FOB Comments Related to the Draft EA for the Forest Plan Amendment for Elk, Old Growth, Coarse Woody Debris, and Snag Forest Plan Components

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https://cara.fs2c.usda.gov/Public//CommentInput?Project=57302

Mr. Anderson,

Friends of the Bitterroot (FOB) submit the following comments in response to the Draft EA dated February 1, 2023. Fully incorporated are scoping comments for FOB, WildEarth Guardians (WEG), and Alliance for the Wild Rockies (AWR) dated February 10, 2020. Also fully incorporated are FOB scoping comments dated August 11, 2022, AWR scoping comments dated August 12, 2022, WEG scoping comments dated August 12, 2022, Native Ecosystems Council (NEC) scoping comments dated August 12, 2022, and Friends of the Clearwater (FOC) scoping comments dated August 8, 2022.

These comments are a part of a combined effort that includes Friends of the Bitterroot, Friends of the Clearwater, WildEarth Guardians, Alliance for the Wild Rockies and Native Ecosystems Council. Therefore, these comments incorporate the Draft EA comments submitted by each of those organizations, and also incorporate all previous submissions to the Forest Service on the Amendment proposal from these organizations.

In addition, all scoping comments, comments, attachments and/or objections provided by FOB, WEG, AWR, FOC, and NEC for the Darby Lumber Lands II Project (2019), the Eastside Forest and Habitat Improvement Project (2023), the Gold Butterfly Project (202?), the Bitterroot Front Project (202?), and the Mud Creek Project (2023) are fully incorporated.

1. For decades, we have claimed the Bitterroot National Forest (BNF) ignored the best, most recent, available science during project planning and implementation.
2. We applaud the Agency for declaring a desire to amend the Forest Plan (FP) to align with the best, most recent, available science.
3. However, we stipulate that the Forest Service's (FS) proposed amendment must follow the best, most recent, available scientific research fully analyzed in an EIS.
4. It is improper to continue relying on the outdated and/or outlier studies which support management goals while pretending BNF decisions are based on the best science.

5. The scope and number of amendments and changes to the plan are a plan revision without the proper review process of a revision in violation of NEPA.
6. The amendment removes protections for wildlife so must be fully analyzed in the revision process.
7. Thus, we could support FP amendments if, and only if, the amendments are based entirely on the best, most recent, available scientific research fully analyzed in an EIS.

Overview

8. Site-specific amendments related to elk habitat effectiveness, thermal cover, old growth, coarse woody debris, and/or snags have been used at least 17 times for projects since 1997. (Draft EA pp. 12-13, Table 1)
9. Each of those projects included substantial amounts of logging, much of it commercial.
10. The Draft EA documents do not divulge that there are currently two large timber sales on the BNF which rely on project-specific amendments similar to those being proposed in the Draft EA documentation.
11. It could easily be assumed that this current set of Forest Plan amendments is intended to allow for a greater number of trees to be extracted from the acreage included in future projects.
12. For more than two decades, the FS repeatedly claimed amendments of this sort were site-specific and therefore not "a significant change to the [forest] plan for purposes of the NFMA." (Gold Butterfly Draft SEIS ROD, Appendix B, p. 1) (Mud Creek EA. Decision Notice and FONSI, Appendix C, p. 24).
13. This set of proposed FP amendments will apply to the entire BNF; therefore, the Agency cannot truthfully claim these will not enable "significant changes."
14. Consequently, these FP amendments require an environmental Impact statement and an additional 90-day comment period.
15. There are several interrelated regulations the Forest Service must follow to amend a Forest Plan.
16. Adhering to the directives of the 2012 Planning Rule (36 CFR 219) is essential.
17. A portion of the language included in the Multi-Use Section (§ 219.10) is repeated immediately below.

36 CFR § 219.10 Multiple use

While meeting the requirements of §§ 219.8 and 219.9, a plan developed or revised under this part must provide for ecosystem services and multiple uses, including outdoor recreation, range, timber, watershed, wildlife, and fish, within Forest Service authority and the inherent capability of the plan area as follows:

(a) ***Integrated resource management for multiple use.*** The plan must include plan components, including standards and guidelines, for integrated resource management to provide for ecosystem services and multiple uses in the plan area. When developing plan components for integrated resource management, to the extent relevant to the plan area and the public participation process and the requirements of §§ 219.7, 219.8, 219.9, and 219.11, the responsible official shall consider:

(1) Aesthetic values, air quality, cultural and heritage resources, ecosystem services, fish and wildlife species, forage, geologic features, grazing and rangelands, habitat and habitat connectivity, recreation settings and opportunities, riparian areas, scenery, soil, surface and subsurface water quality, timber, trails, vegetation, viewsheds, wilderness, and other relevant resources and uses.

…

(5) Habitat conditions, subject to the requirements of § 219.9, for wildlife, fish, and plants commonly enjoyed and used by the public; for hunting, fishing, trapping, gathering, observing, subsistence, and other activities …"

…

(7) Reasonably foreseeable risks to ecological, social, and economic sustainability.

(8) System drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession, wildland fire, invasive species, and climate change; and the ability of the terrestrial and aquatic ecosystems on the plan area to adapt to change (§ 219.8).

(9) Public water supplies and associated water quality.

18. It is not enough for the Forest Service to offer generalities when proposing a Forest Plan amendment. The Agency must:

A. establish an interdisciplinary team or teams to prepare assessments for plan amendments and plan monitoring programs (§ 219.5(b))
B. provide specific plan components, including standards and guidelines. (§ 219.10(a))
C. ensure the amendment will maintain or restore the ecological integrity of terrestrial and/or aquatic ecosystems of the area covered by the plan. (§ 219.8) (§ 219.9)
D. guarantee the amendment will not initiate or cause the degradation of ecological sustainability within the plan area. (i.e., shrink wildlife habitat, lower water quality, reduce air quality, diminish soil productivity, decrease connectivity, downgrade ecosystem ability to contend with climate change, cope with disturbance regimes, etc.) (§ 219.8)
E. use the best science to support its reason for proposing an amendment. (§ 219.3)
F. identify and consider relevant existing information in governmental or non-governmental assessments, plans, monitoring reports, studies, and other sources of relevant information (§ 219.6) (§ 219.13(b)(1))
G. develop a monitoring program to measure and record the aftereffects of the amendment(s) for the plan area (§ 219.12)
H. guarantee that monitoring is continuous and provides feedback to test the assumptions of the amendment (§ 219.5(a)(3))
I. a plan amendment must be consistent with Forest Service NEPA procedures (§ 219.13(b)(3))
J. ensure that the determination to amend the plan be based on the effects (beneficial or adverse) of the amendment, and informed by the best available scientific information, scoping, effects analysis, monitoring data or other rationale. (§ 219.13(b)(5)(i))
K. determine whether or not the required plan components provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened

and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area. (§ 219.9(b)(1))

L. provide for ecosystem services and multiple uses (§§ 219.8, 219.9, 219.10)

M. ecosystem services include:

(1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals;

(2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation;

(3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and

(4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences, and tourism opportunities.

Proposed Elk Amendment

Elk Habitat

18. The Agency claim of a "discrepancy" between the current FP and (Lyon 1983), is misleading. (Draft EA, p. 14)

    Lyon (1979) initially suggested that the minimum area of consideration should be 2,000 acres, which Lyon (1983) later refined to areas greater than 3,000 acres. The information presented in Lyon (1983) is the basis for the current Forest Plan standard. However, 310 of 385 third order drainages to which the Forest Plan standard applies are less than 3,000 acres in size. This scale discrepancy has caused the standard to be a flawed application of the elk habitat effectiveness recommendations in Lyon (1983).

    In part because of the inappropriate scale at which the Lyon (1983) elk habitat effectiveness recommendations are applied by the Forest Plan standard, drainages on the Forest have been out of compliance with the standard since the completion of the Forest Plan. Three hundred and eleven (311) third order drainages were immediately out of compliance with the Forest Plan in 1987 due to a minimum 3,000-acre size criteria in Lyon (1983); currently, regardless of size, 230 third order drainages do not meet the EHE standards and 155 meet the EHE standards.

19. The size and number of third order drainages has not changed since the 1987 FP was created.
20. (Lyon 1983) states that, "An evaluation area should be at least 3,000 acres; …" (p. 595) and the FP refers to third-order drainages.
21. (Lyon 1983) does not preclude combining adjacent third-order drainages or using fourth-order drainages to qualify for a 3,000-acre (or larger) requirement.
22. However, the interdisciplinary team decided to "Not Analyze in Detail" alternatives that would apply elk habitat effectiveness over areas larger than third-order drainages. (Draft EA, p. 43)

The interdisciplinary team considered an alternative that would apply elk habitat effectiveness standards to fourth order drainages or other scales larger than third order drainages to provide consistency with the management recommendations in Lyon (1983). This alternative did not warrant detailed analysis because of the current research regarding elk habitat security and importance of forage availability and nutrition.

24. The 2012 Planning Rule requires documentation of how the best available scientific information was used to inform the planning process. (Draft EA, p.12)

    The planning rule also requires documentation of how the best available scientific information was used to inform the plan amendment, including a determination of what information was most accurate, reliable, and relevant to the issues being considered (36 CFR 219.3).

25. Neither the Draft EA nor any of the accompanying documents provide an insight as to how the best scientific information was used to determine that an alternative which spreads 3,000 or more acres across areas larger than a third-order drainage should not be analyzed.
26. That lack of documentation directly contradicts requirements of the 2012 Planning Rule.
27. The Forest Service decided that the 3,000 acres suggested by (Lyon 1983) is analogous to a single third-order drainage. The Agency offers no scientific research which supports such equivalency.
28. Therefore, claiming that "the Forest Plan has created a situation where the existing condition of many third-order drainages are not in compliance with the Forest Plan standard" is questionable.
29. The Draft EA makes no claim that the (Lyon 1983)-suggested 3,000-acre requirement is not valid.
30. Despite that, the Draft EA seeks to remove (Lyon 1983) 3,000-acre directives from the 1987 Forest Plan.

Elk Habitat Effectiveness

31. The Forest Service claims that elk habitat effectiveness (EHE) and thermal cover directives included in the 1987 Forest Plan cause unwarranted problems. (Draft EA, p. 12)

    New information and changed circumstances have caused challenges with implementation of some of these standards, particularly those related to elk habitat effectiveness and elk thermal and hiding cover. These standards have limited the ability of the Forest Service to maintain other important elk habitats on the forest and manage for consistency with forest plan goals, objectives, and desired conditions for other resources.

32. The Agency asserts that the conflict is caused in whole or in part because of differing definitions for EHE. (Draft EA, p. 14)

    In a Partial Glossary of Elk Management Terms Lyon and Christensen (1992), the authors defined habitat effectiveness as related to elk as the percentage of available habitat that is usable by elk outside of the hunting season.

More recently, Ranglack et al. (2016) defined habitat effectiveness for elk as a measure of the actual elk use of an area in relation to the expected use of that area if no motorized routes were present.

33. The Forest Service asserts it must amend the 1987 Forest Plan because (Draft EA, p. 16):

> More recently, Proffitt (2013) began to evaluate the effects of hunter access and land ownership with regard to elk distribution, and further research by Proffitt et al. (2016a) linked in nutritional parameters to elk distribution on the landscape. Ranglack et al. (2016) recommended that the earlier elk summer habitat management paradigm based on managing motorized route density to maintain elk habitat effectiveness (U.S. Department of Agriculture and Montana Fish Wildlife and Parks 2013) be expanded to also consider nutritional resources. Ranglack et al. (2017) and Devoe et al. (2019) further explored the idea behind security areas in relation to female elk resource selection and hunting, and both studies concluded that elk responded more strongly to the nutritional quality of forage than perceived risk.
>
> This research, in conjunction with the confusion about and misapplication of elk habitat effectiveness and the newer concept of elk security because of their explicit differences (i.e., elk habitat effectiveness referring to outside of hunting seasons and elk security applying to within hunting seasons), has created constant confusion around elk habitat objectives in the Bitterroot National Forest Plan.

34. The Agency claim that (Ranglack 2017) and (Devoe 2019) concluded that "elk responded more strongly to the nutritional quality of forage than perceived risk" is a misreading of the research.
35. (Ranglack 2017) concluded:

> Our modeling of elk summer range resource selection across southwestern Montana suggests that nutritional resources are the primary factor affecting summer elk distribution. Indices of nutritional resources were consistently the strongest predictors of summer resource selection in each of the population-specific and regional models, highlighting the importance of nutrition in elk summer resource selection in this region and the need to incorporate nutritional resource considerations in elk summer habitat management. We recommend that the current elk summer habitat management paradigm based on managing motorized route density to maintain elk habitat effectiveness (MFWP and USDA Forest Service 2013) be expanded to also consider nutritional resources. (p. 8)
>
> …, the best model explaining summer resource selection found that elk showed little response to route density in areas of high nutritional value, but showed stronger negative responses to route density in areas of low nutritional value. This result suggests that the effects of strong selection for areas of high nutritional value may mask or offset the potentially negative effects of motorized routes on elk selection within their home range. (p. 9)

> Finally, our results suggest that population-specific resource selection models may be poor predictors of resource selection outside the area in which they were generated. (p. 9)

36. In addition to concluding that elk selection of high-nutrition-value areas may "mask" the negative effects of motorized routes, (Ranglack 2017) cautioned against using population-specific selection models outside the area in which they were generated.
37. Generalizing (Ranglack 2017) to the entire BNF is exactly what that research cautions against.
38. (Devoe 2019) concluded:

> Our results indicate that during the archery season, elk with higher-risk home ranges selected more strongly for areas farther from motorized routes than elk with lower-risk home ranges. Regardless of the level of risk, however, elk maintained or increased selection for areas with higher forage quality, suggesting that elk did not compromise access to nutritional resources during the archery season. Elk with higher-risk home ranges were also exposed to the poorest nutrition and increased their selection for areas with higher forage quality more strongly than elk with lower-risk home ranges during the hunting season. Elk with lower-risk home ranges had access to the highest nutrition, which may be due to the availability of concentrated sources of high-quality forage from irrigated agricultural areas on private lands that restricted hunter access. (p. 801)

39. Even though (Devoe 2019) research showed elk prefer high-nutrition forage, elk in higher-risk home ranges selected more strongly for areas farther away from motorized routes than elk in low-risk home ranges.
40. The Forest Service's proposed amendment (for elk) depends upon the assumption that elk will always seek high-quality forage over security.
41. Neither of these research articles cited by the Agency unequivocally support that assertion.
42. The Draft EA suggests that because the Bitterroot elk population increased after the 1987 Forest Plan was enacted, the need for applying Forest Plan requirements for EHE is no longer a necessity. (Draft EA, p. 16)

> The elk population in the Bitterroot has increased dramatically since the Forest Plan was written despite non-compliance with this standard in 230 drainages. Other research shows that the effectiveness of elk habitat is intrinsically linked to forage abundance and quality in addition to road density (Crane et al. 2016, Ranglack et al. 2016, Robatcek 2019). The Forest's environmental analysis protocol now includes elk security analysis (Hillis et al. 1991), which has proven to be a more suitable tool than elk habitat effectiveness analysis for achieving the forest plan objective to maintain elk populations and hunting season opportunities in cooperation with Montana Fish, Wildlife, and Parks.

43. As stated above, the Forest Service has been using and desires to continue using (Hillis 1991) to achieve Forest Plan objectives.
44. What is not mentioned in the Draft EA is that (Hillis 1991) makes specific recommendations on how forest roads relate to elk security.

45. That is problematic given that the overwhelming majority of the 1987 Plan Components related to Elk habitat effectiveness and thermal cover being removed, are related to restrictions on roads. (Draft EA, pp. 30-31)

    (Chapter II, Section F.1(e)(14)), (Chapter II, Section F.1(e)(15)), (Chapter III, Section B.3(c)(4)), (Chapter III, Section C.3(c)(4)), (Chapter III, Section D.3(c)(4)), (Chapter III, Section D.3(c)(5)), (Chapter III, Section E.3(c)(11)), (Chapter III, Section F.3(c)(4)), (Chapter III, Section L.3(c)(2)).

46. The new amendment language includes very few restrictions on roads; even those allow for exceptions. (Draft EA, P. 32)

    FW-GDL-WLF-ELK- 01: …No additional roads, trails, or areas should be designated for motor vehicle use if hunting district-specific elk trend data (5- or 10-year) suggests the population is below State objectives and declining or if elk use of National Forest System lands in the plan area has declined independent of population size. [Requires 5-10 years wait (after the damage is done) before discovering a change in elk population.]

    FW-GDL-WLF-ELK-03: … Exceptions may occur when needed for protection of other resources as mandated by law, regulation, or policy. In such cases, concentrating management actions in time or space could be a method to minimize disturbance and reduce impacts to elk. [Exceptions are sure to include a need to "harvest" sawlogs, treat vegetation, treat insect infestations, deal with emergencies, etc.]

    GA-GDL-RC-WLF-ELK-07: All new permanent road construction should be for administrative use only to minimize pressure on elk. [Administrative use includes, logging, vegetation treatment, treating insect infestations, emergencies, etc.]

    GA-GDL-SAPH-WLF-ELK-09: All new permanent road construction should be for administrative use only to minimize additional pressure on elk that may contribute to movement to adjacent private lands during the archery or rifle hunting seasons. Exceptions may be made in the case of existing roads needing relocation. [Administrative use includes, logging, vegetation treatment, treating insect infestations, emergencies, etc.]

    GA-GDL-SAPH-WLF-ELK-10: To help maintain or restore habitat connectivity for elk, there should be no net increase in permanent motorized route density at the project scale. ["At project scale" does not include an increase over multiple projects.]

47. The language of the new elk-related amendments is too vague and allows for an increase in roads and, by allowing exceptions, enables loss of EHE and security during critical periods of the year.
48. The FS should follow the recommendations of (MTFWP 2013):

    The agency participants noted that there has been a dramatic increase in all-terrain type vehicles, and therefore agreed that all FS system routes that receive any kind of motorized use by the public should be considered for their impact to elk not just open 'roads'. A review of the scientific literature regarding elk, roads, and traffic (McCorquodale 2013) provides strong evidence that elk use declines as traffic volume

increases (Johnson 2000) (Edge and Marcum 1991) (Rumble 2005) (Stubblefield 2006) (Montgomery et al. 2013).

Given this threshold for avoidance, agency participants agreed that closed routes or low intensity, occasional private or administrative travel and management activity on routes closed to the public could be reasonably excluded in identifying security areas. However, consistent, frequently-used non-public routes or temporary roads would detract from security areas, …

49. The Mud Creek Draft EA states, "The small size of 3rd order drainages in the project area limits the amount of roads that can be present on the ground. In order to meet the standards, the mileage of roads needed to be closed would limit forest management access and conflict with other forest plan management objectives to provide roaded, dispersed recreation." (Mud Creek Draft EA, pp. 34-35)
50. Although not stated in the Draft EA for the proposed FP amendments, The Mud Creek Draft EA suggests one of reasons to eliminate the (Lyon 1983) acre requirement is to allow the Agency to keep more open roads on the forest.
51. Therefore, even if forage is increased by "treatments," a large percentage of this forage will be unavailable to elk due to displacement to private lands by management actions on new and/or open roads in the summer and/or during the fall hunting season.
52. Given the vast amount of peer-reviewed research conducted into the negative effect of roads on elk, it appears the Forest Service is more interested in adding more roads for "management purposes" than the wellbeing of elk.
53. This proposed change to the Forest Plan (road) standard is in spite of the fact that the Agency does not have the ability to provide timely maintenance on the current, extensive road system.

Thermal and Hiding Cover

54. The Draft EA (p. 16) states, "…, both thermal cover and hiding cover are difficult to accurately assess."
55. That admission suggests there is limited or no on-the-ground research to support any change to the current Forest Plan hiding-cover requirements.
56. The "initial" Scoping Letter (18dec19) suggestion that "The degree to which hiding cover may influence seasonal elk occupancy of Forest Service lands is unknown" seems implausible given the vast amount of research that has been conducted on the subject.

