March 2, 2023

Kimberly Smolt

Interdisciplinary Team Leader

Bitterroot National Forest

Supervisor's Office

RE: Forest Plan Amendment

1801 North 1st Street

Hamilton, MT 59804

Dear Ms. Smolt,

Thank you for this opportunity to comment on the draft Environmental Assessment for the Programmatic Amendment for Elk Habitat, Old Growth, Snags and Coarse Woody Debris Objectives Forest Plan amendment to the Bitterroot National Forest, Forest Plan. Please accept these comments from me on behalf of the Alliance for the Wild Rockies, Council on Wildlife and Fish, Native Ecosystems Council, Friends of the Bitterroot, Friends of the Clearwater, Yellowstone to Uintas Connection, Wildearth Guardians, and Center for Biological Diversity would like to submit the following comments regarding the draft Environmental Assessment for the Programmatic Amendment for Elk Habitat, Old Growth, Snags and Coarse Woody Debris Objectives Forest Plan.

The Bitterroot National Forest ignored most of our scoping comments including a request that you analyze the following in preferable an EIS but if you refuse to write an EIS, in an EA.

I. NECESSARY ELEMENTS FOR PROJECT EIS or EA:

A. Disclose all BNF Plan requirements for logging projects and explain how the the proposed amendmentss complies with them;
B. Disclose the acreages of past, current, and reasonably foreseeable logging, grazing, and road-building activities within the Forest;
C. Solicit and disclose comments from the Montana Department of Fish, Wildlife, and Parks and the U.S. Fish and Wildlife Service regarding the impact of the proposed amendmentss on fish and wildlife habitat;
D. Solicit and disclose comments from the Montana Department of Environmental Quality regarding the impact of the proposed amendmentss on water quality;
E. Disclose the biological assessment for the candidate, threatened, or endangered species with potential and/or actual habitat in the Bitterroot N.F.;
F. Disclose the biological evaluation for the sensitive and management indicator species with potential and/or actual habitat in the Bitterroot N.F.;
G. Disclose the snag densities in the Bitterroot N.F., and the method used to determine those densities;

H. Disclose the current, and post-amendments road densities in the BNF;
I. Disclose the number of road closure violations in the Bitterroot N.F. in the past 5 years;
J. Disclose the BNF National Forest's record of compliance with state best management practices regarding stream sedimentation from ground-disturbing management activities;
K. Disclose the BNF's record of compliance with its monitoring requirements as set forth in its Forest Plan;
L. Disclose the BNF's record of compliance with the additional monitoring requirements set forth in previous DN/FONSIs and RODs on the BNF;
M. Disclose the results of the field surveys for threatened, endangered, proposed, sensitive, and rare plants and species, in each of the proposed units;
N. Disclose the level of current noxious weed infestations in the Bitterroot N.F. and the cause of those infestations;
O. Disclose the impact of the Project on noxious weed infestations and native plant communities;
P. Disclose the amount of detrimental soil disturbance that currently exists in each proposed unit from previous logging and grazing activities;
Q. Disclose the expected amount of detrimental soil disturbance in each unit after ground disturbance and prior to any proposed mitigation/remediation;

R. Disclose the expected amount of detrimental soil disturbance in each unit after proposed mitigation/ remediation;
S. Disclose the analytical data that supports proposed soil mitigation/remediation measures;
T. Disclose the timeline for implementation;
U. Disclose the funding source for non-commercial activities proposed;
V. Disclose the current level of old growth forest in each third order drainage in the Bitterroot N.F.;
W. Disclose the level of old growth inch third order drainage if the proposed new old growth definition were adopted;
X. Disclose the method used to quantify old growth forest acreages and its rate of error based upon field review of its predictions;
Y. Disclose the historic levels of mature and old growth forest in the BNF;
Z. Disclose the level of mature and old growth forest necessary to sustain viable populations of dependent wildlife species in the area;
AA. Disclose the amount of mature and old growth forest that will remain after implementation of the proposed amendments;
BB. Disclose the amount of current habitat for old growth and mature forest dependent species in the Bitterroot N.F.;
CC. Disclose the amount of habitat for old growth and mature forest dependent species that will remain

after implementation of the proposed old growth amendments and the other amendmentss;

DD. Disclose the method used to model old growth and mature forest dependent wildlife habitat acreages and its rate of error based upon field review of its predictions;

EE. Disclose the amount of big game (moose and elk) hiding cover, winter range, and security currently available in the area;

FF. Have forest fires contributed to a diverse landscape?

