supported selection of a site-specific amendment over a forest-wide amendment. *Id.* at 54-55. The court explained that a site-specific amendment “must be based on unusual or unique aspects of the site itself when compared to the forest generally.” *Id.*

running afoul of legal precedent and should place this project on hold until such time as appropriate amendments to the current Forest Plan are completed.

Please provide an evaluation of the long-term significance of this proposed Forest Plan amendment's impact on resources and services for the entire BNF as required by NFMA.

Please explain which unique characteristics of the Gold-Butterfly area qualify for a site-specific amendment when the same amendment is proposed for two additional projects.

The current FP has not been updated as directed by current rules and regulations. Please justify the BNF's continued misuse of site-specific Forest Plan Amendment.

Please explain why all BNF projects should not be put on hold until such time as the Forest Plan is updated.

Objections Submitted for the FEIS that did not Receive Adequate Responses

Develop Alternatives

Comment 2a. Develop an alternative that only conducts non-commercial thinning in old growth stands, especially outside the Wildland Urban Interface. (FEIS Appendix C, at 4)

Response: Non-commercial thinning in old growth stands was considered but not carried forward as an alternative to analyze as non-commercial thinning would not treat the size class of trees with identified insect and disease concerns in many units. See FEIS Chapter 2, Section 2.3 Alternatives Considered but Eliminated from Detailed Study.

That response is a non-answer. It simply confirms such an alternative was not developed. Please explain why no other alternative was developed.

Comment 2c. Develop an alternative that does not re-open 16.5 miles of undetermined roads.

Response: Vegetation management in old growth stands and construction of new roads were the two primary issues used to develop an alternative to the proposed action (see FEIS Chapter 1, Section 1.8.2) based on external and internal scoping. See FEIS Chapter 2, Section 2.3 Alternatives Considered but Eliminated from Detailed Study.

Another non-answer. The alternative requested by the public was "considered" but eliminated. Please explain why no alternative was developed that did not require the opening of undetermined roads.

Comment 2e. Develop an alternative that does not include new road construction.

Response: Alternative 3 as presented in the FEIS (Chapter 1, Section 1.8.2 Issues Used to Formulate an Alternative) does not propose new road construction.

The majority of the public requested an alternative that did not require new road construction. Yes, Alternative 3 did not propose new roads, but the Agency did not follow the wishes of the public. Please justify why the alternative which did not require the construction of new roads was not picked by the Agency.

Climate Change

Comment 5g.02. The DEIS discusses carbon cycling and storage, but it does not appear to address how the portion of forest included in the Gold Butterfly Project may change due to an increasingly warming climate.

Response: The Environmental Consequences section in the Climate Change, Forest Carbon Cycling and Storage Specialist Report (PF-CLIMATE-001) discloses potential changes to forest conditions under the no action alternative and both action alternatives.

The Climate Change, Forest Carbon Cycling and Storage Specialist Report coverage of carbon storage is not rigorous. For example, consider the following:

“This proposal has several desired outcomes. The effectiveness of achieving those outcomes is presented throughout the EIS and underlying analysis (keeping in mind that NEPA requires an agency to take a hard look at the consequences of its actions on the environment, not the other way around).” (PF-CLIMATE-001 at 1)

That is evading the question by claiming the Agency is not required to consider the effects of global warming on future conditions. Although a “legal” requirement may not exist, for arguments to be “rigorous,” all variables must be considered.

Another example:

“Global climatic warming is not something that is about to happen. It has been ongoing for many decades and the trend is expected to continue into the distant future, continuing to increase risks to our nation’s forests (Dale et al. 2001; Barton 2002; Breashears and Allen 2002; Westerling and Bryant 2008; Running 2006; Littell et al. 2009; Boisvenue and Running 2010, Hicke et al. 2012).” (PF-CLIMATE-001 at 1)

The overwhelming scientific consensus is that global warming is not only happening but accelerating. The above statements, including decades-old references, indicates that the FS is not keeping up with the latest scientific developments. Given the responsibility the Agency has assigned for a large portion of public lands, such a lack is not only appalling but frightening.