Elk responses to human hunters were stronger in the day than at night and were generally more pronounced during the elk hunts than during deer hunts. During hunts, elk shifted their diurnal behavior to avoid forage and intensified their avoidance of roads and trails. The combination of these changes in behavior led to a predicted pattern of distribution during the hunt that differed substantially from the distribution prior to the hunt. Lactating females that more strongly avoided roads entered winter in poorer nutritional condition, suggesting that the changes in resource selection we describe carry corresponding nutritional costs that have the potential to impact subsequent population performance. (Spitz 2019)

We found that during the archery season, in order of decreasing strength of selection, elk selected for areas that restricted access to public hunters, had greater time-integrated normalized difference vegetation index values, had higher canopy cover, were farther from motorized routes, and had lower hunter effort. During the rifle season, in order of decreasing strength of selection, elk selected for areas that restricted access to public hunters, were farther from motorized routes, had higher canopy cover, and had higher hunter effort. … Further, cross-population analyses revealed increased elk avoidance of motorized routes with increasing hunter effort during both the archery and rifle hunting seasons. (Ranglack 2017)

Elk avoided the trails during recreation treatments, shifting distribution farther out of view and to areas farthest from trails. Elk shifted distribution back toward trails during control periods of no human activity. Elk avoided recreationists in real time, … Distances between elk and recreationists were highest during ATV riding, lowest and similar during hiking and horseback riding, and intermediate during mountain biking. (Wisdom 2018)

- Elk avoided people and trails associated with all-terrain vehicle (ATV) use, mountain biking, hiking, and horseback riding. Avoidance was strongest in response to ATV use, followed by mountain biking, and was less strong in response to hiking and horseback riding.
- In response to these recreation activities, elk moved to areas where they were less likely to encounter recreationists. Increased movement and flight added energetic costs and decreased foraging times, which can affect animal health and diminish their ability to reproduce.
- Elk stayed hidden from human view as part of avoidance. Extensive forest thinning increased the field of view and, therefore, the distances that elk maintained from recreationists. (Kantor 2019)

Collectively, the published scientific reports on the influence of roads and traffic on elk is not a small body of literature. To the contrary, extensive research over decades has demonstrated that high road densities and traffic negatively affect elk use, and—in hunted populations—elk vulnerability to excessive mortality. These results have been consistently demonstrated across a broad geographic range, to include Washington, Oregon, Idaho, Montana, Wyoming, Colorado, Arizona, South Dakota, Wisconsin, Kansas, and western Canada. The results have also been consistent for both Roosevelt (C. e. roosevelti) and Rocky Mountain elk (C. e. nelsoni) subspecies, further suggesting the results generalize well. (McCorquodale 2013)

The scientific evidence is compelling that disturbance associated with traffic on open roads can strongly affect elk distribution and limit use of even highly preferred habitat near roads. (McCorquodale 2013)

… the meta-analysis of the most recent data again demonstrated empirically that elk distribution and habitat use are strongly influenced by road effects; high road densities and traffic levels predictably reduce elk use. (McCorquodale 2013)

57. The Forest Service asserts (Draft EA, p. 17):

…, literature has become available since the completion of the Bitterroot Forest Plan that provides more nuanced information about the roles of different types of elk habitat on landscape. In particular, Cook et al. (1998) indicated that thermal cover is not a required ecological condition for elk.

58. The claim that "thermal cover is not a required ecological condition for elk" has been repeatedly refuted by other researchers which rightly expose that (Cook 1998) was research performed with partially domesticated, captive elk.

    In south-central Wyoming, USA, (Lamont 2019) reported that during summer female elk avoided pine beetle-infested forests during nearly all parts of the day and selected for intact coniferous forests during daytime. The selection for intact forests during daytime in summer highlights the need for thermal refuge, which may be compromised in pine beetle-infested forests (Lamont 2019). (Lowrey 2020)

    It is advantageous for an animal to conserve any energy that it acquires. Mammals and birds that maintain a constant body temperature expend a large amount of energy to maintain that temperature. Cover provides a mechanism for conserving energy. The thermal neutral zone is the range of ambient temperatures in which an animal has to expend the least amount of energy maintaining a constant body temperature. Thermal cover places the animal closer to the thermal neutral zone. Energy expenditures to maintain body temperature are minimized in an animal's thermal neutral zone… (McComb 2007)

    Any departure from the thermal neutral zone results in increased expenditure of energy, and so animals often select a habitat that reduces climatic extremes. There are upper and lower critical temperatures beyond which exposure for a prolonged period would be lethal. Cover from overheating is especially important to large animals with a low surface-area-to-body-mass ratio because they may find it particularly difficult to release excess heat unless water is available to aid in evaporative cooling. Cover from severe cold is especially important to a species with a high surface-area-to-bodymass ratio (e.g., small birds and mammals). Cover that allows an animal to stay within an acceptable range of temperatures (particularly those that approach the thermal neutral zone) is important for maintaining a positive balance of net energy and hence influences animal fitness. (McComb 2007)

59. Rigorous science is difficult. Claiming that, "Thermal cover is difficult to accurately assess" (Draft EA, p. 16) reveals the Forest Service is either not capable of, or not interested in, performing rigorous, scientific measurements.
60. The new amendments do not include mention of elk habitat effectiveness (EHE) or thermal cover.
61. This is despite research indicating both are important.
62. As the climate warms, thermal cover during the summer will become more important.
63. While the Agency focus remains on winter range, summer forage is all but ignored, even though research shows it to be extremely important to reproduction and winter survival.
64. It can be argued that the Forest Service is sacrificing elk habitat for timber production, something which hunters are unlikely to willingly accept.

Proposed Old Growth Amendment

65. The Draft EA (p. 17) states:

> Unlike the criteria in the Forest Plan, (Green 2011) provides measurable criteria for designating old growth based on forest types and habitat types in Montana and Idaho:
>
> - Criteria for live trees: minimum age (by species) of large trees, number of trees (trees per acre) by diameter at breast height (equal to or greater than a given dbh level and age) and basal area;
> - associated characteristics such as pieces per acre of down woody material that is at least 9 inches in diameter on the large end, number of canopy layers, presence of trees with broken/missing tops, trees with decay, and number of snags greater than 9 inches diameter at breast height.
>
> Executive Order 14072 provides agency-wide direction for an inventory of old growth and mature forest. This amendment will allow for consistent and reliable project-level identification and a statistically valid Forestwide inventory of old growth acres by applying (Green 2011). An accurate inventory is the first step in promoting the continued health and resilience of old forest stands; retaining and enhancing carbon storage; conserving biodiversity; mitigating the risk of wildfires; enhancing climate resilience, enabling subsistence and cultural uses; providing outdoor recreational opportunities; and promoting sustainable local economic development.

66. The Draft EA (pp. 18-19) goes on to declare:

> There is a need to modify the forest-wide standard and glossary definitions in the 1987 Forest Plan to those described in Old-Growth Forest Types of the Northern Region by (Green 2011) to provide consistent, measurable criteria for monitoring old growth at the project scale and when evaluating whether project activities are maintaining and promoting old growth characteristics associated with the varying forest types and habitat type groups (biophysical settings) across the Bitterroot National Forest. The amendment would align the Bitterroot Plan with the definition used in Region One and what is being used for the national inventory effort (FIA or Forest Inventory Assessment).
>
> Modification of standards in Management Areas 1, 2, 3a, and 3c is also needed to delineate old growth by stand as identified in Forest Service Handbook 2409.17. Old growth would be delineated at the stand level based on forest composition and structure as defined by (Green 2011) during project area planning. Stands smaller than 40 acres, if meeting criteria, would be maintained or promoted as old growth during project implementation. Five acres is considered the minimum size practical for stand designation and even stands of this size are valuable as a key characteristic of ecosystem diversity. Due to the dynamic nature of stand progression, a forest-wide stand delineation of old growth will not be provided. Old growth is not a static state; natural disturbances such as windstorms, wildfire, insects, and diseases can move a stand from one successional stage to another (Oliver 1996).

This amendment will also comport with Executive Order 14072, which provides agency-wide direction for an inventory of old growth and mature forest. The amendment will allow for consistent and reliable project-level identification and a statistically valid Forest-wide inventory of old growth acres by applying (Green 2011) as the standard and the definition of old growth in the glossary of the Forest Plan. Replacing the standard that states "Old-growth stands may be logged and regenerated when other stands have achieved old-growth status" (USDA Forest Service 1987a, p. II-20) with a guideline that conserves old growth but allows for exceptions when a stand is heavily impacted by insects and/or disease will provide flexibility until national policy is developed. This policy is expected to be developed in late 2023. E.O. 14072 implores the agency to conserve mature and old growth forests on Federal lands while deploying climate-smart forestry practices to improve the resilience of these lands. In this vein, the numerical percentages of old growth for third-order drainages would be removed and replaced with the Forest-wide desired condition to increase the amount of old growth forest on the Bitterroot National Forest.

67. The above text (at 68) contains a contradiction:

    "Due to the dynamic nature of stand progression, a forest-wide stand delineation of old growth will not be provided."

    "This amendment will also comport with Executive Order 14072, which provides agency-wide direction for an inventory of old growth and mature forest."

68. One meaning of "comport" is to "agree with."
69. If the proposed old-growth amendment is to "agree with" Executive Order 14072, then an inventory of old growth and mature forests must be provided.
70. Yet, contrary to law, the Draft EA (p. 18) states that the BNF will not provide such an inventory.
71. A comparison of the Forest Plan (FP) definition of Old Growth to that of (Green 2011) gives the impression that the reason the BNF wishes to adopt (Green 2011) as the standard is because Green et al. allows the removal of more trees per acre than the current Forest Plan while retaining the status of old growth.
72. For example, in the ponderosa pine, Douglas-fir, and western larch forest types, the FP states that a forest stand with 15 trees per acre greater than 20" DBH may be old growth (FP p. II-19). (Green 2011) states that 8 trees per acre 21" DBH may be old growth. (pp. 23, 24)
73. Therefore, it is logically possible for a stand to "retain old-growth status" with only 8 (21") trees per acre instead of the 15 (20") trees required by the current FP.
74. Another example is, in the lodgepole pine forest type, the FP proclaims that a forest stand with 15 trees per acre greater than 6" DBH may be old growth.
75. (Green 2011) states that 10 trees per acre 13" DBH (moderately cool to cool, dry to wet environments - p. 25) or 30 trees per acre 9" DBH (cold, moderately dry environments - p. 29) may be old growth.
76. Again, 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.

77. Not only does (Green 2011) allow for the removal of more trees per acre while allowing the Agency to retain old-growth status for a stand, but (Green 2011) requires that 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.
78. Both of those factors will limit the number of acres (of lodgepole pine) available to retain old-growth status.
79. Although the Agency appears to disregard the fact, (Green 2011) was establishing "minimums," not advocating that old-growth stands should be reduced to that minimum.

> **Because of the great variation in old growth stand structures, no set of numbers can be relied upon to correctly classify every stand**. In addition, the uncertainties of sampling and statistics introduce another need for caution in using stand data. The minimum criteria in the "tables of old growth type characteristics" are meant to be used as a screening device to select stands that may be suitable for management as old growth, and the associated characteristics are meant to be used as a guideline to evaluate initially selected stands. They are also meant to serve as a common set of terms for old growth inventories. Most stands that meet minimum criteria will be suitable old growth, but there will also be some stands that meet minimum criteria that will not be suitable old growth, and some old growth may be overlooked**. Do not accept or reject a stand as old growth based on the numbers alone; use the numbers as a guide.** (bold in original) (p. 11)
>
> A stand dominated by trees of the age and size listed under minimum criteria is generally good potential old growth. The number of trees is meant as a guideline for how many trees it takes to produce older stand characteristics, and should not be used as an absolute. The large tree age listed under minimum criteria is meant to define the minimum age which we will consider old growth, but that age is difficult to measure because some of the oldest trees may be too rotten or too large to accurately age. For this and other reasons, although age is the single most valuable guide for determining when a stand is old growth, age is often the least reliable data in an inventory. Tree size generally increases as a tree ages, but stand density and mortality affect tree size. The associated characteristics listed in Table 1 through 3 are meant to be guidelines in evaluating stands. A stand should not be accepted or rejected as old growth simply on the basis of associated characteristics. The predominance of minimum criteria and associated characteristics, rather than a single number, generally will be an excellent guide. Be aware that the associated characteristics of "DBH variation" and "tree canopy layers" were only provided as a descriptor of what was most common in existing inventory data, and should not be used to decide whether a stand is really old growth. Use these numbers and descriptions as guides in applying the basic principle that old growth is a "late stage of stand development" . . . " dominated by old trees and related structural attributes." (p. 11)
>
> … 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." (p. 12)

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. (p. 12)

80. The BNF proposes to replace the existing FP old-growth guidelines with the following. (Draft EA, p. 38)

    1. FW-GDL-VEG-01: To promote the retention of old growth (see glossary) and contribute to biodiversity, vegetation management activities in old growth should retain all minimum old growth characteristics as defined in Green et al. (2011) or new best available science.
        - Vegetation management activities in old growth stands should only occur for one or both of the following purposes:
            - Maintain or restore old growth habitat characteristics and ecosystem processes.
            - Increase resistance and resilience to disturbances or stressors that may have negative impacts on old growth characteristics or abundance (such as drought, wildfire, and bark beetles).
            - Exceptions to this guideline may be allowed where needed to mitigate hazards to: (1) public safety in campgrounds, other designated recreation sites, administrative sites, and permitted special use areas; or (2) infrastructure that is essential to community welfare (e.g., utilities and communications or wildland urban interface).
    2. FW-GDL-VEG-02**:** To maintain habitat connectivity and minimize disturbance of old-growth associated wildlife, road construction (permanent or temporary) or other developments should be avoided in old growth (see glossary) unless access is needed to implement vegetation management activities and purposes as outlined in FW-GDL-VEG-01 and there are no feasible alternative road locations. When identifying if proposed treatment areas include old growth, use a reasonable and accurate approach based on data collection or validation. Consider delineating old growth stands based on the FSH 2409.17, or other current direction.

81. The new guidelines contain loopholes that allow the removal of old-growth and mature trees.
82. For example, FW-GDL-VEG-01's "Increase resistance and resilience to disturbance or stressors …" enables the Agency to enter old-growth stands to remove trees damaged by insects or disease, downed trees, snags, and/or thin understory growth, each of which are critical and widely recognized components of old-growth stands.
83. Another example is, "exceptions to this guideline may be allowed where needed to mitigate hazard …"
84. Those "exceptions" include the "wildland urban interface (WUI)," the ill-defined and highly controversial section of forest bordering human developments.

85. If a future project area is in the WUI, that language allows the BNF to completely obliterate old-growth stands.
86. FW-GDL-VEG-02 provides another loophole which allows management actions in old-growth stands to build roads when "… access is needed to implement vegetation management activities and purposes as outlined in FW-GDL-VEG-01."
87. In other words, these two forest-wide guidelines, FW-GDL-VEG-01 and FW-GDL-VEG-02, being proposed do not limit the BNF from inflicting permanent damage to old-growth stands as long as it the Forest Service claims "vegetation management activities and purposes" are required.
88. The Agency asserts that "Green et al. represents the Forest Service's best available scientific information to define old growth. (Draft EA, p. 74)
89. However, despite the fact that many scientists have provided management recommendations for old growth, none of their research has been included in the Draft EA.
90. Not considering all recommendations does not satisfy NEPA requirement to "take a hard look."
91. The "new definitions" for old growth ignores ancient trees that are too few per acre to qualify.
92. For example, many extremely old trees on the BNF grow on steep, rocky, south-facing slopes that are unable to support enough trees to qualify for old-growth status.
93. Another example are linear stands of old trees growing on ridgelines.
94. Old and mature trees growing in those (example) situations will have no protection under the new old-growth amendment being proposed.
95. Other than maintaining (Green 2011) is used Region wide, no information is offered for the reasoning which the Forest Service used to determine that (Green 2011) is the best choice for defining old growth.
96. It is generally accepted that all or nearly all old, large trees should be retained. (Hessburg 2015) (Fiedler, Managing for Old Growth in Frequent-Fire Landscapes 2007a) (Fiedler, Monitoring old growth in frequent-fire landscapes 2007b) (Wales 2006) (Rapp 2003) (Yanishevsky 1994)
97. Large, old trees store greater amounts of carbon because carbon storage increases significantly with size. (Mildrexler 2020) (Stephens 2014)
98. Other than (Green 2011), no other old-growth research is offered in the Draft EA.
99. That omission is likely to indicate the proposed amendment will be used to cut, rather than preserve, more old-growth trees.
100. For example, the Mud Creek ROD (p. B-22) states: "while (Green 2011) 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."
101. That wording from the Mud Creek project (which incorporates the Green et al. amendment) reveals that some old-growth stands in the Mud Creek project area will be cut to the (Green 2011) minimum.
102. That statement from the Mud Creek ROD seems to contradict the assertion that, "There is no plan to reduce all old growth stands to a minimum number of trees." (Draft EA, p. 22)
103. However, the following statement from the Draft EA seems to indicate otherwise.

> Plan amendment components for old growth seek to promote the retention of old growth by allowing vegetation management activities in old growth that would retain all minimum old growth characteristics. (Draft EA, p. 91)

104. During a field trip for the Bitterroot Front Project (22jul22), an Agency silviculturist, Cheri Hartless asked the attendees, "Wouldn't you like to have more old growth on the forest?"
105. Hartless provided that as a reason to adopt (Green 2011).
106. Hartless' question was based upon a false equivalency.
107. As opposed to FP designations, (Green 2011) definitions qualify more trees as old growth. (Draft EA, p. 75)

> Using FIA datasets, the number of acres analyzed across the Forest is 1,594,579 acres with a total of 255 subplots sampled. Applying Forest Plan criteria to the dataset a total of 25 subplots equating to 38,437 acres meet plan criteria. When applying Green et al. criteria to the FIA dataset, the number of subplots meeting old growth criteria is approximately 100 subplots which equates to 153,748 acres of old growth (Morgan 2022). This estimate is approximately four times greater than the amount of old growth estimated when applying the Forest Plan criteria.

108. A change of definition for old-growth trees and a subsequent assertion by the Forest Service that the percentage of trees which qualify as old growth on the forest is greater than before is disingenuous.
109. The definition will have changed but nothing will have changed on the ground.
110. A proposed change of definition certainly enables the Forest Service to remove the largest and/or oldest trees (the most valuable timber) during a project while claiming the particular forest stand from which the largest/oldest trees have been cut retains old-growth characteristics.
111. During a field trip for Bitterroot Front Project (22jul22), Steve Brown stated, "The historic fire rotation in much of the Bitterroot Forest, specifically ponderosa pine stands, was five to seven years."
112. That claim is obviously false.
113. If the historic fire rotation was that often, no trees would have been able to grow past their seventh year, thus eliminating the possibility for old-growth ponderosa pine stands to develop.
114. DellaSala and Baker, two respected Ph. Ds, declare "… 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)
115. A recent study (Bartowitz 2022) of carbon emission sources in western states found:

> Climate change has intensified the scale of global wildfire impacts in recent decades. In order to reduce fire impacts, management policies are being proposed in the western United States to lower fire risk that focus on harvesting trees, including large-diameter trees. Many policies already do not include diameter limits and some recent policies have proposed diameter increases in fuel reduction strategies. While the primary goal is fire risk reduction, these policies have been interpreted as strategies that can be used to save

trees from being killed by fire, thus preventing carbon emissions and feedbacks to climate warming. This interpretation has already resulted in cutting down trees that likely would have survived fire, resulting in forest carbon losses that are greater than if a wildfire had occurred.

While wildfire occurrence and area burned have increased over the last three decades, per area fire emissions for extreme fire events are relatively constant. In contrast, harvest of mature trees releases a higher density of carbon emissions (e.g., per unit area) relative to wildfire (150–800%) because harvest causes a higher rate of tree mortality than wildfire. Our results show that increasing harvest of mature trees to save them from fire increases emissions rather than preventing them. Shown in context, our results demonstrate that reducing [fossil fuel emissions] FFEs will do more for climate mitigation potential (and subsequent reduction of fire) than increasing extractive harvest to prevent fire emissions.

We found that for all states, a 50–100% harvest would have led to greater carbon losses than fire for those burned areas, and even a 30% harvest led to greater carbon losses than fire for all but four of the western United States. Hypothetical harvest carbon losses continue to outpace fire carbon losses on a per unit area basis for most scenarios (Figure 4).