GG. Please disclose what is the best available science for defining old growth;

HH. Disclose the level of current noxious weed infestations in the Bitterroot N.F. and the cause of those infestations

II. Disclose the amount of big game (moose and elk) hiding cover, winter range, and security during Project implementation;

JJ. Disclose the amount of big game (moose and elk) hiding cover, winter range, and security after implementation of the proposed amendmentss;

KK. Disclose the method used to determine big game hiding cover, winter range, and security, and its rate of error as determined by field review;

LL. Disclose and address the concerns expressed by the ID Team in the draft Five-Year Review of the Forest Plan regarding the failure to monitor population trends of MIS, the inadequacy of the Forest Plan old growth standard, and the failure to compile data to establish a reliable inventory of sensitive species on the Forest;;

MM. Disclose the impact of climate change on the efficacy of the proposed old growth amendments to the Forest Plan;

NN. Disclose the impact of the proposed project on the carbon storage potential of the Bitterroot N.F.;

OO. Disclose the baseline condition, and expected sedimentation before and after implementation of the proposed amendmentss, for all streams in the Bitterroot N.F.;

PP. Disclose maps of the area that show the following elements:

1. Past, current, and reasonably foreseeable logging units in the Bitterroot N.F under the current definition of old growth in the Forest Plan;
2. Past, current, and reasonably foreseeable logging units in the Bitterroot N.F under the proposed amended definition of old growth in the Forest Plan;
3. Hiding cover in the Bitterroot N.F. according to the Forest Plan definition under the current definition of old growth in the Forest Plan;
4. Hiding cover in the Bitterroot N.F. according to the Forest Plan definition under the proposed amended definition of old growth in the Forest Plan
5. Security cover in the Bitterroot N.F. according to the Forest Plan definition under the current definition of old growth in the Forest Plan;

6. Security cover in the Bitterroot N.F. according to the Forest Plan definition under the proposed amended definition of old growth in the Forest Plan;
7. Moose winter range in the Bitterroot N.F. according to the Forest Plan definition under the current definition of old growth in the Forest Plan;
8. Moose winter range in the Bitterroot N.F. according to the Forest Plan definition under the proposed amended definition of old growth in the Forest Plan

Page 44 of the draft EA states:
3.2.2

Old Growth

Ecological integrity is at the heart of the components for old growth, while addressing natural succession. We were provided an abundance of literature from the public regarding the value of old growth as habitat and as carbon storage. These concepts are understood. The key best available scientific information pertinent to the amendment regarding defining old growth on the Bitterroot National Forest is "Old-

Growth Forest Types of the Northern Region" by Green, Joy, Sirucek, Hann, Zack and Naumann (Green et al.

2011) because it is based on growing conditions found on the Bitterroot National Forest, stratified by habitat types (Pfister et al. 1977, Cooper et al. 1991). This definition allows for the designation of old growth stands at the project level that would not have been designated as such with the original forest plan definition. It will allow an interpretation of Forest Inventory and Analysis (FIA) plot data to give a more accurate estimation of the inventory of old growth acres across the Forest.

Dr. John Craighead believed the Pfister vegetation classification was the basis for the study of ecosystems. It takes people on the ground with good plots that aren't manipulated or added to. The Craighead team had hundreds of plots throughout central Idaho they used to ground truth the satellite images. If you want good data there are no shortcuts. The Forest Service should no evidence that they used plots on the ground to ground truth the data. Please demonstrate that you have ground truth the data.

Please do not dismiss the importance of the following information relating to Pfister, et al. (1977) cited in the EA. See: EA, at page 15.