Please supply a rigorous, science-based response to this comment. Justify the response with recent scientific research.

Economic Analysis

Comment 5h.17. Clarify the statement "There are no unavoidable adverse effects to the economic impact area." under the Unavoidable Adverse Effects section of the DEIS.

Reducing the scope of the project would reduce the amount of log truck traffic thereby lessening the economic impact of degraded road conditions on Willow Creek Road.

Response: This statement could not be found within the environmental document.

The statement exists under “Unavoidable Adverse Effects.” (Specialist Report – Economics at 12)

Please justify the statement that "There are no unavoidable adverse effects to the economic impact area." Such an assumption is incorrect and based on modeling that does not include all possible variables.

Fire and Fuels

Comment 5i.05. The DEIS states that this project will reduce the impact of fires by removing fuels (logging). Studies, including some performed by the Forest Service, indicate that removing combustible materials from a forest may alter the behavior of a naturally occurring fire but it will not eliminate it. Removing only a portion of the flammable materials will not eliminate the possibility of fire. However, this action will upset the current ecological balance of the forest.

Response: The Forest Service agrees by reducing the fuels may alter the fire behavior allowing for less severe fires. The fuel loading within the Gold Butterfly area would continue to increase under a no treatment, full suppression strategy. This would lead to large areas of heavy fuel loadings and increase the potential for large fires to develop. Stands would move toward a greater portion of shade tolerant species, which are not adapted to fire. In areas where there has been fuel reductions fire fighters can safely direct attack full suppression fires.

That response is inadequate. It does not include scientific justification based upon the most recent research to support the Agency assumption that fuels reduction programs reduce the severity of wildfire. There is a profusion of research that contradicts the FS claim that “fuels reduction decreases wildfire severity.”

Please supply recent, non-industry (timber) research that supports the fuels reduction claim.

Insects and Disease

Comment 5n.05. It is possible previous logging within the project area and warmer/drier conditions today are factors in dwarf mistletoe and other insect damage being greater than historical levels. The ecological balance of forest stands may be changing to include more mistletoe and tree-damaging insects as climates warm. If so, logging and prescribed burning may be ineffective at improving long-term forest viability. (60-2)

Response: We agree that past silvicultural practices, if implemented incorrectly, and changing climatic conditions may lead to Douglas-fir dwarf mistletoe levels that are

currently greater than historic levels. However, this does not preclude the use of current silvicultural practices from addressing insect and disease issues to improve forest stand health.

That response evades the point of the comment which is, why does the FS believe that thinning and logging will reduce mistletoe and insect infestations in the project area?

Plenty of research exists that refutes the Agency assertion that logging and thinning cause a reduction of disease and insects.

Using recent scientific research, please justify the use of logging and thinning to reduce disease and insects.

All references should be considered a part of the public record. Inaccessible records will be provided upon request.

Respectfully,

M L Hoyt

Michael Hoyt

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Appendix A



Figure 1 - A team of horses pulling a huge ponderosa pine log over dowels. (1910) Photo Courtesy of Ravalli County Museum



Figure 2 - A sled of huge logs on a winter sled. (1893) Photo Courtesy of Ravalli County Museum



Figure 3 - Hauling dry logs on a bobsled, Lick Creek. (1911) Photo Courtesy of Ravalli County Museum



Figure 4 - Ready to dump a large load of huge logs at the Hamilton Mill. (year unknown) Photo Courtesy of Ravalli County Museum

Appendix B

Percent carbon dioxide emissions by sector in Oregon 2011-2015



Sources: Oregon Global Warming Commission and Oregon State/University of Idaho Study
 Note: Utility fuel use is subtracted from residential and commercial data reported by the Oregon Global Warming Commission

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FATE OF CARBON FROM HARVESTED WOOD