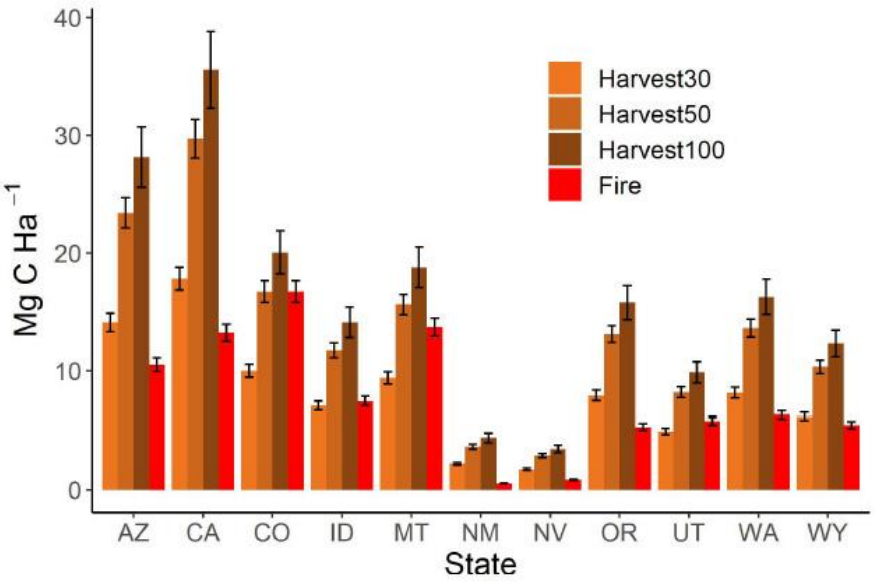


FIGURE 4 | Comparison of per area (Mg C ha^{-1}) hypothetical harvest scenario carbon losses to actual fire emissions. Harvest scenarios were calculated for the exact burn area in these states for 2009–2018. Harvest scenarios are based on 30, 50, and 100% aboveground tree removal rates. Here, a 30% is showing a thin-from-below, 50% harvest is akin to a commercial thin, while 100% would be representative of a clear-cut removal. Fire emissions are based on the fire perimeters of forest fires used in this study. Error bars represent standard error.

The most effective forest management strategy to protect forest carbon stocks on public lands is to preserve forests through decreased harvest and thinning, lengthened harvest rotations, …, reduced harvest …, and working toward afforestation and reforestation (Hudiburg 2013); (Law, Land use strategies to mitigate climate change in carbon dense temperate forests 2018); (Buotte 2020).

In practice, large-scale extractive forest management efforts will hamper climate mitigation and may be futile for decreasing fire risk. To be most effective, policy will need to focus on fire-wise adaptations for homes and property and disentangle ecologically-good fire from destructive fires (Kolden 2020). Protecting forests with ecologically sound principles, rather than increasing extractive management, may be the best scenario for the mitigation of climate change (Law, Land use strategies to mitigate climate change in carbon dense temperate forests 2018), and protecting humans, biodiversity, and forests (Walsh 2019); (Buotte 2020); (Law, Strategic Forest Reserves can protect biodivesity in the western United States and miigate climate change 2021)

116. The Draft EA (p. 86) states:

In a global atmospheric CO2 context, even the maximum potential management in either alternative would have a negligible impact on national and global emissions and on forest carbon stocks, as described below. As in this case, when impacts on carbon emissions (and carbon stocks) are small, a quantitative analysis of carbon effects is not warranted and thus is not meaningful for a reasoned choice among the action and no action amendment alternatives (U.S. Department of Agriculture 2015a). Although advances in research have helped to account for and document the relationship between GHG and global climate change, it remains difficult to reliably simulate observed temperature changes and distinguish between natural or human causes at smaller than continental scales (Intergovernmental Panel on Climate Change 2007a).

Even more difficult is the ability to quantify potential carbon consequences of management alternatives in the future due to potential variability in future conditions and the stochastic nature of disturbances. The result of such uncertainty is often a very low signal-to-noise ratio: small differences in carbon impacts among management alternatives, coupled with high uncertainty in carbon stock estimates, make the detection of statistically meaningful differences among alternatives highly unlikely.

117. The above claims that "… when impacts on carbon emissions (and carbon stocks) are small, a quantitative analysis of carbon effects is not warranted and thus is not meaningful for a reasoned choice among the action and no action amendment alternatives (U.S. Department of Agriculture 2015a)."
118. The Forest Service is knowingly ignoring global warming and carbon sequestration.
119. Even though these amendments to the FP do not prescribe any on-the-ground management activities, they certainly enable those activities.
120. Most management activities associated with Agency projects contribute to the increasing accumulation of Greenhouse Gases (GHG) in the atmosphere.
121. For example, logging, thinning, prescribed fire, pile burning, travel to and from project sites, etc. all release GHG into the atmosphere.

122. 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).]
123. 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."
124. It directs federal agencies to consider the extent to which proposals would contribute to climate change.
125. It rejects as inappropriate any notion that any proposal 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." [1]

126. Thus, the FS must quantify GHG emissions.
127. The agency can only use a qualitative method if tools, methodologies, or data inputs are not reasonably available, and if that is the case, there needs to be rationale as to why a quantitative analysis is not warranted.
128. Quantitative tools are available, so the FS must comply.[2]
129. The Draft EA (p. 73) states, "Although there are pockets and areas that may not have fire events for many centuries, the likelihood of any particular forest stand to experience, within 100 to 150 years, a moderate- to high-severity wildfire where most or all existing trees are killed is relatively high.
130. Because no parameters are offered for "relatively high" it is left for the reader to guess.
131. Is "relatively high" greater than 50% or possibly lower than 5%?
132. The Draft EA (p. 77) asserts, "The amendment to support using the old growth definitions in Green et al. for the Forest 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."

[1] Fed Reg. 10252 (Feb. 19, 2021) - https://www.govinfo.gov/content/pkg/FR-2021-02-19/pdf/2021-03355.pdf
[2] Greenhouse Gas (GHG) Accounting Tools - https://ceq.doe.gov/guidance/ghg-accounting-tools.html

133. What is not mentioned is that loopholes provided in the new wording (FW-GDL-VEG-01 and FW-GDL-VEG-02) allow for almost any management action which could destroy old growth, the habitat that many wildlife species depend upon.

134. Therefore, the claim (Draft EA, p. 77), "…, the Green et al. old growth definitions result in more acres of old growth in the larger size classes managed as old growth habitat than would the Forest Plan definitions. This would benefit wildlife species associated with mature and over-mature forests …" is not persuasive.

135. The Draft EA (p. 78) states:

> Additionally, by adopting Green et al. we are better able to monitor old growth because of FIA data and monitoring protocols developed by the Northern Region. The Bitterroot National Forest uses the monitoring protocols for investigating the effects of treatments, both mechanical and prescribed fire, intended to increase resilience in old growth and mature stands in the project area using Green et al. When monitoring stands that have been treated, it is important to also monitor control areas that have similar characteristics so that an evaluation can be made regarding how stands change over time, with and without management activities. This will allow the Forest to assess how management activities or lack of, affect old growth characteristics and desired conditions over time. Data collection follows Northern Region protocols for old growth which are repeatable and consistent.

136. Given the BNF's poor record of post-project monitoring, that paragraph (at 130) is spurious.

Proposed Snags Amendment

137. The Draft EA states:

> The 1987 Forest Plan includes a forest-wide wildlife standard for snags that states "All snags that do not present an unacceptable safety risk will be retained" (FP, p. II-20). A snag is defined in the Forest Plan as a standing dead tree usually greater than 5 feet in height and 6 inches dbh (diameter at breast height). (p. 10)
>
> The amendment will resolve the discrepancy apparent in the Forest Plan regarding snag management. Snag retention in treated stands will be based on findings from Harris (1999) and Bollenbacher et al. (2009). (p. 17)
>
> The snag standard is expected to have no influence on the likelihood of salvage logging. Salvage logging is allowed under the existing plan, and changing the standard only rectifies an inconsistency. Amendment components consider the structure and function of snags and their value to wildlife. (p. 23)
>
> Stands targeted for treatment should retain a suitable number of snags in a variety of size classes, depending on habitat type group. This will resolve the discrepancy in the existing plan that allows for salvage while also stating that snags shall be retained if they do not present an unacceptable safety risk. (p. 28)

138. The Draft EA (p. 38) states, “All snags that do not present an unacceptable safety risk will be retained. (Chapter II, Section F.1(e)(3))” will be removed from the FP.

139. It will be replaced with (Draft EA pp. 39-40):

Forest-wide Desired Condition

1. **FW-DC-VEG-02:** Forest conditions support natural quantities and distributions of snags. Snags are unevenly distributed and dynamic over time, with a range of decay classes represented. The highest densities of snags occur in burned areas and in areas infested by insects; the lowest densities occur along roads, in areas where the concern for human safety is elevated, and in stands where active management is occurring. Individual stands may have no snags, or many, depending upon site-specific conditions. Table 3 displays the desired mean number of snags per acre by diameter threshold and snag analysis group.

Table 3. Recommended mean snags per acre densities by diameter thresholds based on inventory data for wilderness/roadless areas by Snag Analysis Groups for the Bitterroot National Forest using Hybrid 15 FIA Analysis Dataset

Snag Analysis Group	Snags> 10” +DBH	Snags> 15” +DBH	Snags> 20” +DBH
Lodgepole Pine	24.7	3.4	1.1
Warm/Dry	16.1	7.4	3.6
Warm/Moist	19.7	12.4	6.8
Cold, Cool/Moist	26.1	7.3	1.8

Forest-wide *Guidelines*

1. **FW-GDL-VEG-03:** To maintain snags (standing dead trees) over the long term for wildlife habitat and ecosystem processes, all vegetation management projects should retain at least 40 snags per 10 acres. The largest snags available should always be prioritized for retention. Guideline applies as an average of treatment units across a project area and allows for variation in snag retention among treatment units with the intent of preserving the most desirable snags. Snags need not necessarily be present on every acre or in every treatment unit; they may be clumped as appropriate for the site, species, and existing snag distribution. If fewer than the minimum desired snags are present, live trees should be retained to meet the minimum desired snags within treatment units with a preference for the largest and most decadent trees available. Large, live replacement trees may also count toward compliance with FW-GDL-VEGF-05. Trees with evidence of rot or wildlife use are preferred. Live replacement trees do not need to be retained where retention is not possible due to operational limitations associated with harvest or burning implementation. Snags should be retained greater than 300 feet away from roads in areas open for firewood collection. Exceptions to the snag retention guideline may be allowed in areas where the minimum number of snags or live replacement trees are not present prior to management activities or where needed to manage infrastructure.

2. **FW-GDL-VEG-04**: Vegetation management activities should retain snags greater than 20 inches DBH and at least the minimum number of snags and live trees (for future snags) that are displayed above in Table 3. Where snag numbers do not exist to meet the recommended ranges, the difference would be made up with live replacement trees. Exceptions occur for issues such as human safety and instances where the minimum numbers are not present prior to the management activities.
3. **FW-GDL-VEG-05:** Where vegetation management activities occur and snags (or live trees for future snags) are retained, the following direction should be followed: o Group snags where possible:
    - Retain snags far enough away from roads or other areas open to public access to reduce the potential for removal (generally more than 150 feet);
    - Emphasize retention of the largest snags and live trees as well as those species that tend to be the most persistent, such as ponderosa pine, western larch, and cedar;
    - Favor snags or live trees with existing cavities or evidence of use by woodpeckers or other wildlife.
4. **FW-GDL-VEG-06:** Consider girdling large trees with dwarf mistletoe to maintain large snag structure.
5. **FW-GDL-VEG-07**: Snags may be felled by persons with a firewood gathering permit, wherever they pose a hazard to roadways or other infrastructure, and during fire suppression and prescribed fire preparation.

140. The verbiage which will replace the current FP wording contains loopholes that allow the Agency to ignore the new Snag Amendment.
141. Table 3 contains “recommended mean snags per acre” which means some acres are likely to be left with few or no snags.
142. That is especially problematic if burned areas are exposed to salvage logging.
143. FW-GLD-VEG-03 suggests that live trees should be left if the number of snags is insufficient.
144. It then states, “Live replacement trees do not need to be retained where retention is not possible due to operational limitations associated with harvest or burning implementation.”
145. That loophole allows the Forest Service to completely ignore its new snag guidelines when “harvesting” or “burning” especially when economic interests are judged to be more important than ecological viability.
146. The loophole contained in FW-GDL-VEG-04 suggests another exception is human safety.
147. Such an “opening” allows many trees, live or dead, to be classified as a hazard, a common practice during projects over the last several decades.
148. Project history on the BNF suggests that many trees, live or dead, have been classified as hazardous because they are economically desirable to project contractors.
149. FW-GDL-VEG-06 suggest that trees with dwarf mistletoe be girdled to maintain snag structure.

150. That suggestion ignores the fact that dwarf mistletoe provides critical habit to certain wildlife species and is another indication the BNF considers timber production to be more important than wildlife. (Watson 2012) (Hadfield 2000)
151. FW-GDL-VEG-07 provides another enormous opportunity for the removal of snags, all at the expense of wildlife.
152. Although the Draft EA (p.45) claims, "The snag component of the amendment applies to the minimum number of snags to be left as residuals after vegetative treatment; it is not a target number for snags forest wide," past BNF projects do not support this declaration.
153. One thing the Agency continues to ignore is the factor of wood hardness, both in live trees and snags.
154. Recent research shows how important wood hardness is to cavity excavating birds. (Lorenz 2015)

> Woodpeckers and other primary cavity excavators (PCEs) are important worldwide for excavating cavities in trees, and a large number of studies have examined their nesting preferences. …, interior wood hardness was the most influential factor in our models of nest site selection at both spatial scales that we examined: in the selection of trees within territories and in the selection of nest locations on trees. Moreover, regardless of hypothesized excavation abilities, all the species in our study appeared constrained by interior wood hardness, and only 4–14% of random sites were actually suitable for nesting. Our findings suggest that past studies that did not measure wood hardness counted many sites as available to PCEs when they were actually unsuitable, potentially biasing results. Moreover, by not accounting for nest site limitations in PCEs, managers may overestimate the amount of suitable habitat. We therefore urge ecologists to incorporate quantitative measures of wood hardness into PCE nest site selection studies, and to consider the limitations faced by avian cavity excavators in forest management decisions.
>
> Our findings suggest that higher densities of snags and other nest substrates should be provided for PCEs than generally recommended, because past research studies likely overestimated the abundance of suitable nest sites and underestimated the number of snags required to sustain PCE populations. Accordingly, the felling or removal of snags for any purpose, including commercial salvage logging and home firewood gathering, should not be permitted where conservation and management of PCEs or SCUs is a concern (Scott 1978) (Hutto 2016).
>
> …, until wood hardness is incorporated into nest site selection models, ecologists should remain cautious of interpretations made without measures of wood hardness, at least at the territory scale and smaller.

155. Nowhere in the Draft EA is there a discussion of wood hardness as it relates to snag retention.
156. That is a serious omission.

[continued on next page]

Proposed Coarse Woody Debris (CWD) Amendment

157. The Draft EA states:

> The purpose of the 1987 Forest Plan coarse woody debris requirements is to maintain soil productivity, design fire management programs consistent with other resource goals and to provide for non-game habitat. Current management area direction for coarse woody debris retention does not recognize the differences in the natural variation of coarse woody debris among different forest and habitat types, as supported by the best available scientific information. Additionally, Management Area 2 includes two contradictory standards requiring both 10 to 15 tons per acre and 25 tons per acre of coarse woody debris to be left after harvest activities. Lastly, the tons/acre amounts of coarse woody debris prescribed in the 1987 Forest Plan exceed what current scientific information recommends is needed to maintain soil productivity and manage fuel loadings. Proposed components will also consider the needs of non-game habitat. (p.10)
>
> Since the Forest Plan was developed, scientific information became available regarding the amount of coarse woody debris present in different habitat type groups (Fischer and Bradley 1987, Graham et al. 1994, Brown and Smith 2000, Brown et al. 2003). This information provides more refined measures to guide project implementation to contribute to achieving Forest Plan goals and objectives. The components for coarse woody debris will integrate managing the risk of wildfire, the habitat requirements of species requiring high densities of logs, and the ecological processes resulting from fire (Bull 2002). (p.17)
>
> There is a need to amend coarse woody debris plan standards in Management Areas 1, 2, 3a, 3b, and 3c (USDA 1987a, pp. III-6, III-12, III-13, III-19, III-28, III-33) to resolve the contradictory direction within the existing standards and ensure the amount of coarse woody debris to be left on the ground aligns with the current scientific information regarding soil health and fuel loading (Graham et al. 1994, 2003). (p. 19)
>
> A range of amounts of coarse woody debris in treated stands allows for adequate structure, function and process of soils and non-game habitat without imposing an impractical precision requirement on contractors. There is no incentive for a minimum amount to be left, especially when the contractor must sometimes revisit a treated unit to remove excess woody debris. Even so, the bottom of the range still allows for soil function and provides small mammal habitat. (P. 23)
>
> The proposed action would remove five management area standards related to the amounts of coarse woody debris needed to protect water and soil conditions as well as regenerating seedlings in Management Areas 1, 2, 3a, 3b, and 3c (ibid. Chapter 3). They would be replaced with appropriate amounts suitable to the biophysical setting according to the best available scientific information in Graham et al. (1999) and Brown et al. (2003), allowing the Forest to manage for fuel reduction while providing small mammal habitat and soil function. (pp. 28-29)

158. The Draft EA (p. 10) states, “Proposed components will also consider the needs of non-game habitat.”
159. That statement seems to be more inclusive than “small mammals” which Draft EA (pp. 28-29) language specifies.
160. The Draft EA (p. 17) states, “This information provides more refined measures to guide project implementation to contribute to achieving Forest Plan goals and objectives.”
161. However, the referenced “information” is less refined when it comes to CWD class size.
162. Although the Draft EA (p. 19) states, “There is a need to amend coarse woody debris plan standards in Management Areas 1, 2, 3a, 3b, and 3c (USDA 1987a, pp. III-6, III-12, III-13, III-19, III-28, III-33) to resolve the contradictory direction within the existing standards and ensure the amount of coarse woody debris to be left on the ground aligns with the current scientific information regarding soil health and fuel loading … .” there is no mention of the importance of CWD to wildlife.
163. The Draft EA (p. 23) states, “A range of amounts of coarse woody debris in treated stands allows for adequate structure, function and process of soils and non-game habitat without imposing an impractical precision requirement on contractors. There is no incentive for a minimum amount to be left, especially when the contractor must sometimes revisit a treated unit to remove excess woody debris. Even so, the bottom of the range still allows for soil function and provides small mammal habitat.”
164. Again, that language refers only to amounts of CWD but not size which is equally important.
165. Asserting “There is no incentive for a minimum amount to be left…” ignores a scenario which might require a contractor to leave an economically valuable log on the ground to meat CWD standards.
166. The Draft EA (pp. 28-29) states, “The proposed action would remove five management area standards related to the amounts of coarse woody debris needed to protect water and soil conditions as well as regenerating seedlings in Management Areas 1, 2, 3a, 3b, and 3c ….”
167. Eliminating language from the 1987 Forest Plan designed to protect water, soil conditions, and regenerating seedlings is imprudent; as the climate warms, regeneration will become more difficult.
168. The Draft EA suggests that the replacement language for the Forest Plan will be as follows. (pp. 41-42)

Forest-wide Desired Conditions

1. **FW-DC-VEG-03**: Down wood occurs throughout the forest in various amounts, sizes, species, and stages of decay. The larger down wood (i.e., coarse woody debris) provides habitat for wildlife species and other organisms, as well as serving important functions for soil productivity.
2. **FW-DC-SOIL-01**: Soil organic matter, physical conditions, and down woody debris maintain soil productivity and hydrologic function. Physical, biological, and chemical properties of soil are within the recommended levels by soil type as described in the Bitterroot National Forest soil inventory. These soil properties enhance nutrient

cycling; maintain the role of carbon storage, and support soil microbial and biochemical processes.

3. **FW-DC-SOIL-02:** Soil organic matter and down woody debris support healthy mycorrhizal populations, protect soil from erosion due to surface runoff, and retain soil moisture.

Table 4. Recommended ranges of tons/acre of Coarse Woody Debris to Retain after Vegetation Management Activities for each Habitat Type Loading Group. *

Habitat Type Fire Groups	Habitat Type Loading Groups	Recommended coarse woody debris Ranges (tons/acre)
(0) Scree, Rock, Meadows, Grasslands	N/A	0-5
(1) Warm, Dry Ponderosa Pine	(2) Dry site Douglas-fir and moist site ponderosa pine	5-10
(4) Warm, Dry Douglas-fir	(2) Dry site Douglas-fir and moist site ponderosa pine	5-10
(5) Cool, Dry Douglas-fir	(2) Dry site Douglas-fir and moist site ponderosa pine	10-20
(6) Moist Douglas-fir	(3) Moist site Douglas-fir	10-20
(7) Cool HT's Dominated by Lodgepole Pine	(4) Cool sites – lodgepole dominant and lower elevation subalpine fir	8-24
(8) Dry, Lower Subalpine	(4) Cool sites – lodgepole dominant and lower elevation subalpine fir	8-24
(9) Moist Lower Subalpine	(5) Moist site, lower elevation subalpine fir	8-24
(10) Cold, Moist Upper Subalpine and Timberline	(6) Cold, moist site upper elevation subalpine fir	8-24
(11) Warm Moist Grand Fir, Western Redcedar, and Western Hemlock	(7) Warm, moist sites, mostly cedar-hemlock	20-30

*Based on Brown and Smith 2000, Graham et al. 1994, and Fischer and Bradley 1987

Forest-wide Guideline

4. **FW-GDL-VEG-07**: Vegetation management activities should retain the amounts of coarse woody debris (including logs) that are displayed in Table 4. A variety of species, sizes, and decay stages should be retained. Exceptions may occur in areas where a site-specific analysis indicates that leaving the quantities listed in the table would create an unacceptable fire hazard to private property, people, or sensitive natural or historical resources. In addition, exceptions may occur where the minimum quantities listed in the table are not available for retention.