Quote from Pfister et al. (1977):
RESEARCH SUMMARY

A land-classification system based upon potential natural

***vegetation is presented for the forests of Montana. It is based on an intensive 4-year study and reconnaissance sampling of about 1,500 stands. A hierarchical classification of forest sites was developed using the habitat type
concept. A total of 9 climax series, 64 habitat types, and 37 additional phases of habitat types are defined. A diagnostic key is provided for field identification of the types based on indicator species used in development of the classification. In addition to site classification, descriptions of mature forest communities are provided with tables to portray the ecological distribution of all species. Potential productivity for timber, climatic characteristics, and surface soil characteristics are also described for each type. Preliminary implications for natural resource management are provided, based on field observations and current information.***

FOREST HABITAT TYPES OF MONTANA, Robert D. Pfister, Bernard L. Kovalchik,
Stephen F. Amo, and Richard C. Presby
INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
Forest Service-U. S. Department of Agriculture
Ogden, Utah 84401 (hereafter, Pfister, et al. (1977), or Pfister)

Pfister et al. (1977) established a new, and vastly improved, forest classification system which further developed the application of habitat type classification to forest ecosystem

classification. A better classification system for forest communities and the characteristics of the specific site locations upon which forest vegetation develop and depend.

The habitat type approach to classification of forest sites was developed more than 20 years ago by Daubenmire (1952) for forests of northern Idaho and eastern Washington. His original classification, and a subsequent revision and J. Daubenmire 1961, have proven useful in forest management and research

(Laysex 1974; Pfister 1976). Id. p.1
In 2022, Pfister et al. is considered the “best available science” in this field (old growth and old-growth habitat) of study. It is often, to this day, spoken fondly of as “The Bible” for habitat-type classification, a detailed expression of the overall environment, ie. an ecological classification. There is, quite simply, no better system in existence being used for interpreting the ecological potential of the forested landscapes of Montana and the Northern Rockies. Federal land managers attempting to make intelligent prescriptions for managing/manipulating forest vegetation should, and must use Pfister’s habitat type classifications as the foundation of forest ecosystem analysis.

Pfister is foundational; it is the ground upon which forest ecology and ecosystem science rests. There is no substitute, and any and all attempts to truncate, or compartmentalize elements within Phister’s holistic, habitat-type

classification system, represents a most objectionable form of “scientism” that reeks of a hidden agenda that has little to do with interpreting the forest’s ecological potential.

ESA - As a foundational ecosystem analysis and interpretation tool, Pfister et al. is linked directly to specific language, unambiguously articulated by Congress, to describe
the Purposes of ESA (Endangered Species Act).

(b) PURPOSES
The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and the threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section. Page one, 16 USC, Chapter 35, §1531(b)

We urge the Forest Service to simply comply with the clear intent of Congress, and its own (government funded) research to properly identify the habitat type in the project area using Pfister, et al. and arrive at an intelligent decision based on the best available science, and the intent and purposes of the federal laws which govern these types of project-level management actions.
The draft EA analysis which references Pfister, and then proceeds to depart into a lengthy narrative, not about

habitat type, but some typing using inadequate date, insufficient field examination and data and computer modelling that fails to follow Pfister's habitat typing methodology.

May I suggest that HABITAT TYPE, NOT "***...Vegetation condition class (VCC; formally known as fire regime condition class)...***" is the foundation and best available science to determine characteristics of ecosystem composition and structure. (Pfister, et al. (1977). All this "vegetative" mumbo-jumbo is used to avoid Pfister and proper, foundational identification of the habitat type. The Forest Service is looking at the Bitterroot National Forest as "tree farmers" not scientists studying natural forest succession/evolution.

We disagree with you decision to not analyze the impact of the proposed amendments on lynx.since the proposed amendment will allow more logging of mature and old growth forests.

Holbrook 2019 and Kosterman finds that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 5% of lynx habitat should be young clearcuts, i.e. trees under 4 inched dbh. This contradicts the agency's assumption in the Lynx Amendments that 30% of lynx habitat can be clearcut, and

that no specific amount of mature forest needs to be conserved. It is now the best available science out there that describes lynx habitat in the Northern Rockies related to lynx viability and recovery. Kosterman's study demonstrates that the Lynx Amendments standards are not adequate for lynx viability and recovery, as previously assumed by the Forest Service. How will the proposed amendments effect lynx and their habitat? Please formally consult with the U.S. FWS on the impact of the proposed amendments to the Forest Plan. Please find Holbrook attached.

Monitoring

Page 22 of the EA states:

Inventories of old growth are taken forest-wide using Forest Inventory Assessment plots on a recurring basis. This allows for trend monitoring over time. Monitoring of old growth occurs when areas are analyzed for vegetation treatment. Stands will either be set aside from management in that project or treated for resiliency, depending on the purpose and need of the project.

We asked in our scoping comments that you demonstrate that the Bitterroot National Forest is doing monitoring. You ignored this request is we are asking again.

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

- A list of all past projects (completed or ongoing) implemented in the watersheds of the Bitterroot N.F.
- The results of all monitoring done in the Bitterroot N.F. as committed to in the NEPA documents of those past projects.
- The results of all monitoring done in the proposed Bitterroot N.F. as a part of the Forest Plan monitoring and evaluation effort.
- A description of any monitoring, specified in those past project NEPA documents or the Forest Plan which has yet to be gathered and/or reported.

Please disclose the names of all other past projects (implemented during the life of the Forest Plan). Please disclose if the FS has performed all of the monitoring and mitigation required or recommended in any NEPA documents, and the results of the monitoring.

For the proposal to be consistent with the Forest Plan, enough habitat for viable populations of old-growth dependent wildlife species is needed over the landscape. How will the proposed amendments to the definition of old growth effect pine martins and pileated woodpecker, the MIS for old growth under the Forest Plan?

Please provide the latest monitoring results for pine martins and pileated woodpecker.

Please include the include the following scientific papers in your analysis.

https://www.fs.fed.us/rm/pubs_exp_forests/coram/rmrs_1977_mcclelland_b001.pdf

https://www.fs.fed.us/rm/pubs_exp_forests/coram/rmrs_1980_mcclelland_b001.pdf

Habitat suitability index model for northern Rocky Mountain pileated woodpeckers . School of Forestry , University of Montana , Missoula . 31 pp . Aney , W. C. , and B. R. McClelland . 1990. Pileated woodpecker habitat relationships .

Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et. al., 1994), the cumulative effects of carrying out multiple projects simultaneously across the BDNF makes it imperative that population viability be assessed at

least at the forestwide scale (Marcot and Murphy, 1992). Also, temporal considerations of the impacts on wildlife population viability from implementing something with such long duration as a Forest Plan must be considered (id.) but this has never been done by the BDNF. It is also of paramount importance to monitor population during the implementation of the Forest Plan in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993).

Please demonstrate that this proposed amendments will leave enough snags to follow the Forest Plan requirements and the requirements of sensitive old growth species such as flammulated owls and goshawks. Loggers are required to follow OSHA safety standards. Will these standards require snags to be cut down? After snags are cut down for safety for OSHA requirements will there still be enough snags left for old growth sensitive species?

Specifically how will the proposed amendments effect Flammulated owls, cavity-nesters usually associated with mature stands of ponderosa pine and Douglas-fir? Among other habitat characteristics, flammulated owls benefit from an abundance of large snags and a relatively dense under-story. The flammulated owl is a sensitive species in Region One, and is largely dependent on old ponderosa pine

forests. According to a 2002 Region-wide assessment, not referenced in the 2003 FEIS for the Project, such forests only occur at 12-16% of their former, pre-fire suppression/ pre-logging (that is, “historic”) levels, and thus species viability has been determined to be at risk. The Northern Region also recognizes that its strategy for restoring habitat for the flammulated owl and found in the Island South project that “in no way guarantees that flammulated owls will be restored to viable levels."

Snag densities recommended by experts to support cavity-nesting birds range from 2.1 to 11 snags per acre of greater than 9” dbh. Please note that the fact that more recent science has called into question the lower snag densities cited in the earlier research, and the more recent science implies that about 4 snags per acre may be the minimum required to insure viability.