169. FW-DC-VEG-03 states "The larger down wood (i.e., coarse woody debris) provides habitat for wildlife species and other organisms, … ."

170. However, the Draft EA (p. 45) states, “The components for coarse woody debris were created to maintain soil productivity, assist in soil carbon storage, and provide structure for small mammals.”
171. “Small mammals” is more restrictive than “wildlife species.”
172. In fact, CWD provides an important habitat for many wildlife species including birds, both small and large mammals, insects, microbes, etc.
173. The existence of this discrepancy leaves the question unanswered as to which organisms were considered in relation to CWD.
174. None of the new wording for the proposed CWD amendment includes any description or prescription for size(s).
175. CWD size is important to both wildlife habitat and soil.
176. The CWD Soils Report (Soils Report) by Vince Archer states:

> “The proposed action would address the range of CWD associated with the various habitat types that occur on the Bitterroot National Forest instead of emphasizing a general 10-15 tons per acre for dry and harsh sites. This change shifts the management of CWD to a broader intent for sustaining ecological integrity rather than a sideboard for a specific high risk scenario; e.g. site preparation on dry harsh sites. This alignment with habitat type would tailor to reflect what was established as desired conditions for CWD based on soil productivity and wildlife habitat from decades of inventory and research. The shift accounts for expected types but also the range of values somewhat address the spikes that may occur depending on time since disturbance.” (p. 4)

177. The proposed action does not address important incremental differences in ecological value and effects to fire behavior, soil and wildlife values that need to be managed, wherever CWD is applied to a project.
178. CWD retention for a wider variety of incremental size classes adjusted to the needs at the site-specific location need to be identified and prescribed in the proposed action and the CWD standard.
179. The standard should include prescriptions for retaining a share of available CWD in the higher size classes.
180. The Soils Report (p. 3) states:

> “Direction for CWD applies to areas undergoing vegetative treatment; it is not a target amount for CWD across the Forest. Though fire may consume CWD, the primary loss is from slash management associated with timber treatments. The proposed desired levels for CWD are adjusted to reflect optimal ranges that allows for soil function and process, successful regeneration, as well as small mammal habitat, while not creating a fuel loading hazard (Graham et al. 1994, Brown et al. 2003, Atchley et al. 2021).”

181. Unfortunately, “The proposed desired levels for CWD are adjusted to reflect optimal ranges that allows for soil function and process, successful regeneration, as well as small mammal habitat, while not creating a fuel loading hazard” provides no actual directions for the adjustment of CWD to optimal ranges.
182. The Soils Report (p. 3) states:

"The new desired conditions would define CWD as greater than 3-inch wood material following conventional terms used in fuels management and soil productivity literature (Lutes et al. 2003, Graham et al. 1994, Brown et al. 2003). … However, the plan also had a protection clause of 25 tons/acre of downed wood greater than 6 inches diameter, where available, to provide habitat for nongame and small game wildlife in this management area. The two prescribed levels conflict directly: greater than 25 tons per acre versus 10 – 15 tons per acre. The two standards also conflict in size material emphasized."

183. Thus, the plan had prescriptions for varying sizes of CWD tailored to resource protection needs.
184. That level of discrimination is reduced by the new proposal.
185. The Soils Report (p. 5) states:

"The proposed action would focus on future treated areas since timber harvest efficiency can lead to a dearth of CWD. Recent monitoring from the Kootenai and Idaho Panhandle National Forest Biennial Evaluation and Monitoring Reports have shown that with modern whole tree yarding techniques and machine piling of fuels that coarse wood debris can be scarce after timber harvest (USDA 2022a, USDA 2022b). The Bitterroot is scheduled in the near future to complete its monitoring report so data [is] not currently available."

186. Why the haste in asking for public comment prior to the disclosure of this important analysis information?
187. Mastication, increasingly being used on the BNF and which has largely undocumented effects on soil, is not even mentioned let alone discussed and yet would seem to have effects similar to the above scarcity of CWD caused by whole tree yarding and machine piling.
188. NEPA requires looking before leaping.
189. Mastication is taking a big leap beyond available scientific analysis.
190. What are the effects of mastication on CWD retention, soil characteristics and mycorrhizae?
191. There is a lack of science regarding the effectiveness (chemical, physical, and biological impacts) of the mulch and/or compaction impacts of mastication machines.
192. There are implementation implications of adding mastication on top of logging, thinning, and Rx burning for areas which have already experienced various soil impacts; most of which have not been considered in this analysis.
193. The Soils Report (p. 5) states:

"Currently, past harvest regeneration areas have the lowest level of CWD where stands were cleared and the slash treated and prepared for reforestation with a combination of dozer piling and slash broadcast burning used. Roughly 4 percent of the BNF has been cut with these methods based on forest records, amounting to 66,325 acres. The dominant time period when these cutting and slash control methods dated from the mid-1950s to 1990."

194. Why has the extensive logging and clearcutting done by Marcus Daly et al not been included in this analysis?

195. The exceptions included in FW-GDL-VEG-07 (penultimate sentence) leave openings for subjective decision making during future projects.
196. Especially worrying is "… create an unacceptable fire hazard… ."
197. The amount of CWD considered to be a "fire hazard" is a controversial subject in the scientific community.
198. The references cited in the Draft EA wording listed above, is at least two decades old, the conclusions of which are now considered to be debatable.
199. Much of the more recent scientific research indicates that CWD is extremely important to forest ecosystems and that insufficient amounts decrease biodiversity and productivity.

> Within the Forest Inventory and Analysis program in the USA, deadwood is an indicator of forest structural diversity, carbon sources and fuel loadings. (Woodall 2005)
>
> The large quantity of CWD that encompassed a wide range of variation in tree species, decay class, position type, and size creates a diversity of CWD habitats for saproxylic organisms and ensures functional resilience in boreal forest ecosystems. Our results stress that mean annual temperatures and natural site-specific disturbance regimes should be taken into account when setting targets for CWD volumes and dead:live wood volume ratios for management and restoration of CWD in boreal forests. (Shorohova 2015)
>
> High CWD volumes and large living tree densities in old-growth forests influence the provision of habitat for ecologically important saproxylic organisms, thus supporting high levels of late-successional biodiversity. (Persina 2015)
>
> In terms of forest management, the significant positive correlations we observed suggest that any forest practices enhancing deadwood increment at the local scale would benefit saproxylic biodiversity (notably in boreal forests). (Lassauce 2011)
>
> 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. (Achat 2015)
>
> 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)

200. One of the most recent studies of CWD's effect on amphibian wellbeing (Pabijan 2023) suggests that CWD amounts should equal those in unmanaged old-growth stands.

> We found that unmanaged, old growth forest plots with coarse woody debris on the forest floor held on average twice as many anurans compared to plots in managed stands. Average body condition of the most common species, *Rana temporaria*, measured as a scaled mass index, was enhanced in plots situated in old growth forest. Our findings suggest that the preservation of old growth forests containing coarse woody debris may

boost anuran abundance, biomass and body condition, and has the potential to buffer against long-term demographic decline. Moreover, the retention of deadwood could be a means of increasing the conservation potential of managed forests for terrestrial amphibian communities. (p. 1)

Our results bear significance for secondary forest management geared towards improving habitat quality for forest litter amphibians. We found that elevated amounts of coarse woody debris on the forest floor may increase amphibian abundance by a factor of two and lead to improved body condition in the dominant anuran, *Rana temporaria*. In our study plots, deadwood volume in managed forest averaged 8.3 m3/ha (range 0.9–40 m3/ha) which is slightly higher than mean values of deadwood throughout NF (~7 m3/ ha; Holeksa et al., 2020), but closer to the current average of 9.8 m3/ha in Poland (Biuro Urządzania Lasu i Geodezji Le´snej, 2022). Deadwood in plots situated in old growth forest averaged about 141 m3/ha (range 77–195 m3/ha). We propose that leaving deadwood in quantities approaching values for old growth deciduous forest examined in our study would likely increase anuran abundance and may be attainable even in commercial woodlands, in particular in managed forest in the process of recovering old growth attributes (Vandekerkhove et al., 2009; Meyer and Schmidt, 2011; Paillet et al., 2015). (p. 9)

201. Although the (Pabijan 2023) study took place in deciduous forests, the findings very likely apply to CWD in managed coniferous forests and should be considered.
202. We suggest that, rather than be overly concerned about an "imagined fire hazard" that CWD may foster, the Agency should perform the NEPA required "hard look" by considering the findings of the most recent research into CWD before making changes to the current Forest Plan CWD standards.
203. The Draft EA (p. 43) states, "Project planning monitoring includes ensuring standards and guidelines are met for snags and coarse woody debris in prescriptions and in timber sale provisions. Project administration enforces the provisions in the timber sale contract."
204. However, the Draft EA includes no disclosure of when CWD monitoring is performed for thinning and/or Rx burning projects in the absence of a timber sale.
205. Given the BNF's poor history of monitoring of any sort, any promise to monitor seems disingenuous.
206. No rationale is provided for dropping even the minimal CWD size prescriptions in the current 1987 Forest Plan CWD standard nor is an analysis of effect from removing those prescriptions disclosed.
207. In the absence of a rationale, it could be argued that the new CWD proposal is intended to simplify field administration or work for contactors of timber sales. (see Draft EA p. 23, "… imposing and impractical precision requirement on contractors.")
208. Simplifying timber sales administration or work for contractors is not a purpose of NFMA; resource protections are.

[continued on next page]

Ancillary Topics

Pileated Woodpeckers (managed indicator species)

209. The BNF 2023 Wildlife Analysis Report states:

Changes to the management of elk habitat could impact habitat quality for both marten and pileated woodpeckers. Changes in the definition and retention of old growth forest, snags, and coarse woody debris would affect habitat quality for these species. However other, current Forest Plan standards affecting MIS habitat would remain including vegetation management activities, and specific Management Area (MA) standards and guidelines. (p. 35)

210. The assertion that "…other, current Forest Plan standards affecting MIS habitat would remain including vegetation management activities, and specific Management Area (MA) standards and guidelines" is deceiving.

211. The new amendments remove all but one Forest Plan (FP)standard.

212. The remaining standard only applies to Management Areas for timber production.

213. The BNF 2023 Wildlife Analysis Report states:

> The adoption of the old growth definition provided by Green et al. would result in more acres being classified as old growth forest than under the current Plan definition (Project Record VEG_021) and would therefore result in greater conservation of pileated woodpecker habitat.

214. Again, this is misrepresenting the fact that, because (Green 2011) allows for fewer trees per acre than the current 1987 FP for a stand to qualify as old growth, future projects can remove more trees per acre and still retain old-growth minimum criteria.

215. That does not result "in greater conservation of pileated woodpecker habitat" and is likely to result in a reduction of the quality of the habitat.

216. In fact, the BNF 2023 Wildlife Analysis Report states:

> Indirect effects as a result of future site-specific projects to pileated woodpeckers may occur under this alternative in the form of habitat alterations. Removing commercial-sized trees that are infested with insects would remove potential foraging opportunities. Treatments that would reduce canopy cover below 10 percent (regeneration), would render those areas unsuitable for pileated woodpeckers for several decades, until the younger trees begin to mature again. (p. 36)

217. Here, the BNF admits that the proposed amendments cannot only have detrimental effects on Pileated Woodpeckers but that our repeated point is possible that, with the current wording of the proposed amendments, the BNF will be able to remove more old, large trees and retain old-growth stand designation.

218. That is unacceptable.

219. The BNF 2023 Wildlife Analysis Report states:

> The past century of fire suppression has also had effects on pileated woodpecker habitat, limiting the creation of large fire-killed snags, and allowing for a buildup of fuels that could increase the chances for a stand-replacement wildfire in many areas. Such a fire would reduce habitat for pileated woodpeckers for many decades. (p.36)

220. Those two consecutive statements are contradictory.

221. Asserting past fire suppression limited the creation of fire-killed snags, and then claiming a current-day fire, which would likely create fire-killed snags, would reduce habitat is nonsense.

222. The BNF 2023 Wildlife Analysis Report states:

> Past, present, and foreseeable activities associated with firewood gathering may affect pileated woodpeckers, particularly along open roads, as large dead and down wood is gathered for firewood. Areas more than 150 yards from open roads will not have these effects.

223. The claim that "Areas more than 150 yards from open roads will not have these effects" is dubious at best and ignores the fact that many forest roads switchback up slopes and those switchbacks are often withing 300 yards of each other.

224. The online Montana File Guide provides some important information about Pileated Woodpeckers, an Agency indicator species on the BNF.[3]

> No known active management specific to Pileated Woodpecker is ongoing in Montana, although Pileated Woodpecker has been used as an indicator nesting species for old-growth. … Recommendations for managing forests of western larch and Douglas-fir in northwestern Montana for timber harvest as well as hole-nesting birds (B. R. McClelland 1979) include:
>
> - providing 20-40 ha (50-100 acres) with a significant old-growth component of western larch, ponderosa pine, or black cottonwood within each 410 ha (1000 acres) of planning units to meet long-term nesting and feeding needs for each pair of Pileated Woodpeckers,
> - old growth should be well-scattered rather than grouped into adjacent areas,
> - old-growth units should be roughly square,
> - maintain old-growth in areas without roads or campgrounds,
> - retain logs, snags, culls, and their replacements in the remaining 365 ha (900 acres) of planning unit to provide foraging substrate and nest sites,
> - no cutting of snags for firewood unless they are < 38 cm (15 inches) DBH; discourage use of larch, ponderosa pine, and black cottonwood.
>
> The Pileated Woodpecker in western larch forests of Montana is closely associated with forest values (fire, insects, and heartwood decay) often considered characteristic of "unhealthy" forest conditions (B. R. McClelland 1999). Forest management that benefits Pileated Woodpeckers will need to recognize these components as important parts of a truly healthy forest ecosystem.
>
> Timber harvest has the most significant impact on habitat and populations. Removal of large-diameter live and dead trees, downed woody material, and of canopy closure eliminates nest and roost sites, foraging habitat, and cover.

[3] https://fieldguide.mt.gov/speciesDetail.aspx?elcode=ABNYF12020

225. The Draft EA fails to fully analyze the effects of old-growth location, timber harvest, CWD, and Snag retention on one of the BNF's indicator species, the Pileated Woodpecker.

226. The fallout from that failure to conduct a full analysis is, this proposed set of FP amendments removes existing protections for the Pileated Woodpecker and replaces them with loopholes.

227. (B. R. McClelland 1999) states:

> The short-term effects of silvicultural prescriptions such as regeneration cuts, fuel-load reduction, and "salvage" cutting in old- growth stands may not be indicative of long-term impacts on pileated woodpeckers (Bull et al. 1995). Short-term documentation can lead to mistaken inferences because territorial fidelity is strong in most woodpeckers (Lawrence 1967). ... Short-term fidelity (mere presence) often is construed as evincing adaptability of a bird and lack of impact from logging. Longer-term effects are the important concerns, and they may be distinctly negative (Ruggiero et al. 1988). Forest management that emphasizes restoring forest health through routine cutting of dead, dying, and diseased trees and fire suppression can eliminate essential characteristics of old-growth western larch. According to DellaSala et al. (1996), low elevation, old-growth forests in western Montana have declined 80-90% since European settlement. A concomitant decrease in pileated territories was evident from the absence of nests in young even-age stands that have replaced logged old-growth larch in our study area (pp. 853-854).

228. It seems that the BNF, with its abysmal lack of monitoring, has done exactly what (B. R. McClelland 1999) warns against, "Short-term fidelity (mere presence) often is construed as evincing adaptability of a bird and lack of impact from logging."

229. (Marks 2016) reveals what poses the greatest threat to Pileated Woodpeckers (p. 324).

> "Habitat degradation from timber harvest and fire suppression poses the greatest threat to Pileated Woodpeckers. Removal of large trees and downed logs, reduction in canopy closure in older forests, and habitat fragmentation reduce the availability of nesting, roosting, and foraging habitat and potentially increase predation risk (Bull and Jackson 1995). ... Preservation of large tracts of old-growth and mature forests (especially western larch) that support a natural complement of large snags (>70 cm in diameter) and downed logs will benefit the Pileated Woodpecker and other species that depend on cavities that the species creates (McClelland 1979, McClelland et al. 1979, McClelland and McClelland 1999). (p. 324)

230. This proposed set of amendments makes it possible for the BNF to remove the required amounts of CWD and too many large snags, both of which Pileated Woodpeckers depend upon for survival.

Pine Marten (managed indicator species)

231. The BNF Wildlife Analysis Report states, "A study of Pacific marten showed that forest thinning that reduced structural complexity negatively affected marten movements and

habitat connectivity (Moriarty, Decline in American Marten Occupancy Rates at Sagehen Experimental Forest, California 2011).” (p. 29)

232. (Moriarty, Forest Thinning Changes Movement Patterns and Habitat Use by Pacific Marten 2016) “… martens avoided stands with simplified structure, and the altered patterns of movement we observed in those stands suggested that such treatments may negatively affect the ability of martens to forage without increased risk of predation. Fuel treatments that simplify stand structure negatively affected marten movements and habitat connectivity.”

233. The BNF Wildlife Analysis Report states:

> “Future site-specific projects adhering to the proposed Amendment language may convert currently identified marten habitat into unsuitable habitat. This is primarily due to reductions in canopy cover and course woody debris resulting from the various treatments and subsequent burning. Depending on the location and treatment activity, treated areas may provide insufficient canopy closures and coarse woody debris to qualify as marten habitat. The pattern of marten habitat and non-suitable openings that may result from future projects could increase the fragmented nature of the suitable marten habitat at lower to mid elevations.” (p. 35)

234. That is an admission that the proposed set of Forest Plan amendments will allow future projects to destroy and fragment pine marten habitat.

235. The BNF Wildlife Analysis Report (p. 35) assert, “In other cases, management could enhance marten habitat quality through the identification and retention of patches of old growth forest smaller than 40 ac.”

236. The current 1987 Forest Plan encourages connecting old-growth stands to riparian areas to create connecting areas for pine marten and other wildlife, but this set of proposed Forest Plan amendments removes that “encouragement.”

237. The BNF Wildlife Analysis Report claims, “Access into marten habitat during the trapping season (winter months, beginning December 1) would not change under the Amendment, as much of the analysis area is restricted to over-the-snow motorized access.”

238. Given the continuing rampant illegal OSV travel in restricted areas of the BNF, that assertion is wishful thinking. (see attached Exhibits A and B)

Wolverine

239. Draft EA and supporting documents do not fully analyze effects on wolverine of the combined programmatic amendments for old growth, elk habitat, hiding and thermal cover, snag retention, and coarse woody debris.

240. The Wolverine Biological Assessment (WBA) (pp. 4-6) relies on information from the USFWS from 2013 and 2018. As we stated in scoping comments for the Bitterroot Front project (pp. 33-34):

> Recently, a US District Court ruling remanded the USFWS withdrawal of its Proposed Rule to list the distinct population segment of the North American wolverine occurring in the contiguous United States as a threatened species under the Endangered Species Act for

further consideration. The ruling reviewed the science relating to the selection of denning sites in combination with snow presence during the natal period and recent analyses of potential climate change effects to snowpack that indicate a severe reduction in snow cover during this century with negative implications to wolverine populations. This factor alone should place greater emphasis on habitat integrity and restoration for corridors, connectivity for both lynx and wolverine.

The ruling also emphasized that populations in the US, which exist as meta-populations "require some level of regular or intermittent migration and gene flow among subpopulations, in which individual subpopulations support one-another by providing genetic and demographic enrichment through mutual exchange of individuals." If connectivity is lost, "an entire meta-population may be jeopardized due to subpopulations becoming unable to persist in the face of inbreeding or demographic and environmental stochasticity."