What surveys has the BNF specifically designed to detect flammulated owls? The FS has not developed a conservation strategy for the flammulated owl in the BNF, or in the Northern Rockies. Absent an appropriate landscape management strategy for insuring their viability, based upon the best available science, it is arbitrary and capricious to dismiss potential impacts on the ground where the FS has failed to conduct the kind of comprehensive

surveys that would reveal their presence. This convenient excuse for not protecting for a species that is becoming exceedingly rare, a strategy of managing for extinction (since protection premised on detection affords greatest protection to the species that least need it) has been condemned by the FS's own leading expert in the northern region, Mike Hillis:

> With the exception of the Spotted Owl…, the U.S. Forest Service has not given much emphasis to owl management. This is contrary to the National Forest Management Act of 1976 (NFMA) which mandates that all wildlife species be managed for viable populations. However, with over 500 vertebrate species this would be difficult for any organization. Recognizing the absence of detailed information on owl habitat, the apparent association of owls with snags, mature, and old-growth timber (both rapidly declining), it seems inconsistent that the U.S. Forest Service has placed little emphasis on owl management. One might conclude that the agency's painful experiences with the Spotted Owl in Oregon and Washington have evolved into a 'hear no evil, see no evil' approach for other forest owls as well.

The NPCNF's Lolo Insect & Disease DEIS states: "The nest tree is the most important variable to estimate breeding habitat use by the pileated woodpecker (Kirk and Naylor 1996, Giese and Cuthbert 2003) …The mean DBH of nest

trees was 33 inches. …Nest trees averaged 28 inches DBH." (Emphases added.)

Bull et al., 2007 compare the effects of natural disturbance with large-scale logging on pileated woodpeckers. Also see Bull et al., 1992, Bull and Holthausen, 1993, and Bull et al., 1997 for biology of pileated woodpeckers and the habitats they share with cavity nesting wildlife.

Lorenz et al., 2015 state:

> Our findings suggest that higher densities of snags and other nest substrates should be provided for PCEs (primary cavity excavators) 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 (secondary cavity users) is a concern (Scott 1978, Hutto 2006).

The implication is clear: managers know little about how many snags per acre are needed to sustain populations of cavity nesting species. Only the birds themselves have the capability to decide if a tree is suitable for excavating. The EA and Forest Plan fails to recognize this scientific finding.

On the same subject, Hutto 2006, notes from the scientific

literature: “The most valuable wildlife snags in green-tree forests are relatively large, as evidenced by the disproportionate number of cavities in larger snags (Lehmkuhl et al. 2003), and are relatively deteriorated (Drapeau et al. 2002).”

Spiering and Knight (2005) examined the relationship between cavity-nesting birds and snag density in managed ponderosa pine stands and examined if cavity-nesting bird use of snags as nest sites was related to the following snag characteristics (DBH, snag height, state of decay, percent bark cover, and the presence of broken top), and if evidence of foraging on snags was related to the following snag characteristics: tree species, DBH, and state of decay. Spiering and Knight (2005) state:

> “Many species of birds are dependent on snags for nest sites, including 85 species of cavity-nesting birds in North America (Scott et al. 1977). Therefore, information of how many and what types of snags are required by cavity-nesting bird species is critical for wildlife biologists, silviculturists, and forest managers.”
>
> “Researchers across many forest types have found that cavity-nesting birds utilize snags with large DBH and tall height for nest trees (Scott, 1978; Cunningham et al., 1980; Mannan et al., 1980; Raphael and White, 1984; Reynolds et al., 1985; Zarnowitz and Manuwal, 1985; Schreiber and deCalesta, 1992).”

Spiering and Knight (2005) found the following.

> Larger DBH and greater snag height were positively associated with the presence of a cavity, and advanced stages of decay and the presence of a broken top were negatively associated with the presence of a cavity. Snags in larger DBH size classes had more evidence of foraging than expected based on abundance.
>
> Percent bark cover had little influence on the presence of a cavity. Therefore, larger and taller snags that are not heavily decayed are the most likely locations for cavity-nesting birds to excavate cavities.
>
> The association of larger DBH and greater height of snags with cavities is consistent with other studies (Scott, 1978; Cunningham et al., 1980; Mannan et al., 1980; Raphael and White, 1984; Reynolds et al., 1985; Zarnowitz and Manuwal, 1985; Schreiber and deCalesta, 1992).

Spiering and Knight (2005) state that the "lack of large snags for use as nest sites may be the main reason for the low densities of cavity-nesting birds found in managed stands on the Black Hills National Forest. ...The increased proportion of snags with evidence of foraging as DBH size class increased and the significant goodness-of-fit test indicate that large snags are the most important for foraging."

Tingley et al., 2016 note the diversity of habitats following a fire is related to the diversity of burn severities: "(W)ithin

the decade following fire, different burn severities represent unique habitats whose bird communities show differentiation over time… Snags are also critical resources for many bird species after fire. Increasing densities of many bird species after fire—primarily wood excavators, aerial insectivores, and secondary cavity nesters—can be directly tied to snag densities…"

One issue that arises is the abundance of the large snags and down wood remaining from past logging, firewood gathering, and other management, following the proposed logging, and—the nuance ignored in this EA—through time as recruitment becomes practically nil after a few years in logged areas due to most or all of the large trees being removed and/or downed. Since the EA suggests that beyond the analysis area (the entire Forest and to the Region) adequate habitat values would remain, the agency is obligated to provide the numbers and conduct a scientifically sound cumulative effects analysis—including the impacts of past logging, firewood gathering, etc. The FS has not done this. Large areas of the BNF were logged in the past, which obviously has affected recruitment of large snags. As we discuss above, the nesting tree needs of the pileated woodpecker is of a larger size than the FS acknowledges or analyzes.

Mealey, 1983 stated: "Well distributed habitat is the amount and location of required habitat which assure that individuals from demes, distributed throughout the population's existing range, can interact. Habitat should be

located so that genetic exchange among all demes is possible." That document also provides guidance for pileated woodpecker habitat distribution.

Northern goshawk

Please include a cumulative effects analysis of the proposed amendmentsconsidering past and ongoing impacts in a logical cumulative effects analysis area for goshawks.

Crocker-Bedford (1990) investigated changes in northern goshawk habitat utilization following logging. He noted:

> After partial harvesting over extensive locales around nest buffers, reoccupancy decreased by an estimated 90% and nestling production decreased by an estimated 97%. Decreases were probably due to increased competition from open-forest raptors, as well as changes in hunting habitat and prey abundance.

Clough (2000) noted that in the absence of long-term monitoring data, a very conservative approach to allowing logging activities near active goshawk nest stands should be taken to ensure that goshawk distribution is not greatly altered. This indicates that the full 180-acre nest area management scheme recommended by Reynolds et al. (1992) should be used around any active goshawk nest on the Forest. Removal of any large trees in the 180-acre nesting area would contradict the Reynolds et al. (1992) guidelines.

Please explain how the FS would be managing if the

amendmentss were adopted in considerations of Reynolds et al. (1992) scientific recommendations. Reynolds, et al. 1992, calls for protecting northern goshawk nest areas around 3 nests and 3 alternative nests against adverse impacts in each home range.

Reynolds et al. 1992 calls for ratios of (20%/20%/20%) each in the mid-aged forest, mature forest, and old forest Vegetative Structural Stage (VSS) classes for, in this case hypothetical post-fledging family areas (PFAs) and foraging areas.

In addition, Reynolds et al. 1992 calls for agency-created openings of no more than 2 acres in size or less in the PFAs, depending on forest type, and agency-created opening of no more than 1-4 acres or less in size in the foraging areas, depending on forest type.

Along with Reynolds et al., 1992, another conservation strategy for the goshawk is Graham, et al., 1999. Research suggests that it is essential to viability of goshawks that 20-50% of old growth within their nesting areas be maintained (Suring et al. 1993, Reynolds et al. 1992). USDA Forest Service (2000b) recommends that forest opening greater than 50-60 acres be avoided in the vicinity of goshawks. At least five years of monitoring is necessary to allow for effective estimates of habitat quality (USDA Forest Service, 2000b). Research suggests that a localized distribution of 50% old growth should be maintained to allow for viability of goshawks (Suring et al. 1993).

Moser and Garton (2009) reported that all goshawk nests examined in their study area were found in stands whose average diameter of overstory trees was over 12.2 inches and all nest stands had ≥ 70% overstory tree canopy. They described their findings as being similar to those described by Hayward and Escano (1989), who reported that nesting habitat "may be described as mature to overmature conifer forest with a closed canopy (75-85% cover)…."

Please recognize goshawk long-term fidelity to nest stands.

Also please consider Beier and Drennan (1997), Crocker-Bedford (1990), Greenwald et al. (2005), Hayward and Escano (1989), La Sorte, et al. (2004), USDA Forest Service (2000b) and Patla (1997) as best available science for northern goshawk biology.