241. The Wolverine Biological Assessment (pp. 8-9) states:

> Changes to forest guidance regarding the management of elk habitat may result in the approval of vegetation management projects with the potential to disturb wolverines. This could include mechanical treatment activities (and associated vehicle traffic), use of the existing road system, construction and use of temporary project routes, and other human activity in excess of background levels. However, these activities were determined to not be a threat to the species (U.S. Department of the Interior 2013a;2018).

242. The WBA should not rely on those vacated and withdrawn decision documents (USDOI 2013a and 2018).

243. Both documents claim that no scientific studies have been completed on the effects of land management and wolverine; as they did not stand up in court, the determination of no effect is indefinite and indefensible.

244. (Barrueto 2022) found:

> "… humans negatively affected the population through direct mortality, sub-lethal effects and habitat impacts. Our study exemplifies the need to monitor population trends for species at risk—within and between protected areas—as steep declines can occur unnoticed if key conservation concerns are not identified and addressed." (p. 1)

245. The Draft EA (p. 53) states:

> Because wolverine dispersal habitat is widespread on the Bitterroot National Forest, there is extensive overlap with areas used by elk. Therefore, it is likely that activities authorized under this amendment will alter the vegetation structure of dispersal habitat. However, because wolverines are less sensitive to habitat quality when outside primary habitat (Carroll et al. 2020), this is unlikely to negatively affect the species.

246. Because there is extensive overlap with wolverine "primary habitat" on the BNF, activities authorized by this set of proposed amendments "will alter vegetation structure of primary habitat."

247. The Draft EA (p. 53) also declares:

> Changes to forest guidance regarding the management of elk habitat may result in the approval of vegetation management projects with the potential to disturb wolverines. This could include mechanical treatment activities (and associated vehicle traffic), use of the existing road system, construction and use of temporary project routes, and other human activity in excess of background levels. However, these activities were determined to not be a threat to the species (U.S. Department of the Interior 2013a;2018).

248. Here, "may result" are the operative words, based on unsubstantiated conjecture.
249. And, as we have above-mentioned, those vacated and withdrawn decision documents (USDOI 2013a and 2018) cannot be relied upon.
250. The Wolverine Biological Assessment (p. 8) states:

> Changes in forest guidance regarding the definition of old growth forest or the retention of snags and coarse woody debris are unlikely to affect wolverine habitat quality. Changes in forest guidance regarding the management of elk habitat may result in changes to the structure of vegetation, however these are also unlikely to affect wolverine habitat quality.

251. According to (Keisker 2000), Coarse Woody Debris (CWD) is important and used often by wolverine (see table 9 below). The table denotes wolverine as an "obligate or frequent user of Coarse Woody Debris."
252. According to (Ruggiero 2007) Wolverine persistence is "critically dependent on dispersal between habitat islands" to facilitate gene flow between sub-populations. (p. 2145)
253. (Carroll 2021) emphasizes the need for private land conservation to enhance wolverine dispersal, "… for many species, such as wolverines (*Gulo gulo*), species persistence and continued recovery to historical range hinge on successful dispersers or migrants crossing low-elevation private lands (Cegelski 2006) …". (p. 1)
254. Carroll removes public lands from analysis assuming that they are better protected, an unsubstantiated postulation.
255. A finding of "no jeopardy" on this project proves otherwise as both low elevation and high elevation lands are important to wolverine.
256. The Wolverine Biological Assessment has not been signed or dated.
257. Please add a signed and dated copy to the project record and make it available online before a final decision is made.

[continued on next page]

TABLE 9 *Continued*

Use[3] of Coarse Woody Debris	Status[4]	English name (restrictions in distribution)[5]	Scientific name	Species code
Mammals (37 species)				
●		**Common Shrew**	*Sorex cinereus*	M-SOCI
●		**Pygmy Shrew**	*Sorex hoyi*	M-SOHO
●		**Dusky Shrew**	*Sorex monticolus*	M-SOMO
●		**Water Shrew**	*Sorex palustris*	M-SOPA
●		**Vagrant Shrew**	*Sorex vagrans*	M-SOVA
●		**Snowshoe Hare**	*Lepus americanus*	M-LEAM
●		**Southern Red-backed Vole**	*Clethrionomys gapperi*	M-CLGA
●		**Long-tailed Vole**	*Microtus longicaudus*	M-MILO
●		**Meadow Vole**	*Microtus pennsylvanicus*	M-MIPE
●		**Heather Vole**	*Phenacomys intermedius*	M-PHIN
●		**Bushy-tailed Woodrat**	*Neotoma cinerea*	M-NECI
●		**Deer Mouse**	*Peromyscus maniculatus*	M-PEMA
●		**Porcupine**	*Erethizon dorsatum*	M-ERDO
●		**Northern Flying Squirrel**	*Glaucomys sabrinus*	M-GLSA
?❍or●		Woodchuck	*Marmota monax*	M-MAMO
●		**Golden-mantled Ground Squirrel** (H)	*Spermophilus lateralis*	M-SPLA
●		**Yellow-pine Chipmunk**	*Tamias amoenus*	M-TAAM
●		**Red Squirrel**	*Tamiasciurus hudsonicus*	M-TAHU
●		**Meadow Jumping Mouse**	*Zapus hudsonius*	M-ZAHU
●		**Western Jumping Mouse**	*Zapus princeps*	M-ZAPR
?❍or●		Coyote	*Canis latrans*	M-CALA
?❍or●		Gray Wolf	*Canis lupus*	M-CALU
●		**Red Fox**	*Vulpes vulpes*	M-VUVU
●		**Cougar**	*Felis concolor*	M-FECO
●		**Lynx**	*Lynx canadensis*	M-LYCA
●		**Bobcat**	*Lynx rufus*	M-LYRU
●	Blue	**Wolverine**	*Gulo gulo*	M-GUGU
●		**River Otter**	*Lontra canadensis*	M-LOCA
●		**Marten**	*Martes americana*	M-MAAM
●	Blue	**Fisher**	*Martes pennanti*	M-MAPE
●		**Striped Skunk**	*Mephitis mephitis*	M-MEME
●		**Ermine**	*Mustela erminea*	M-MUER
?●		**Long-tailed Weasel**	*Mustela frenata*	M-MUFR
●	rare	**Least Weasel**	*Mustela nivalis*	M-MUNI
?❍or●		Mink	*Mustela vison*	M-MUVI
●		**Black Bear**	*Ursus americanus*	M-URAM
●	Blue	**Grizzly Bear**	*Ursus arctos*	M-URAR

1 Many Wildlife Tree users occasionally nest or roost in cavities in stumps short enough (i.e., <1.3 m) to be considered CWD-3 (see footnote 14 of Table 7). These species are not shown here unless they also use other Types of CWD.

2 Additional species use Coarse Woody Debris for other functions (see Addendum to Table 6).

3 ● = Obligate or frequent user of Coarse Woody Debris (52 species including "?● or❍") (comprises all species marked ■ or ◪ in at least one Type in Tables 7-1 to 7-6)
❍ = Occasional user of Coarse Woody Debris (26 species including "?❍or●")

4 Blue = Blue-listed in British Columbia (BC Environment 1998)
rare = rare in the SBS as well as in northern parts of the ESSF and ICH biogeoclimatic zones

5 See page 16–17 for a legend of restrictions in species distribution.

6 Includes Pacific-slope Flycatcher (*Empidonax difficilis*) and Cordilleran Flycatcher (*E. occidentalis*). For further information on taxonomy and status of these species, see Volume 3 of *The Birds of British Columbia* (Campbell et al. 1997).

258. (McKelvey 2011) concludes:

> We expect that the geographic extent and connectivity of suitable wolverine habitat in western North America will decline with continued global warming. … 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. (p. 2896)

259. It is clear that dispersal areas on public lands are vitally important to the persistence of the species.

260. (Carroll 2021) found:

> In the Rocky Mountain West (RMW), protected conservation areas and long-term wildlife conservation have historically focused on high-elevation systems with little economic or agricultural value (Scott et al., 2001; Joppa and Pfaff, 2009). This focus has resulted in conservation areas being unbalanced, with well-represented high-elevation ecosystems but less well-represented low-elevation ecosystems (Scott et al., 2001; Dietz and Czech, 2005; Aycrigg et al., 2013). (p. 1)

261. Lower- to mid-elevation forest service lands are as vital to wolverine as lower-elevation private lands.

262. (Saura 2014) found:

> …the loss of intermediate and sufficiently large stepping-stone habitat patches can cause a sharp decline in the distance that can be traversed by species (critical spatial thresholds) that cannot be effectively compensated by other factors previously regarded as crucial for long-distance dispersal. (p. 171)

263. (Fisher 2022) discussed the need for:

> … increased flexibility in wolverine selection during dispersal movements" because "it is important for metapopulation connectivity in this highly fragmented system. Unfortunately, there is some threshold at which wolverine dispersal movements are constrained that requires further investigation." (p. 11)

264. Without further investigation and evidence, it is irresponsible to assume that land management activities do not create constraints on wolverine movement in dispersal areas.

265. As (Carroll 2021) emphasized:

> Successful dispersal is critical for the species to continue occupying the available habitats and maintaining genetic diversity in the conterminous US… (p. 2)

266. (Fisher 2022) found:

> … wolverine occurrence declined with density of anthropogenic landscape features, including roads, seismic lines, harvest cutblocks, and other industrial footprint (Heim et al., 2017) – with linear features the most pervasive feature driving wolverine occurrence." (pp. 10-11)

267. (Scrafford 2018) found "roads, regardless of traffic volume, reduce the quality of wolverine habitats." (p. 534)

268. The study discovered that roads scarcely used by vehicles were deleterious to wolverine habitat suitability.
269. (Fisher 2022) states, "… two studies of over 40 radio-collared wolverines showed both sexes responded negatively to roads and motorized recreation (Lofroth 2007)." (p. 11)
270. (Mowat 2019) found, "Wolverine density averaged 2 wolverines/1,000 km2 and was positively related to spring snow cover and negatively related to road density." (p. 213)
271. Draft EA documentation claims any new roads built would be administrative use only, thus closed to the public causing no effect to wolverine.
272. Off-road vehicle technology can get around barriers and widely spaced trees in thinned forests making it easy to bypass closures and go off-roading.
273. Even decommissioned temporary roads can be used as trails.
274. Below is a road constructed during the BNF's 2016 Westside Project for "administrative use" in an area classified as "elk winter range."
275. It is now being used for illegal over-snow vehicle travel.

276. On February 14, 2023, Jeff Lonn sent BNF management a report depicting illegal OSV use on Ward Mountain (See attached Exhibits A and B).
277. Lonn's report shows the contempt many OSV users hold for officially designated non-motorized areas on the BNF and documents the illegal motorized use on one portion of the BNF.
278. According to (Scarpato 2013), "… even though most ORV [off road vehicle] users know and understand that staying on-trail is an important limit on their activity, a majority of

users prefer breaking new trail, most do so from time to time, and as many as one-fifth do so on a regular basis." (p. 143)

279. How many enforcement officers are available, how many off-road citations have been written, and how many off-road violations have been reported in the last 10 years in the project area?

280. Illegal use has not been disclosed or analyzed, making the assertion that "administrative roads" (i.e., not open to the public) will not receive illegal use by the public to be nothing more than speculation.

Grizzly Bear

281. Connectivity and a grizzly population in the Bitterroot Ecosystem (BE) are key to the recovery of grizzly bears.

282. An established grizzly bear population in the BE is essential to the recovery of the grizzly bear in the lower 48 and a necessary steppingstone population between the Greater Yellowstone Ecosystem (GYE) and the North Continental Divide Ecosystem (NCDE).

283. The project area covered by this set of proposed amendments is a connectivity expanse which allows grizzly bears to naturally colonize the BE and means of access to the GYE and NCDE.

284. Road densities in the project area must be kept to a minimum to decrease human-bear conflicts and to provide secure habitat.

285. Under Forest-wide Management Goals, Fish and Wildlife, the current 1987 Forest Plan (FP) states (p. II-3):

> Provide habitat to support viable populations of native and desirable non-native wildlife and fish.
>
> Maintain habitat for the possible recovery of threatened and endangered species.

286. Under Forest-wide Management Objectives, Wildlife, the FP goes on to state (p. II-5): Participate and cooperate in threatened and endangered species identification, recovery, and protection.

287. To encourage the Forest Service to strive for those Goals and Objectives, in October of 2021, Friends of the Bitterroot, Friends of the Clearwater, and the Bitterroot Lolo Flathead Task Force sent a letter to the BNF requesting a grizzly amendment to protect the bears that were showing up regularly on the forest.

> "We urge you to initiate and complete a forest-wide amendment for grizzly bears that adopts numerical motorized access standards at least as protective as did Amendment 19 from the original Flathead Forest Plan and establishes Bear Management Units (BMUs) on the Forest. The Endangered Species Act applies not just to the entire population of the grizzly bear, but to individuals as well, wherever they go. The current Forest Plan fails to protect these individuals.

288. The Agency declined to respond to the above-mentioned request.

289. The Draft EA (p. 22) states:

A detailed analysis of potential impacts of changes to elk habitat management on grizzly bear is included in the associated Biological Assessment (PR-WILD-002), and a summary of these effects is included in Chapter 3, Section 3.3. In the subsequent Biological Opinion, the USFWS determined that the implementation of the amended Forest Plan is "not likely to jeopardize the continued existence of the grizzly bear" and “will not negatively impact the recovery of grizzly bears.” (PR-WILD-003)

290. The conclusion that “"not likely to jeopardize the continued existence of the grizzly bear" and “will not negatively impact the recovery of grizzly bears” appears to be based on the unfounded assumption that bear habitat is in steep terrain and areas not likely to be affected by roads or human use.

291. That baseless assumption ignores newly available technology (high-powered over-snow vehicles, heli-skiing, innovative logging equipment, helicopter logging, etc.) that allow human activities on almost any terrain.

292. The Draft EA above-mentioned conclusion (p.22) is based on statement included in the USFWS Biological Opinion, 2021 (p. 41):

> In 1993, the Recovery Plan articulated the conservation needs for the recovery of grizzly bears. The Recovery Plan stated that recovery zones include areas large enough and of sufficient habitat quality to support recovered grizzly bear populations, and that although grizzly bears are expected to reside in areas outside the recovery zones, only habitat within the recovery zone is needed for management primarily for grizzly bears. The action area lies outside of the recovery zones.

293. That USFWS conclusion completely ignores the “action area” and does not consider either natural recovery, ease-of-movement between Recovery Zones, or the importance of connectivity to grizzly bear recovery.

294. The USFWS Biological Opinion, 2021 states (pp. 8-9):

> The Forest [BNF] divided the action area into 11 Grizzly Bear Analysis Units (GBAUs) for the purpose of analyzing effects to individual grizzly bears at a spatial scale that is biologically relevant to the bear (BA Table 2 and Appendix A, Map 6; U.S. Forest Service 2020). These analysis areas encompass an area approximately the size of an annual home range of an adult female grizzly bear. The areas do not represent actual home ranges, nor do they represent management units for grizzly bears. They simply provide a method for analyzing effects to grizzly bears consistently across the action area. Grizzly bears have not necessarily been verified in each of these analysis areas nor is it implied that occupancy is expected or required. The GBAUs include the suite of seasonal habitats that could support grizzly bear reproduction, although the western GBAUs are restricted in elevation due to the Bitterroot Ecosystem Recovery Zone boundary lying directly adjacent to the west, encompassing the higher elevations. All GBAUs include some higher elevation, steeper terrain that could provide denning habitat, as well as xeric forests and grasslands at lower elevations, and more mesic, productive forest types and wet meadows that are more likely to provide spring and fall food resources. Because the Service has not defined Bear Management Units within the Recovery Zone, the BA analyzed effects of the Forest Plan, Travel Management Plan, and Amendment within the

entire portion of the Recovery Zone in Montana that is managed by the Bitterroot National Forest (U.S. Forest Service 2020, Appendix A, Map 6).

295. Here, the Agency has arbitrarily divided the action area into" approximate GBAUs" which do not represent "real" home ranges or "actual" GBAUs.
296. Thus, the "approximation" is too nebulous to properly analyze effects or reach a definitively meaningful conclusion.
297. The BNR and USFWS failed to consider bear management units (BMU) defined by the BNF or those supplied by Sieracki and Bader for assessing habitat security or denning habitat and the effect of these proposed amendments on grizzly bears.
298. Such a suggestion was supplied to the Agency in scoping comments for the Bitterroot Front Project. (FOB et al Bitterroot Front Scoping Comments, pp.43-44)

The BNF must also fully analyze impacts on grizzly bear denning habitat based on the best available scientific information accepted and scheduled for publication in a scientific journal through a peer-review process (Bader and Sieracki 2022a), Exhibit 2. Please also see Exhibit 3, for denning habitat on the BNF. To facilitate this detailed analysis, grizzly bear proponents contracted with experts to develop proposed Grizzly Bear Management Units (BMUs) that we urge the Forest Service to utilize in evaluating the proposed action and a reasonable range of alternatives. Our proposed BMUs will enable the Forest Service to assess the existing baseline condition and changes under the proposed actions for grizzly bear habitat within the project area, including calculating baselines for roads, secure core, habitat productivity, denning habitat, and other resources. See Bader and Sieracki, 2022b.[4] See also, Exhibit 4 (Map of Proposed Grizzly Bear BMUs, South Half).

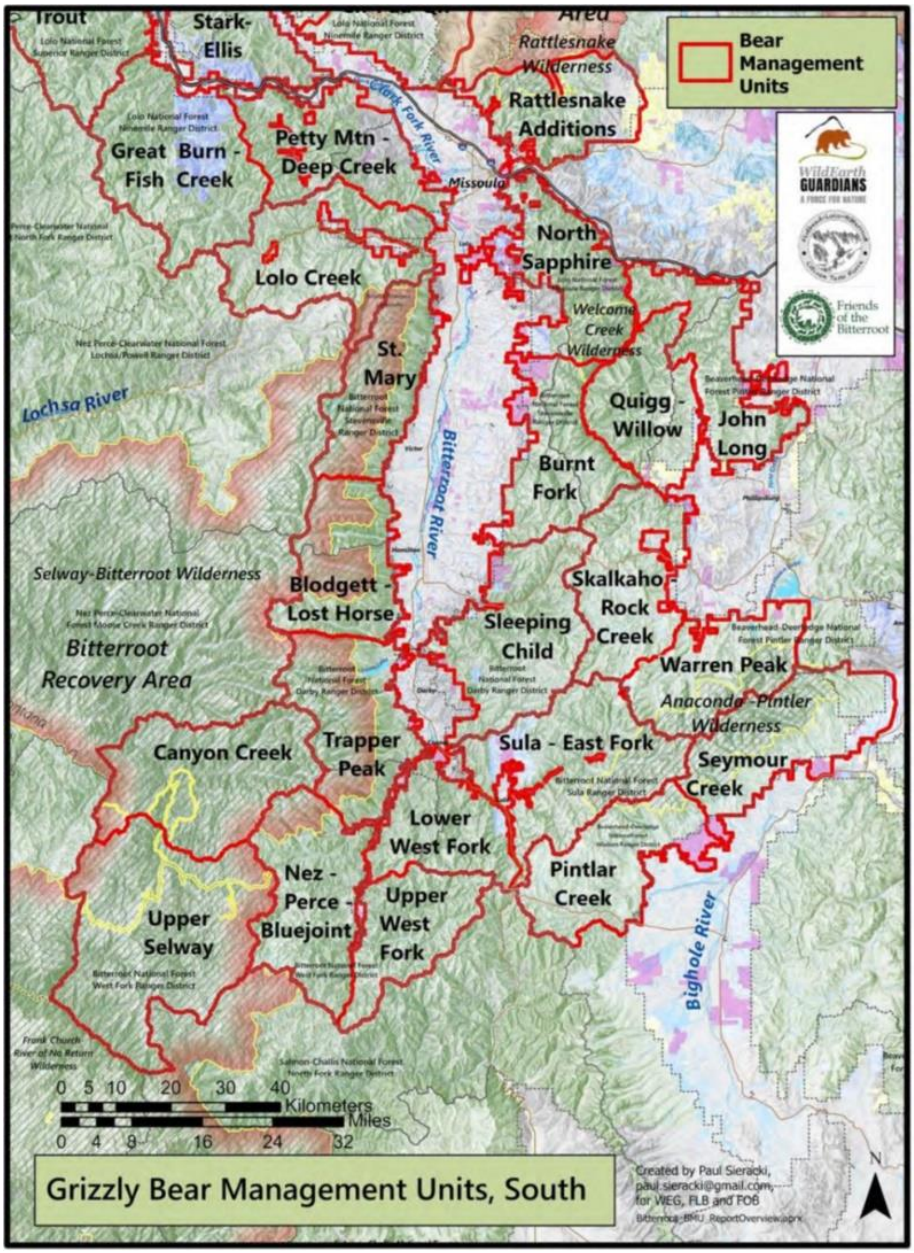
299. Habitat for bears in the other Recovery Areas is typically delineated by forest plans into BMUs where total and open road densities are limited to reduce human caused bear mortality and increase habitat security.
300. Recent sightings, recent court decisions, and an emphasis on connectivity in the USFWS's five-year status review, call for the BNF to now consider its role as a linkage zone and recognize its importance in the natural recovery of the grizzly bear into the Bitterroot Recovery Area.
301. In 2019, Governor Bullock created the Grizzly Bear Advisory Council to engage stakeholders on the future of grizzlies in Montana. The (Council 2020)'s final report incorporated recommendations that included "Consider future areas of connectivity in land management decisions" (p. 11) and a guiding principle that "Both genetic and demographic connectivity are important to the long-term sustainability, persistence, and resiliency of grizzly bears." (p. 6)
302. (Sieracki 2022) have created BMUs for the Bitterroot National Forest (map below).
303. These should already have been considered along with an FP amendment created to protect bears as they move through the area and promote connectivity between NCDE and GYE recovery zones.