Please disclose the frequency and geographic extent of goshawk nest searches during the past 10 years in the BNF.

Please utilize goshawk survey methodology consistent with the best available science. For example the recent and comprehensive protocol, "Northern Goshawk Inventory and Monitoring Technical Guide" by Woodbridge and Hargis, 2006. Also, USDA Forest Service 2000b state:

> A common thread in the interviews was the lack of a landscape approach in providing goshawk habitat well distributed across the Forest (Squires, Reynolds,

> Boyce). Reynolds was deeply concerned that both alternatives focus only on 600 acres around known goshawk nests. He was concerned that this direction could be keeping the goshawk population artificially low. Because goshawks move around within their territories, they are very difficult to find (Reynolds). There might be more goshawks on the Forest than currently known (Squires). One or two years of goshawk surveys is not enough (Reynolds). Some pairs may not lay eggs for five years (Reynolds). To get confidence in identifying nesting goshawk pairs, four to six years of surveys are needed (Reynolds). (Emphasis added.)

The FS's Samson (2006a) reports says that 110 breeding individuals (i.e. 55 pairs) are necessary for a viable goshawk population in R1. Attachment 1 is a map showing the results from the 2005 R1 region-wide goshawk survey using their Woodbridge and Hargis goshawk monitoring protocol, which is published as a USFS technical report. The 2005 detection map says there were 40 detections in 2005 in Region 1. So the results of this survey essentially show that the population in Region 1 is not viable according to the agency's own science (only 40 instead of 55). And some of the detections may have been individuals using the same nest, so the number of nests (and therefore number of breeding pairs) could be even lower than 40.

<u>Elk and other Big game</u>

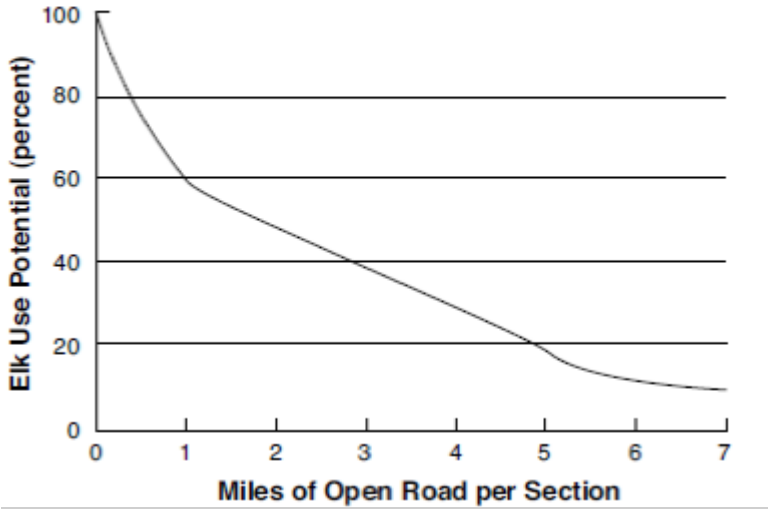
Please do a complete quantitative or qualitative analysis of security and thermal cover.

Please demonstrate consistency with all other forest plan direction. Please present an analysis explaining how changing the old growth definition in the Forest Plan assures that population viability is maintained, or maintains quality hunting opportunities.

The science is clear that motorized access via trail, road, or oversnow adversely impact habitat for the elk. Servheen, et al., 1997 indicate that motorized trails increase elk vulnerability and reduce habitat effectiveness, and provide scientific management recommendations.

Christensen, et al. (1993) is a Region One publication on elk habitat effectiveness. Meeting a minimum of 70% translates to about 0.75 miles/sq. mi. in key elk habitat, as shown in their graph:

5. Levels of habitat effectiveness:



Carnefix and Frissell, 2009 make a very strong scientific rationale for including ecologically-based road density standards:

> Roads have well-documented, significant and widespread ecological impacts across multiple scales, often far beyond the area of the road "footprint". Such impacts often create large and extensive departures from the natural conditions to which organisms are adapted, which increase with the extent and/or density of the road network. Road density is a useful metric or indicator of human impact at all scales broader than a single local site because it integrates impacts of human disturbance from activities that are associated with roads and their use (e.g., timber harvest, mining, human wildfire ignitions, invasive species introduction and spread, etc.) with direct road impacts. Multiple, convergent lines of empirical evidence summarized herein support two robust conclusions: 1) no truly