[4] Bader, M. and Sieracki, P. 2022b. Proposed Grizzly Bear Management Units on the Lolo, Bitterroot and Select Portions of the Beaverhead-Deerlodge National Forests, Montana, USA. Exhibit 3.

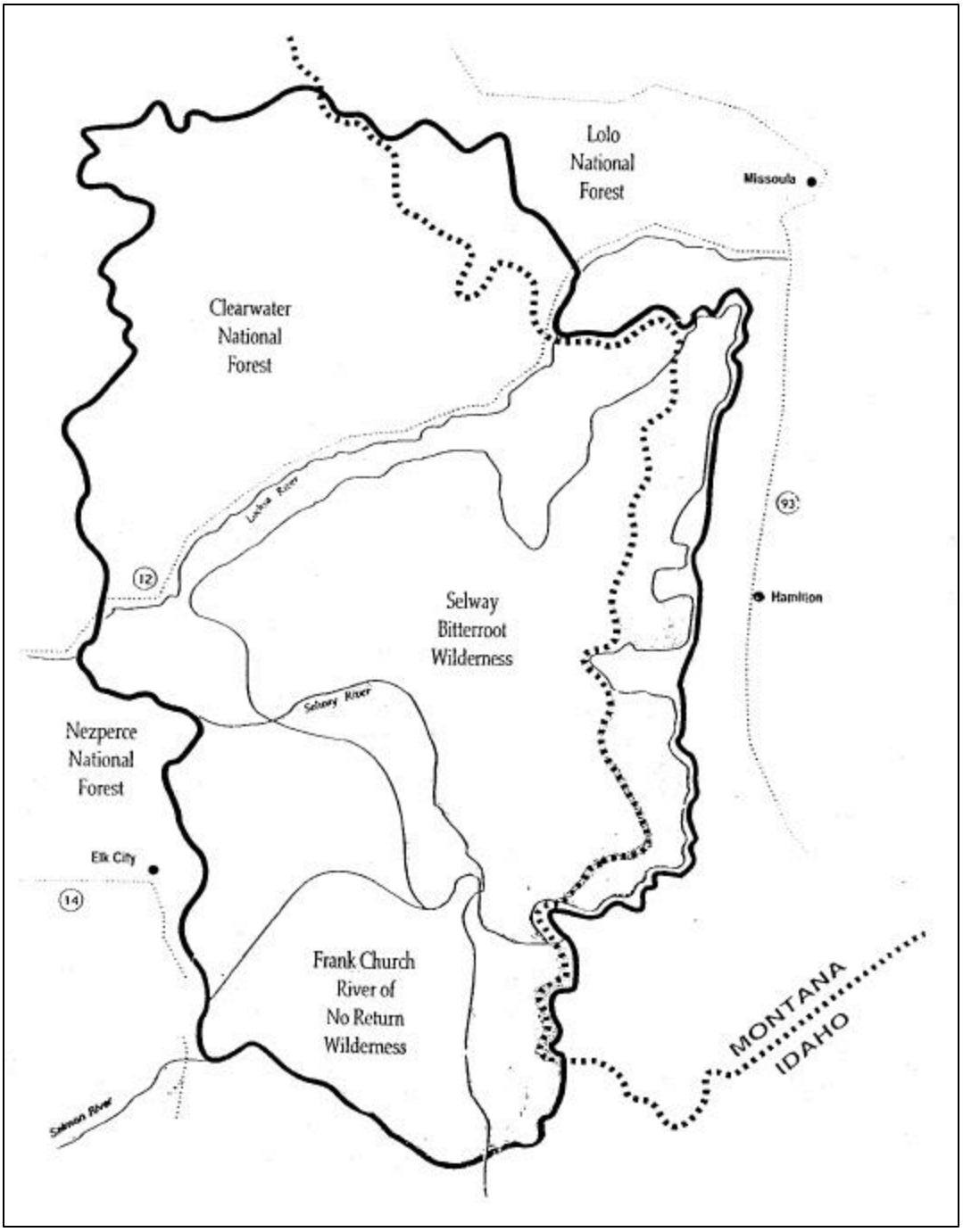
304. The USFWS's 2022 Species Status Assessment for the Grizzly Bear in the Lower-48 States indicates (p. 55):

> Although other grizzly bear populations and unoccupied recovery zones included in the lower-48 States, such as the GYE, North Cascades, and BE, are currently isolated, they are within male dispersal distance of existing populations, and connectivity is possible. In addition, with the expanding NCDE population, the BE is expected to be within female dispersal distance in the future.

305. That report shows the importance of the BE's connectivity between the dispersed grizzly bear populations of the occupied GYE and NCDE recovery zones.



The Bitterroot Ecosystem Recovery Plan Supplement (1996) to the Grizzly Bear Recovery Plan (1982) delineates the Bitterroot Grizzly Bear Recovery Zone in this map. (p. 8)



306. The USFWS's Grizzly Bear in the Lower-48 States 5-Year Status Review (2021) states (p. 21):

> …, viability for the grizzly bear in the lower-48 States as a whole only increases under the two optimistic future scenarios, which rely on increases in conservation efforts such that the BE and North Cascades support resilient populations. Although these are plausible future outcomes for the grizzly bear in the lower-48 States, there is enough future uncertainty associated with conservation efforts, such that the grizzly bear in the lower-48

States remains likely to become in danger of extinction within the foreseeable future throughout all of its range.

307. Here, the USFWS admits that "future uncertainty associated with conservation efforts," is likely to lead to the extinction of the grizzly bear.

308. That should be a warning to the BNF that the Agency must take the steps necessary to promote natural recovery in the Bitterroot Ecosystem and bolster the recovery of the grizzly bear in the lower 48.

309. The USFWS compiled a list of necessary actions to promote natural connectivity in the BE when it withdrew its Record Of Decision (ROD) for Reintroduction of grizzly bears in the BE.[5] The USFWS then selected the "natural recovery" alternative from the FEIS which included a list of items to encourage natural recovery.

- Conduct an extensive and objective public education and information program to inform the public about grizzly bears and their management under the ESA.
- Coordinate a monitoring program within the recovery zone to determine the status of recolonization.
- Evaluate the adequacy of land-use restrictions to protect suitable grizzly bear habitat within the Bitterroot recovery zone and within potential linkage zones to other occupied recovery zones.
- If ongoing USFWS research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then USFWS would recommend appropriate management actions.

310. The BNF should be following those recommendations and by creating a grizzly bear Forest Plan amendment that protects bears on the BNF as they make their way to the BE.

311. The USFWS's Grizzly Bear in the Lower-48 States 5-Year Status Review (2021) states (p. 9):

> Approximately 98 percent of the BE recovery zone is designated Wilderness, but the condition of large intact blocks of land is moderate because motorized access standards have not been developed for the recovery zone or for adjacent areas to the north and east, where female occupancy is necessary for natural recolonization of the BE (Service 2021, p. 222). Despite its relative isolation from other ecosystems, recent sightings suggest that inter-ecosystem connectivity is possible, … [6]

312. The 2020 Grizzly Bear Biological Assessment, Motorized access: Adverse Effect (Table 10, p. 26) states:

> The Forest estimates it may construct new motorized routes in the future (permanent or temporary), and that some of those routes may result in adverse effects to female grizzly bears. The majority would be restricted to public motorized access, but would be available for administrative use. The Forest anticipates no more than up to a 5% net

[5] The withdrawal was the result of congressional action forbidding the USFWS to fund the reintroduction at the behest of the State of Idaho.

[6] Despite the advice of current research, during the summer of 2022, the BNF insisted on two grizzly bears being trapping and relocating away from the BE.

reduction of secure habitat on Bitterroot National Forest lands in Montana, over the life of the Forest plan, Travel Management Plan, and proposed Amendment. All of this reduction would occur outside of the Bitterroot Ecosystem, as no road construction is permitted in the Bitterroot Ecosystem and the area was buffered by 500 meters in the analysis. While grizzly bears do not currently occupy the action area, these indirect effects may adversely affect grizzly bears in the foreseeable future (section 3.1.1).

313. Here, the USFWS admits that indirect effects (i.e., new road construction) "… may adversely affect grizzly bears in the foreseeable future" even though it takes place in the action area and not the BE.
314. In addition, the statement "The Forest anticipates no more than up to a 5% net reduction of secure habitat on Bitterroot National Forest lands in Montana, over the life of the Forest plan, Travel Management Plan, …" ignores the fact that the current Forest Plan is many decades overdue for replacement making the "life of the Forest plan" unknowable.
315. In addition, because no analysis of secure habitat was conducted, the prediction of only "a 5% reduction of secure habit" is just an assumption nor should the USFWS have "assumed" it was possible to predict the remaining life of the BNF Forest Plan.
316. The 2020 Grizzly Bear Biological Assessment states:

> Of the 84,222 acres of denning habitat identified in the action area, only 3445 acres (4%) intersect areas suitable for timber production. The remaining 96% occur in the portion of the Bitterroot Ecosystem in Montana or on unsuitable lands (including WSAs and IRAs or other identified acres from the Forest Plan). These potential mapped denning habitat areas occur on steep slopes in higher elevation, where vegetation management may not be feasible or accessible and will thus have little to no impact. (p. 31)

317. Assuming that because a majority of "mapped denning habitat" is in locations that limit or preclude "vegetation management" may "have little or no impact" is invalid.
318. The proposed set of new amendments have loopholes that allow for "vegetation management" almost anywhere on the BNF.
319. The USFWS Biological Opinion, 2021 states (p. 42):

> Motorized routes in some portions of the action area may result in displacement of some female grizzly bears, if and when they occur in the action area, from key habitat at some time over the life of the Forest Plan. However, some grizzly bears are able to persist in areas with higher levels of human pressure, as documented by verified reports of grizzly bears, including females with cubs (indicating home range use), outside of the recovery zones. Based on the Forest Plan and decisions that have occurred to date and are anticipated to occur, the overall levels of open motorized routes within the action area will likely be reduced over the life of the Forest Plan. Most new road construction would be temporary. Most new permanent road construction is not expected to be open to the public (U.S. Forest Service 2020, p. 26).

320. Again, the USFWS admits "Motorized routes in some portions of the action area may result in displacement of some female grizzly bears,…"
321. In addition, "Based on the Forest Plan and decisions that have occurred to date and are anticipated to occur, the overall levels of open motorized routes within the action area will

likely be reduced over the life of the Forest Plan" is either a misunderstanding or a misrepresentation of the history of roads on the BNF.

322. Recent history of BNF road management clearly shows that once a road is created (temporary or otherwise), removed from storage, or illegally created, it attracts use, mostly by motorized vehicles.

323. Most efforts by the Agency to classify roads as "administrative only," block access with gates or Kelly humps, or "recontour" have been and continue to be ineffective at reducing illegal use.

324. The USFWS Biological Opinion, 2021 states (pp. 41-42):

> Any private individual's non-compliance with the Forest's access management restrictions is an illegal activity. While future illegal use of the Forest via motorized access in areas unauthorized for such use may occur within the action area, such illegal use is not considered a Forest (federal) action. Given past experiences on the Forest (as described in the *Environmental Baseline* section above), the Service believes some instances of illegal motorized use are reasonably certain to occur in the action area in the future. Therefore, we acknowledge cumulative effects to grizzly bears may occur as a result of illegal motorized access, but the information as to the length, duration, amount of use, type of use, and location, among other conditions, is and will continue to be unknown until such time that illegal use is discovered. The probability of long-term illegal motorized access and probability of illegal access coinciding with the presence of grizzly bears is anticipated to be low but is unknown. As such, the potential consequences to grizzly bears are uncertain. Illegal motorized access is expected to be spatially disparate and temporary and is not likely to collectively cause an adverse effect because most users follow travel regulations and when illegal use is observed or when user-created roads become apparent the Forest corrects the situation as soon as they are able.

325. After admitting that illegal use of Forest Service roads cannot be quantified, the conclusion that "Illegal motorized access is expected to be spatially disparate and temporary and is not likely to collectively cause an adverse effect because most users follow travel regulations…" is absurd, based on nothing but wishful thinking. (see attached Exhibits A and B)

326. (Scarpato 2013) states (p. 144):

> In 1998, 91 of 128 National Forests responding to a Freedom of Information Act (FOIA) request reported "motor vehicle violations" of some stripe, to include leaving established roads and breaching environmental or safety standards. Unsanctioned user-created trails are estimated to have grown by the thousands of miles since the 1970s.

327. The USFWS Biological Opinion text goes on to assert that "…when illegal use is observed or when user-created roads become apparent the Forest corrects the situation as soon as they are able."

328. Despite the conclusions of USFWS that, "The probability of long-term illegal motorized access and probability of illegal access coinciding with the presence of grizzly bears is anticipated to be low…", illegal road use on the BNF is rampant and is likely to disrupt grizzly bear security.

329. The history of “enforcement” and “correcting situation(s)” by the BNF shows the claim to be misleading; “as soon as they are able” has typically proven to be years after the situation occurs.

330. The USFWS Biological Opinion, 2021 states (p. 15):

> These [unauthorized motorized use] and any other illegal activities are not the result of a federal action and therefore not analyzed under effects of the action, but their influence is considered for describing the environmental baseline.

331. Not analyzing illegal motorized use (on and off roads) is negligent and makes the conclusions of the analysis that was performed highly suspect.

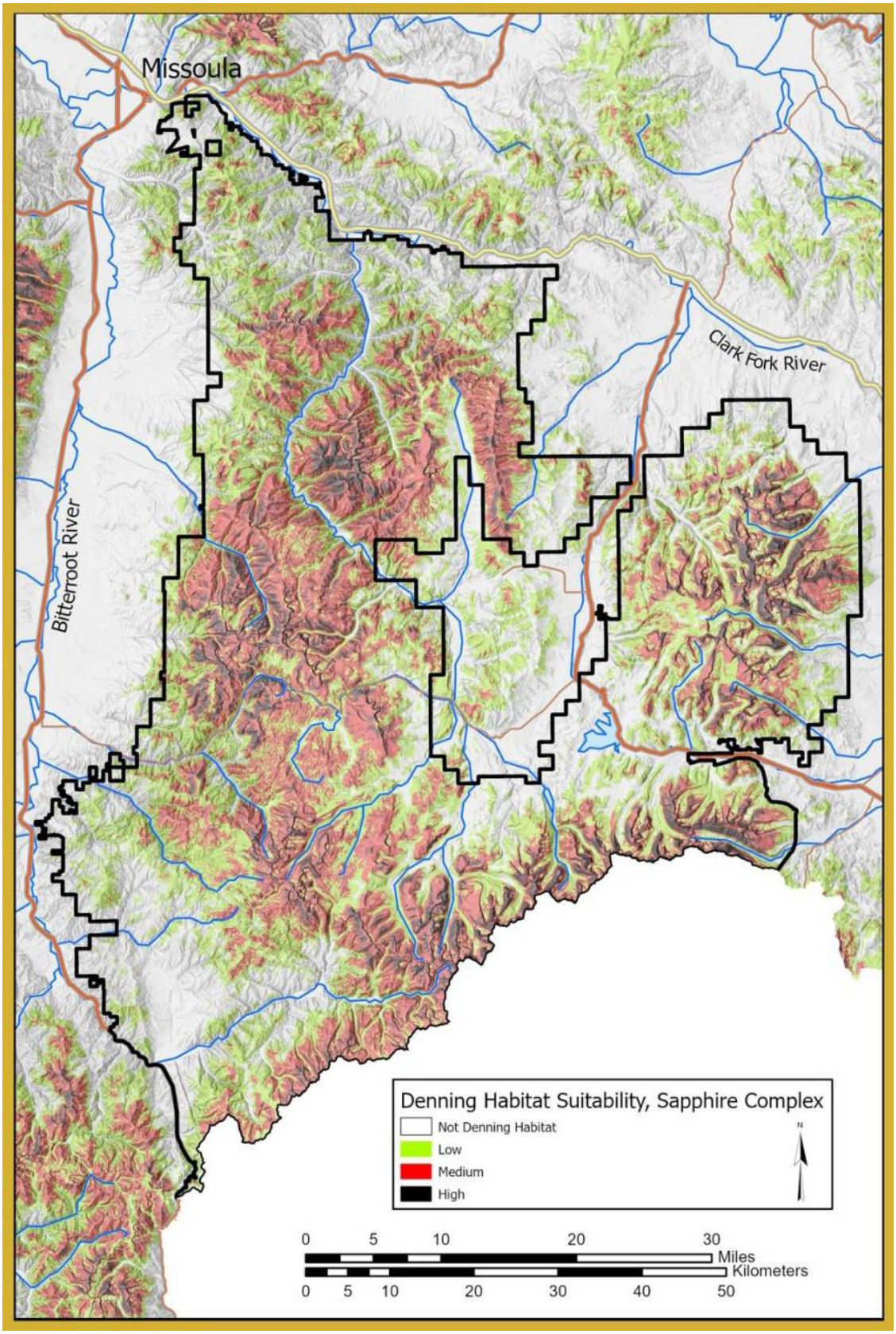
332. The 2020 Grizzly Bear Biological Assessment (p.28) states:

> Most of the modeled denning habitat depicted in section 2.2.8 (Appendix A, Map 14) is located withing the Selway-Bitterroot Wilderness which is part of the Bitterroot Ecosystem, and over-snow motorized access is prohibited. There are scattered other patches of modeled denning habitat throughout the Action Area in areas that both allow and prohibit over-snow motorized access, …

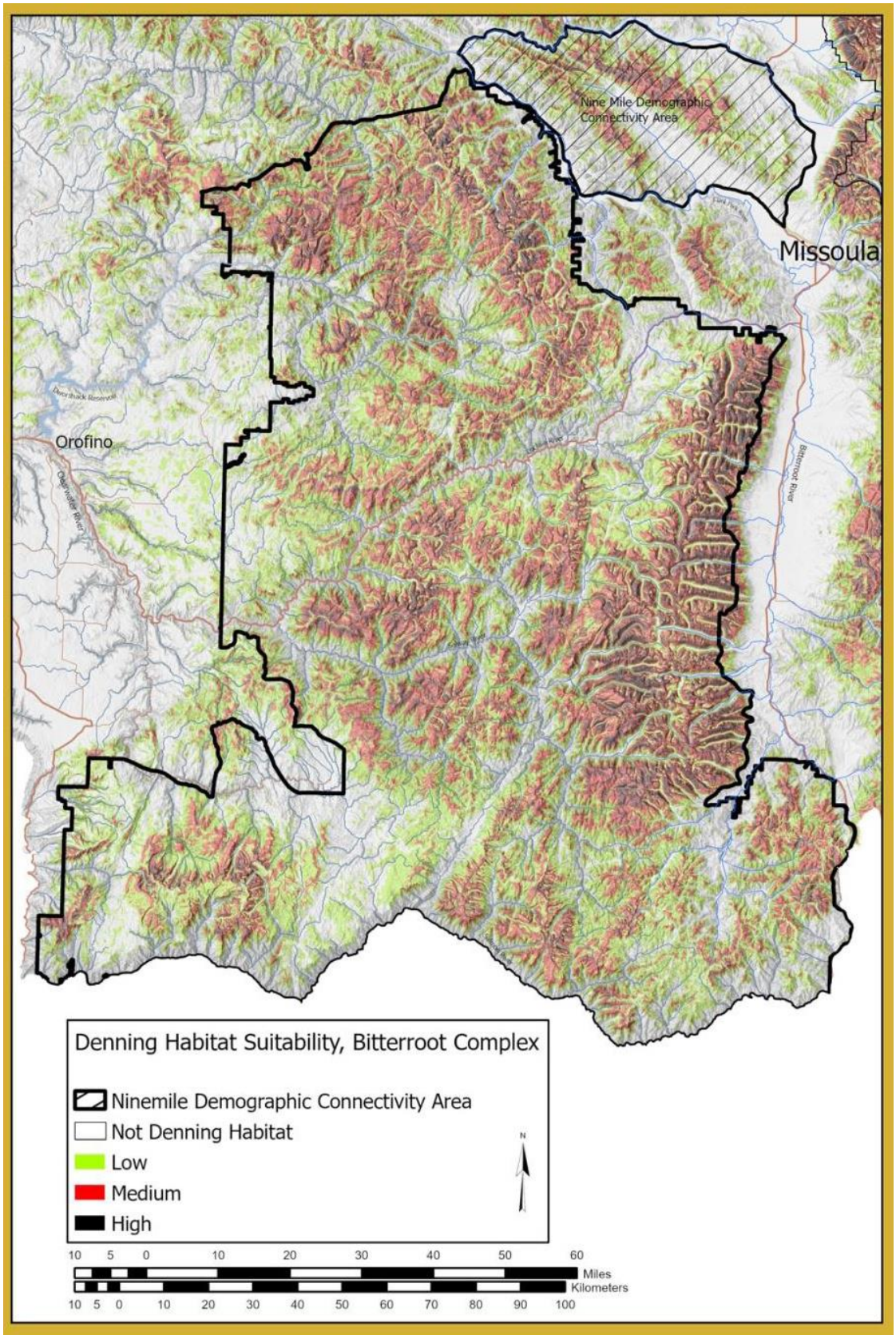
333. (Bader 2021) (Sieracki 2022) modeled denning and core habitat which covered the same area.

334. As the (Bader 2021) maps below indicate, without protected secure habitat on the BNF outside wilderness and other protected areas, the future natural connectivity that the USFWS predicts will not exist.

[continued on next page]



(Bader 2021, p. 17)



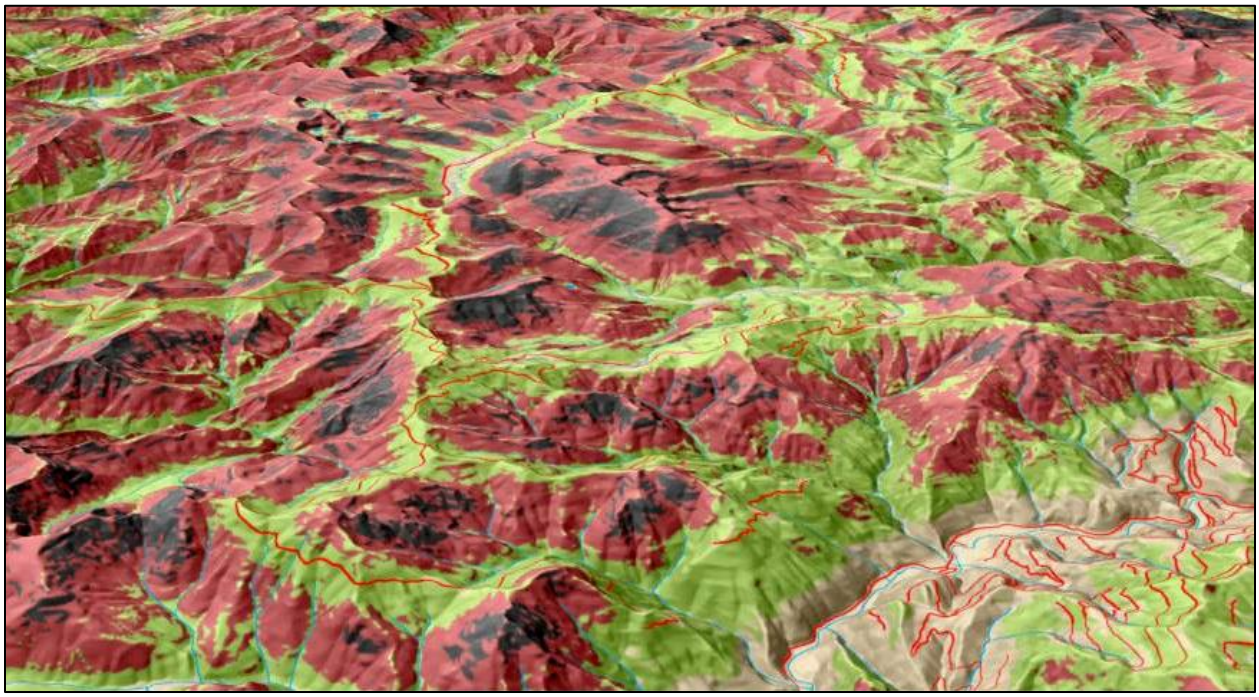
(Bader 2021, p. 15)

335. The USFWS Biological Opinion, 2021 states (p. 41):

> Forest Plan direction may occasionally result in adverse effects to individual grizzly bears over the life of the plan, particularly as a result of access management direction and inadequate food and attractant storage. Based on the best available scientific information reviewed in this consultation, adverse effects on grizzly bears as a result of the Forest Plan will not negatively impact the recovery of grizzly bears. Further, we expect the Forest Plan direction will result in conditions that support grizzly bear use of the Forest for dispersal or exploratory movements, and potentially some home range establishment at some point in the future, albeit at densities lower than those in the recovery zones.

336. That conclusion ignores the impact of roads on grizzly bear security.

337. The figure below, from (Bader 2021), depicts the impact of high-elevation roads on grizzly bear denning habitat.



The Impact of High Elevation Roads (shown as red lines) on Denning Habitat Suitability in the North Fork Clearwater, Idaho

338. The USFWS Biological Opinion, 2021 states:

> Mace et al. (1996) found that most of the roads within grizzly bear seasonal ranges were either closed to vehicles or used infrequently by humans. Some grizzly bears avoided areas with a high total road density even when the roads were closed to public travel. … In the Swan Mountain study (Mace et al. 1996), female grizzly bear home range selection of unroaded cover types was greatest and as road densities increased, selection declined. (p. 20)
>
> High road densities in low-elevation habitats may result in avoidance of or displacement from important spring seasonal habitat for some grizzly bears or high mortality risk for

those individuals that venture into and attempt to exploit resources contained in these low-elevation areas. (p. 21)

Access management can be instrumental to reducing mortality risk to grizzly bears by managing the present and anticipated future road use-levels resulting from the increasing human population in western Montana. (p. 23)

339. Despite the Draft EA asserting that the new Forest Plan amendments will not increase the density of roads on the forest, the amendments provide loopholes for doing just that.
340. Here, the USFWS Biological Opinion, 2021, admits that low-elevation roads and road densities affect grizzly bears whether the roads are open or closed and may restrict access to "important spring seasonal habitat."
341. Restrictions to spring habitat is especially problematic for female grizzly bears and could cause increased mortality for their cubs.
342. The BNF and USFWS failed to fully consider the effects the amendment changes to hiding and thermal cover, old growth, snag retention, and Coarse Woody Debris could have on grizzly bears.
343. The Agency was previously alerted to this oversight. (FOB et al Scoping Comments for the Bitterroot Front Project, p. 43)

The BNF must take a hard look and fully analyze potential impacts to grizzly bears, both resident and transient. This includes temporary displacement that could hinder or prevent natural recolonization. It also includes a hard look at impacts on grizzly bear landscape level connectivity of the project.

344. The 2020 Grizzly Bear Biological Assessment, Vegetation management (p. 19) states:

Grizzly bears use numerous different habitats for foraging. Use tends to be more frequent in areas that offer some type of hiding cover nearby, particularly during daylight hours (Aune and Kasworm 1989, Mace and Waller 1997b). Waller (1992) reported that grizzly bears avoided lower-elevation, more accessible harvested stands, as well as stands less than 30–40 years old where the vegetation had not recovered enough to provide cover. Vegetation management may alter the amount and arrangement of cover and forage available to bears. Timber harvest and fire can locally increase bear foods by stimulating the growth of grasses, forbs, and berry-producing shrubs. Associated roads and human activity can negatively affect grizzly bears by disturbing or displacing bears during logging activities and by increasing mortality risk (Zager et al. 1983).

345. Given the current trend of projects to reduce vegetation and ladder fuels, the above-mentioned Biological Assessment that "that grizzly bears avoided lower-elevation, more accessible harvested stands, as well as stands less than 30–40 years old where the vegetation had not recovered enough to provide cover" is problematic and an indication that the BNF is ignoring the requirement for grizzly bear security.
346. The USFWS 2021 Biological Opinion does not account for Montana's current grizzly management plan which is being proposed, Montana laws that will increase grizzly bear injuries and mortalities (especially in connectivity areas), and Montana's longer trapping seasons, using hounds to hunt black bears, and the increased use of neck snares.

347. The laws include:

- SB 98 allows anyone to shoot a grizzly bear if it is "threatening" to kill a person or livestock. For now, this law is not legal under the ESA, but if the great bear were delisted, this statute fails to clearly define "threatening" leaving it open to interpretation and the killing of non-conflict bears near humans. FWP would not be able to limit these mortalities.
- HB 224 mandates allowing neck snares to trap wolves and will result and already has resulted in grizzly bear deaths.
- HB 468 allows the use of hounds to hunt black bears previously outlawed in Montana. Hound hunting of bears is allowed in the Bitterroot.
- SB 314 allows the use of bait around wolf traps and neck snares. Bait will attract grizzly bears and they could be killed or maimed to the point of not being able to persist.
- HB 225 extends the wolf trapping and neck snaring season to times when bears are out of their dens. Causing more mortalities.

348. That oversight by the USFWS substantially reduces the credibility of their 2021 Biological Opinion.

349. The same oversight by the BNF significantly diminishes the integrity or their 2020 Biological Assessment for Grizzly Bears

350. Because this set of amendments will have an oversized impact on future BNF projects, it requires an Environmental Impact Statement (EIS).

351. After-project monitoring of previous Forest Service projects is missing or inadequate.

352. Although these proposed amendments have been implemented for more than two decades as "project-specific amendments," the Agency offers no proof in the form of past after-project monitoring results, these suggested amendments are needed.

353. There have been ample opportunities for the FS to monitor the results of past projects.

354. Unfortunately, the Agency has a history of not completing the monitoring it promised as part of those projects.

355. The lack of project monitoring that could prove the worth of these proposed amendments, makes their need highly suspect.

356. The proposed amendments do not Include adequate protection for old-growth stands.

357. Instead, they introduce loopholes that will allow the destruction of old-growth and mature trees.

358. The Draft EA documentation provides only generalities about how the BNF's old growth will be impacted by the proposed old-growth amendment and provides little to indicate how old growth or the diverse ecosystems and species that depend on that increasingly rare habitat will be protected. (Juel 2021)

359. On April 22, 2022, President Biden signed an Executive Order to strengthen American forests, boost wildfire resilience, and combat global deforestation.

[continued on next page]

360. That order incorporates a commitment to safeguards mature and old-growth forests on federal lands.[7]

361. The proposed amendments do not include adequate protection for soil or water.

362. Most management activities, especially road construction and use, cause the degradation and compaction of forest soils and worsen the quality of surface water.

363. During the second phase of the Darby Lumber Lands project the Agency was found to be in violation of Montana's regulations for roads near streams.

364. The Forest Service continues to ignore global warming and carbon sequestration.

365. Most management activities associated with Agency projects contribute to the increasing accumulation of Greenhouse Gases (GHG) in the atmosphere.

366. For example, logging, thinning, prescribed fire, pile burning, travel to and from project sites, etc. all release GHG into the atmosphere.

367. 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).]

368. 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."

369. It directs federal agencies to consider the extent to which proposals would contribute to climate change.

370. It rejects as inappropriate any notion that any proposal 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." [8]

371. The FS must quantify GHG emissions but the Draft EA does not do so.

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[7] President Biden signed an Executive Order to strengthen American forests, boost wildfire resilience, and combat global deforestation - https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/22/fact-sheet-president-biden-signs-executive-order-to-strengthen-americas-forests-boost-wildfire-resilience-and-combat-global-deforestation/

[8] Fed Reg. 10252 (Feb. 19, 2021) - https://www.govinfo.gov/content/pkg/FR-2021-02-19/pdf/2021-03355.pdf

372. The Agency can only use a qualitative method if tools, methodologies, or data inputs are not reasonably available, and if that is the case, there needs to be rationale as to why a quantitative analysis is not warranted.
373. Quantitative tools are available, so the FS must comply.[9]
374. Judging by its actions, the Agency is a huge global-warming denier.
375. The scoping documentation for these amendments includes a pitifully trifling analysis of climate change.
376. Instead, the Draft EA (p. 81) states, "… analysis, in the context of global atmospheric carbon dioxide (CO2), even the maximum potential forest management impacts described by the plan alternatives would have a negligible effect on global emissions and climate."
377. That assertion is in direct violation of CEQ 2016 guidelines (see 181).
378. The Draft EA (p. 86) states:

> In a global atmospheric CO2 context, even the maximum potential management in either alternative would have a negligible impact on national and global emissions and on forest carbon stocks, as described below. As in this case, when impacts on carbon emissions (and carbon stocks) are small, a quantitative analysis of carbon effects is not warranted and thus is not meaningful for a reasoned choice among the action and no action amendment alternatives (U.S. Department of Agriculture 2015a). Although advances in research have helped to account for and document the relationship between GHG and global climate change, it remains difficult to reliably simulate observed temperature changes and distinguish between natural or human causes at smaller than continental scales (Intergovernmental Panel on Climate Change 2007a).
>
> Even more difficult is the ability to quantify potential carbon consequences of management alternatives in the future due to potential variability in future conditions and the stochastic nature of disturbances. The result of such uncertainty is often a very low signal-to-noise ratio: small differences in carbon impacts among management alternatives, coupled with high uncertainty in carbon stock estimates, make the detection of statistically meaningful differences among alternatives highly unlikely.

379. That text cites references older than CEQ's 2016 guidance making the conclusions invalid.
380. These amendments lack adequate protection for wildlife and wildlife habitat.
381. According to the Draft EA, most if not all, of the current Forest Plan standards will be suspended or replaced under the proposed programmatic amendments to the FP.
382. This will detrimentally affect wildlife, fish, and their respective habitats.
383. The FS hired a group of experts, headed by Martin Nie, to research who had the ultimate responsibility for managing and protecting wildlife—the states or the federal government—on federally managed lands.
384. Through research of U.S legal documents and case law, the group unequivocally established that federal agencies have the ultimate responsibility for managing and protecting wildlife. (Nie 2017)

[9] Greenhouse Gas (GHG) Accounting Tools - https://ceq.doe.gov/guidance/ghg-accounting-tools.html

385. It is clear that states (e.g., Montana, Idaho, etc.) do not have the final say when it comes to wildlife on federally managed lands.
386. Both the BNF and USFWS are responsible and must do what is required to manage and protect not only wildlife habitat but also the diverse wildlife that use the habitat.
387. A thorough analysis must evaluate and fully disclose the following:

- what are the direct, indirect, and cumulative effects of these amendments on wildlife and biodiversity?
- exactly how do these amendments support Executive Order 14072 to preserve biodiversity and mature and old growth forests?
- what are the direct, indirect, and cumulative effects of the amendments on indicator species, Pileated woodpeckers, Pine marten, Westslope cutthroat trout, and elk?
- what are the direct, indirect, and cumulative effects of the amendments on old growth dependent species and mature forest dependent species?
- what are the direct, indirect, and cumulative effects of the amendments on migratory birds and eagles?

388. The Migratory Bird Act (1918) prohibits the "taking" of migratory birds.
389. Several listed species are known to nest in the BNF.
390. Courts have determined that "taking" does not have to be intentional.
391. Therefore, destruction of migratory bird habitat, though unintended, is illegal.
392. What are the direct, indirect, and cumulative effects of the amendments on sensitive species including Boreal toads, flammulated owls, grey wolves, Coeur d' Alene salamanders, bats, and numerous other Sensitive Species that are known to live and breed in the project area?
393. Please share all monitoring that has been conducted, especially in areas where these amendments have been used on a site-specific basis in the past. (Include baseline data, monitoring data, and an explanation of conclusions.)
394. What are the direct, indirect, and cumulative effects of these amendments on Executive Order 13443 protecting hunter opportunity?
395. These proposed amendments will affect Endangered and Proposed Species.
396. When a listed or proposed species may be present in the action area, the agency must prepare a biological assessment to determine whether the species or their critical habitat may be affected by the action.
397. If the agency determines that the proposed action may affect any listed species or critical habitat, it must engage in formal consultation with FWS. 50 C.F.R. § 402.14.
398. For all listed and proposed species, known to occur within the project area, or with secondary or critical habitat on the forest, Section 7 of the Endangered Species Act (ESA) imposes a duty to conserve those listed and proposed listed species and to act to achieve survival and recovery of the species (*Sierra Club v. Glickman*, 156 F3d 606 (5th Cir 1998)).
399. Despite any recent ESA rule changes, the requirement to contribute to recovery is core to the ESA statute and necessary to achieve its stated goal of conserving species and the ecosystems upon which they depend.

400. Agencies are required to "use the best scientific and commercial data available" in assessing impacts to protected species during the consultation process. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(d).
401. Therefore, we encourage the Forest Service to be transparent about the consultation process and affirmatively post all consultation documents, including any Forest Service Biological Evaluations or Assessments, any letters seeking concurrence, and any responses or Biological Opinions from the USFWS.
402. The direct, indirect, and cumulative effects of the amendments to the recovery of endangered species and proposed endangered species that reside or may be present or are present near the BNF including but not limited to lynx, fisher, grizzly bears, white bark pine, and wolverine are inadequate.
403. The direct, indirect, and cumulative effects of the amendments on critical habitat, secondary habitat, and linkage zones for proposed and listed species are deficient. (Habitat is essential to the recovery of these species especially considering the changing climate.)
404. The Draft EA includes insufficient analysis of how the proposed amendments will comply with the travel plan and baseline conditions for all conservation strategies concerning the BNF including grizzly bears and wolverine.
405. These proposed amendments will allow an increase of road mileage on the Bitterroot National Forest.
406. The best available science shows that roads cause significant adverse impacts to National Forest resources.
407. WildEarth Guardians issued a report (Guardians 2020) that provides a scientific literature review — including the Forest Service's General Technical Report synthesizing the scientific information on forest roads (Gucinski 2001) — on a wide range of road-related impacts to ecosystem processes and integrity on National Forest lands.
408. Erosion, compaction, and other alterations in forest geomorphology and hydrology associated with roads seriously impair water quality and aquatic species viability.
409. Roads disturb and fragment wildlife habitat, altering species distribution, interfering with critical life functions such as feeding, breeding, and nesting, and resulting in loss of biodiversity.
410. Roads facilitate increased human intrusion into sensitive areas, resulting in poaching of rare plants and animals, human-ignited wildfires, introduction of exotic species, and damage to archaeological resources.
411. Here, the Forest Service must consider how the proposed amendments may cause direct, indirect, and further exacerbate cumulative impacts within the BNF as it relates to road maintenance, reconstruction and use, particularly unauthorized and closed roads.
412. These proposed amendments will impact Bitterroot National Forest soil.
413. The forest is a natural regenerating system.
414. The damage done from over 100 years of logging removed trees that would have eventually become healthy soil.
415. The amendments will allow for an increase in ground disturbing management activities, thus exacerbating already depleted soils.

416. The Agency must provide an independent, current, and complete soil assessment for the BNF which includes analysis for all BNF soil types in both disturbed (natural and otherwise) and undisturbed soils at multiple elevations.
417. Mycorrhizal networks play important roles in mitigating the impacts of climate disruption to forest ecosystems.
418. They facilitate regeneration of migrant species that are better adapted to warmer climates and primed for resistance against insect attacks. (Song 2015)
419. To achieve these benefits all the parts and processes of highly interconnected forest ecosystems must be preserved and protected.
420. Please disclose and analyze all effects of increased ground disturbance and greater road densities allowed by the amendments to Mycorrhizal networks and soils?
421. Please provide an accounting of the Equivalent Clearcut Areas (ECA) of all drainages in the BNF?
422. How will the amendments affect ECAs in the future?
423. How will the amendments add to the accumulating hydrologic impacts as well as overall forest productivity?
424. Please disclose the total acreage of all existing roads, of whatever nomenclature, within the BNF so we can assess total soil compaction.
425. As soils are essential to a healthy ecosystem, we propose an independent scientific panel to analyze the soil monitoring and soil conditions on the BNF to establish baseline conditions and future monitoring to adequately assess soil conditions.
426. These proposed amendments will impact rare plants and invasives on the BNF.
427. Most on-the-ground management activities have been shown to spread invasive plants and weeds into previously uninfected areas. (Dodson 2006)
428. What are the direct, indirect, and cumulative effects of these amendments on rare and sensitive plant species?
429. An analysis should provide an inventory and maps (including dates surveys were completed) of these species across the forest.
430. While considering the effects of them on rare and sensitive plants, please list the measures that will be used to eliminate the spread of invasive plants and weeds from the proposed amendments.
431. Please also include which of those measures have been substantiated, using verified post-project monitoring, as successful in the past.
432. Please disclose results of monitoring weed control after past projects have been completed. (After every timber and road building project weeds follow and proliferate, essentially reducing forest productivity in perpetuity, contrary to NFMA.)

Summary

433. The Agency continues to view forests as little more than trees; wildlife and wildlife habitat are considered inconveniences.
434. Ignored is the fact that trees are only a small part of the uncountable, interconnected ecosystems which comprise forests.

435. The Forest Service has a long history of sacrificing the overall ecological balance of forests to harvest the maximum number of trees.
436. During this period of rapidly advancing global warming, such an approach to forest management is not viable and certainly not in the interest of the public who own the forests.
437. Rather, forests must be managed to ensure biological diversity, provide habitat for the countless species of flora and fauna that live in forests, and to increase the ability of forests to sequester carbon.
438. Despite its long history of treating trees as a crop, the Agency must cease viewing forests as simply trees to be managed for harvest (extraction).
439. Forests, of all ages, are dynamic combinations of interrelated ecosystems that support the existence of uncountable organisms, including humanity.
440. Continuing the pretense that all sections of public forests can be multi-use with a management concentration on timber extraction is intentionally misleading and dishonest.
441. Unfortunately, this proposed set of Forest Plan amendments appears to be intended to remove and/or minimize many existing protections for wildlife, ecosystems, and more importantly, will reduce the overall health of the forest.
442. These proposed amendments accomplish little other than support the Agency in its attempts to freeze natural forest succession at an arbitrary, management-defined "desirable condition," an undertaking which will never allow the Bitterroot National Forest to naturally adapt to a rapidly changing climate.
443. Forests must be allowed to adapt to future conditions by permitting them to naturally evolve without interference from Agency management actions.
444. In the words of Thomas Sowell, '… it turns out that many of today's problems are a result of yesterday's solutions."
445. The Forest Service readily admits that past management actions contributed to the current state of collapse of our public forests.
446. Yet, Agency management, irrationally believes that "this time will be different."
447. The proposed amendments to the Forest Plan (1987) should be approached with humility while questioning whether "today's solutions will be the cause of future problems."
448. Attached is a list of references which are applicable and provide significant relevant scientific information to be carefully considered for these proposed Forest Plan amendments.
449. Most of the listed sources have been referred to by previous BNF project documents so should already be available for review by the interdisciplinary team.
450. Most are readily accessible including those residing on Forest Service websites.
451. If you are unable to obtain any of our references, please contact Friends of the Bitterroot at news@friendsofthebitterroot.net, and we will provide copies.
452. We expect systematic, exhaustive explanations of how each of these relevant references were used during the analysis and production of the draft amendment documents required by NEPA.
453. Science, in its truest form, is a dynamic, self-correcting process.

454. The Agency and/or its interdisciplinary team cannot simply “determine” and then “announce” which is the “best available scientific information.”
455. It must provide the public with a logical and convincing argument that support the Agency’s choice of “best available scientific information.”
456. And lastly, because this proposed set of amendments will have an oversized impact on future BNF projects, it requires an Environmental Impact Statement (EIS).

Submitted respectfully,
/S/

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Exhibit A - Illegal OSV Activity

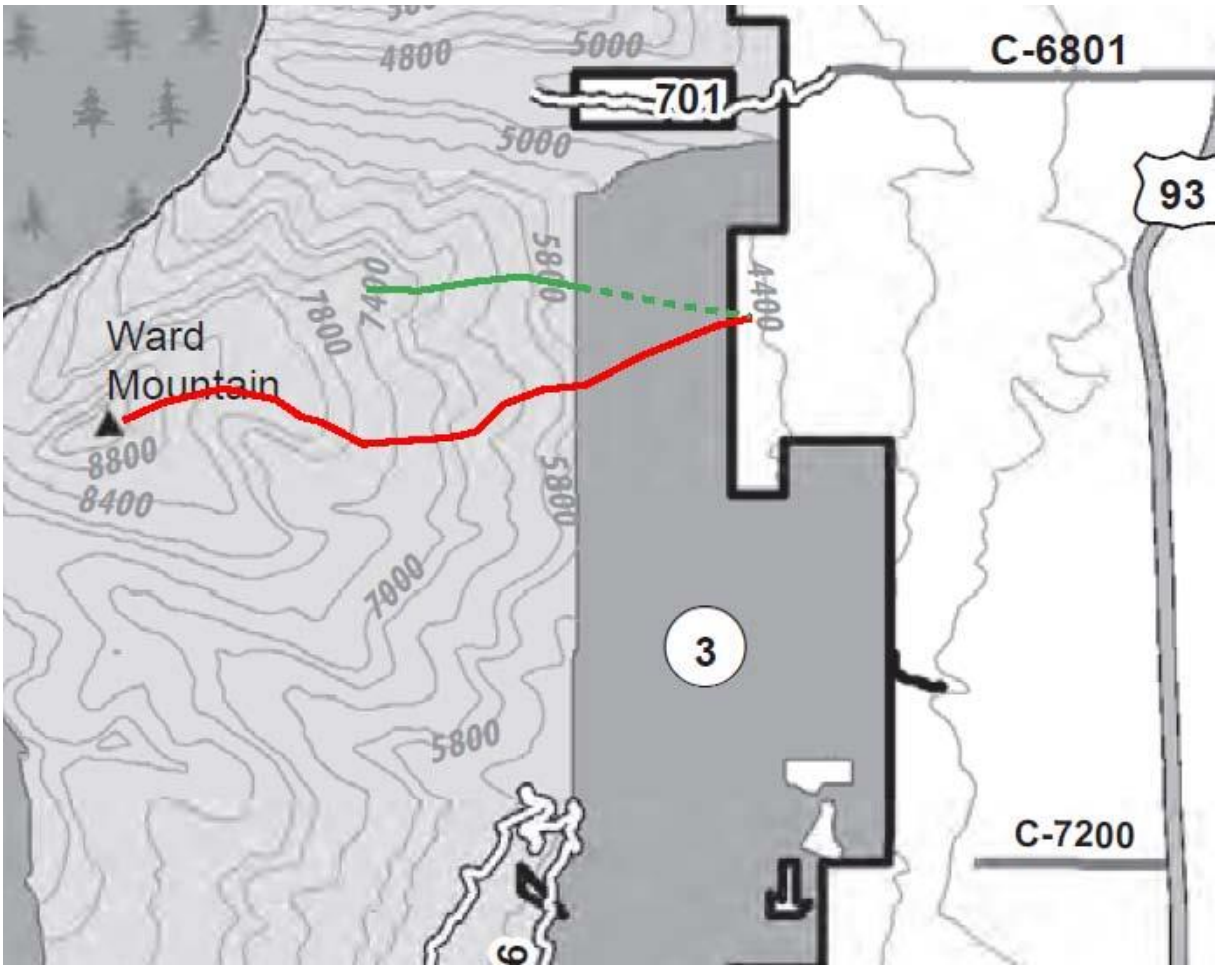
Ward Mountain Snowmobile Activity in BNF area closed to over snow vehicles

On Feb 11, 2023, snowmobiles entered an area of Bitterroot National Forest that is closed yearlong to over snow vehicles. Access was from private land at 1139 Judd Hollow Road (from Montana cadastral). They proceeded through the snowmobile closure area, then west to the top of Ward Mountain, with extensive high marking in Gold Creek basin, a remote area seldom visited by humans. Other, older snowmobile tracks from about a week earlier were also observed in the same areas and also around the Ward Mountain trail. The closure area is “for wildlife and resource protection” according to the BNF Over Snow Vehicle Map, but the entire area is important for wildlife. For example, we have seen wolverine tracks several times in this area in the past few winters. Parts of the area are also frequently used by skiers, snowshoers, and hikers trying to get away from the heavy recreational motorized use that is taking over much of BNF outside the Wilderness Areas. Landowner where the snowmobilers started, at 1139 Judd Hollow Rd, from Montana Cadastral, is:

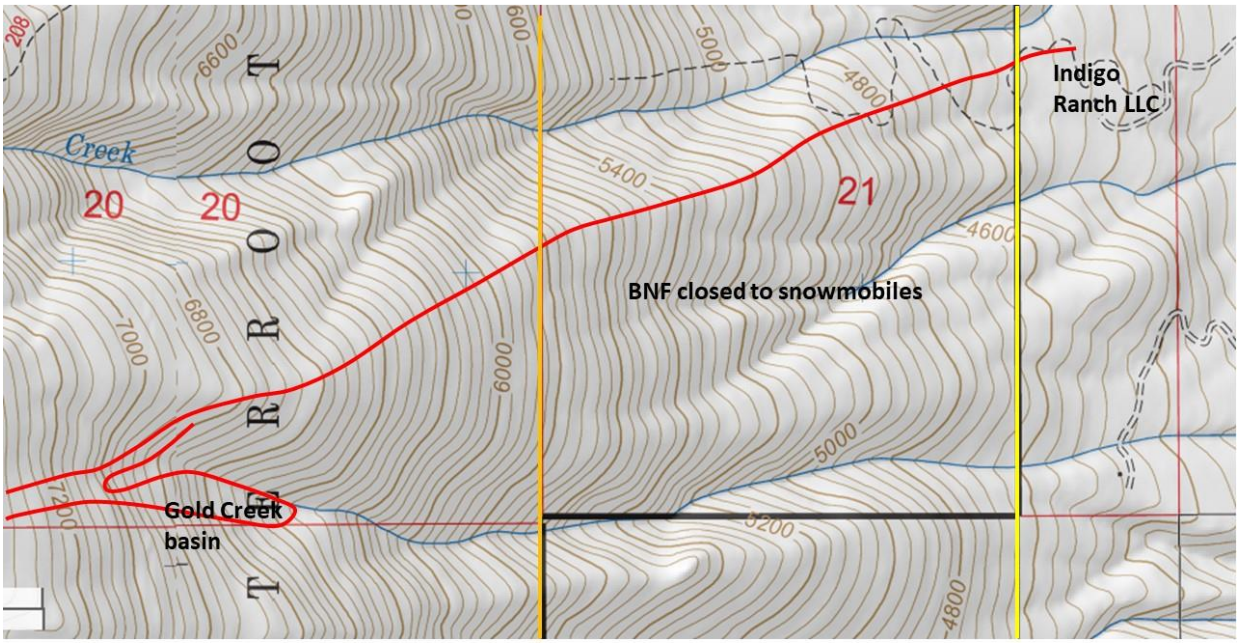
Indigo Ranch LLC, contact name John D. Cormie
2314 Cornell Dr
Costa Mesa, CA 92626-6312

The same landowner owns the next parcel to the south at 1143 Judd Hollow Rd and there is an occupied house on it, although the snowmobilers did not start from the house but from a spur driveway several hundred feet away.

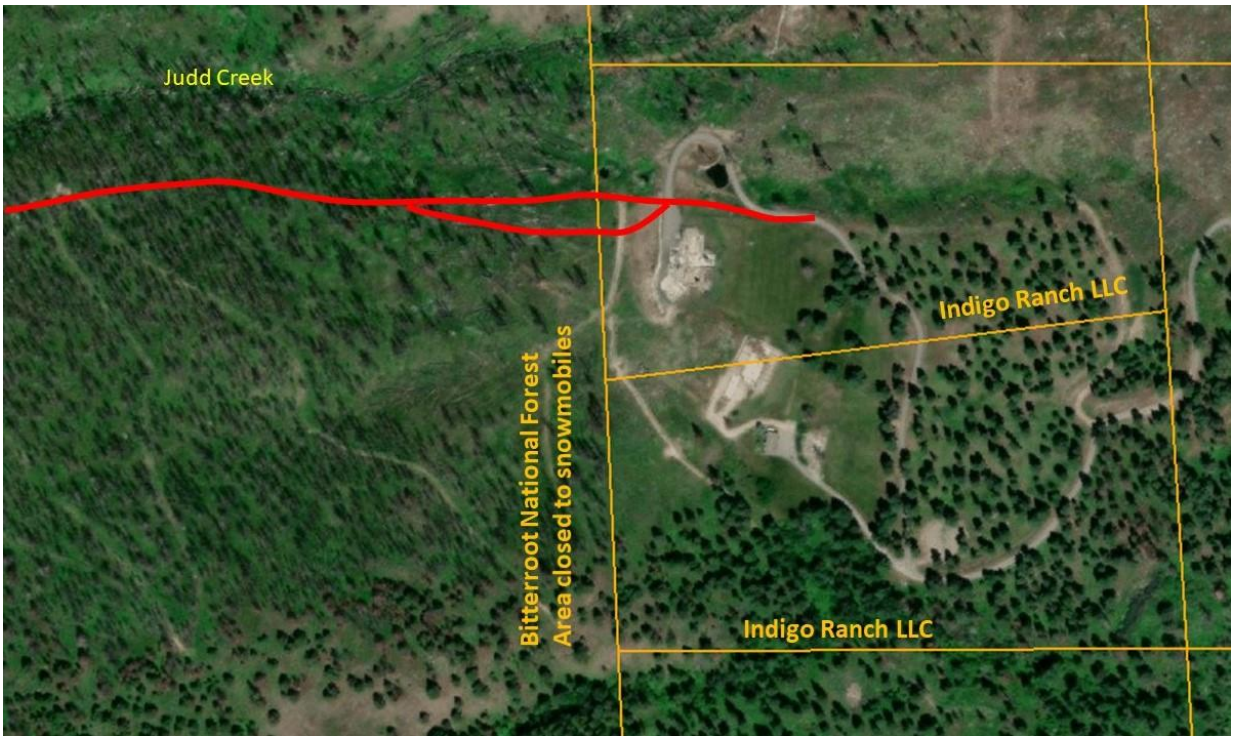
On the following pages are pictures and maps with more information.



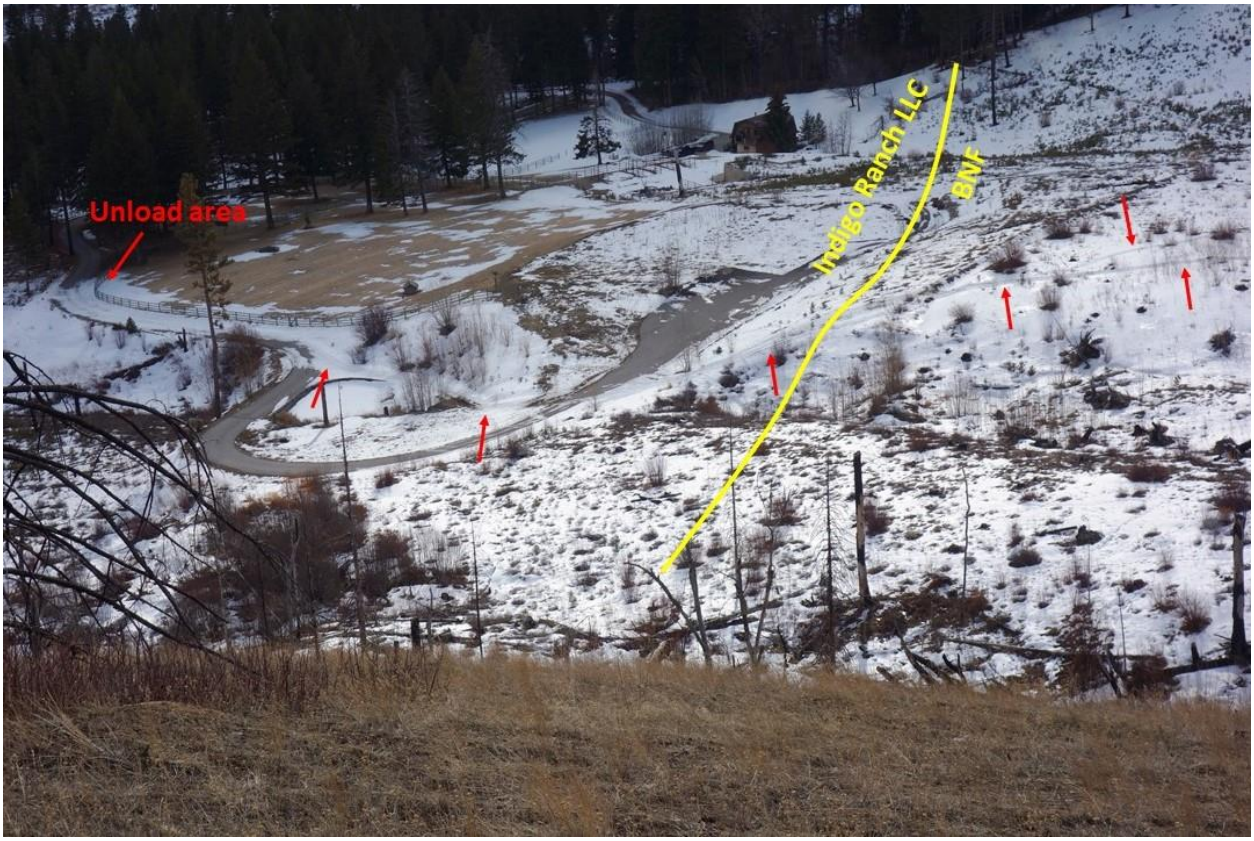
Above is from the BNF Over Snow Vehicle Map with shaded area 3 closed to snowmobiles. Red line represents snowmobile route 2-11-23 and also about 2-5-2023. Green line represents snowmobile tracks from about 2-5-2023; dashed green line is probable access that was not confirmed by this investigation. Snowmobiles traveled from Indigo Ranch land onto BNF.



Topo map of snowmobile route in red across closed BNF land between the yellow line and the orange line.



Map from Montana cadastral showing snowmobile tracks in red and land ownership. Two private parcels are both Indigo Ranch LLC, with occupied house on the southern one. Snowmobiles were apparently unloaded at the east end of the red line.



Above is view of snowmobile tracks marked by red arrows traversing the private-BNF boundary, approximately shown by yellow line. Apparently, the snowmobiles were unloaded on the driveway to the large house that burned in 2016.

Snowmobile tracks marked by red arrows heading up the ridge on BNF land closed to snowmobiles. Yellow line is approximate BNF-private land boundary.

West view of Gold Creek basin high marking. Although this area is west of the closed area and technically open to snowmobiles, it usually sees few human visitors. It's hard to believe that it is also not important for wildlife, with open south facing slopes and a wide variety of habitats. Photo taken 2-12-2023.

View east down into Gold Creek basin showing snowmobile tracks in this remote area.

Snowmobile tracks at 8,300 ft headed towards the Ward Mtn summit out of view to the left. Timbered area in upper left is location of Ward Mountain trail and a popular area with quiet winter recreationalists.

Eastward view of older (2-5-2023?) snowmobile tracks (both sides of ski track) near the Ward Mtn trail at 6600'. We did not investigate whether they travelled up the ridge from the private land in photo

center or whether they descended from above. We saw wolverine tracks in this area several times in 2021. Older snowmobile tracks were also visible on the ridge south of Judd Creek.

Exhibit B - Illegal Motorized Activity

Figure 1 - High-marking in Gold Butterfly Project Area

Figure 2 - Gold Butterfly Project Area

Figure 3 - Illegal Road in Gold Butterfly Project Area

Figure 4 - Illegal Road in Gold Butterfly Project Area

Figure 5 - Illegal Activity in Gold Butterfly Project Area

Figure 6 - Illegal Road in Gold Butterfly Project Area

Figure 7 - Illegal Road in Gold Butterfly Project Area

Figure 6 - Snowmobile tracks on trail in restricted area of Coyote Coulee (12feb23)

Figure 7 - User Created Road in Coyote Coulee (21feb23)

Figure 8 – High-marking on closed road in Coyote Coulee (12feb23)

Figure 9 - Driving off-road to avoid rut damage (24nov21)

Figure 10 - Truck traffic on Trail 511 (26nov21)

Figure 11 - Truck created bypass of rock closure on Trail 511 (28nov21)

Figure 12 - Damage from getting stuck during winter of 2021-22

Figure 13 - Gate Damage from illegal winter motorized use