"safe" threshold road density exists, but rather negative impacts begin to accrue and be expressed with incursion of the very first road segment; and 2) highly significant impacts (e.g., threat of extirpation of sensitive species) are already apparent at road densities on the order of 0.6 km per square km (1 mile per square mile) or less. Therefore, restoration strategies prioritized to reduce road densities in areas of high aquatic resource value from low-to-moderately-low levels to zero-to-low densities (e.g., <1 mile per square mile, lower if attainable) are likely to be most efficient and effective in terms of both economic cost and ecological benefit. By strong inference from these empirical studies of systems and species sensitive to humans' environmental impact, with limited exceptions, investments that only reduce high road density to moderate road density are unlikely to produce any but small incremental improvements in abundance, and will not result in robust populations of sensitive species.

<u>Black-backed woodpecker</u>

Please consider the best available science for the Sensitive black-backed woodpecker analysis, and includes inadequate cumulative effects analysis.

Please analyze or disclose the quality of habitat based on prefire management activities that scientific research has found affects postfire woodpecker utilization.

The Sensitive species black-backed woodpecker is a primary cavity nester, and also the closest thing to an indicator for species depending upon the process of wildland fire in the ecosystem. Cherry (1997) states:

> The black-backed woodpecker appears to fill a niche that describes everything that foresters and fire fighters have attempted to eradicate. For about the last 50 years, disease and fire have been considered enemies of the 'healthy' forest and have been combated relatively successfully. We have recently (within the last 0 to 15 years) realized that disease and fire have their place on the landscape, but the landscape is badly out of balance with the fire suppression and insect and disease reduction activities (i.e. salvage logging) of the last 50 years. Therefore, the black-backed woodpecker is likely not to be abundant as it once was, and continued fire suppression and insect eradication is likely to cause further decline.

The FS manages against severely burned forests. The viability of black-backed woodpeckers is threatened by the FS's fire suppression and other "forest health" policies which specifically attempt to prevent its habitat from developing. "Insect infestations and recent wildfire provide key nesting and foraging habitats" for the black-backed woodpecker and "populations are eruptive in response to these occurrences" (Wisdom et al. 2000). The timber sale would reduce habitat the black-backed woodpecker biologically relies on. Viability of a species cannot be assured, if habitat suppression is a forestwide policy.

Cherry (1997) notes:

> Woodpeckers play critical roles in the forest ecosystem. Woodpeckers are primary cavity nesters that excavate at least one cavity per year, thus making these sites available to secondary cavity nesters (which include many species of both birds and mammals). Black-backed and three-toed woodpeckers can play a large role in potential insect control. The functional roles of these two woodpecker species could easily place them in the 'keystone' species category—a species on which other species depend for their existence.

Wickman (1965) calculated that woodpeckers may eat up to 50 larvae per day that were each about 50 mm in length. The predation on these larvae is significant. It has been estimated that individual three-toed woodpeckers may consume thousands of beetle larvae per day, and insect outbreaks may attract a many-fold increase in woodpecker densities (Steeger et al. 1996). The ability of woodpeckers in to help control insect outbreaks may have previously been underestimated.

Black-backed woodpeckers preferred foraging in trees of 34 cm (16.5 in) diameters breast height and (63 ft) 19 m height (Bull et al. 1986). Goggans et al. (1987) found the mean dbh of trees used for foraging was 37.5 cm (15 in) and the mean dbh of trees in the lodgepole pine stands used for foraging was 35 cm (14 in). Steeger et al. (1996) found that both (black-backed and three-toed)

> woodpecker species fed in trees from 20-50 cm (8-20 in) dbh.
>
> Black-backed woodpeckers excavate their own cavities in trees for nesting. Therefore, they are referred to as primary cavity nesters, and they play a critical role in excavating cavities that are later used by many other species of birds and mammals that do not excavate their own cavity (secondary cavity nesters). Black-backed woodpeckers peel bark away from the entrance hole and excavate a new cavity every year. Other woodpeckers sometimes take over their cavities (Goggans et al. 1987).

Also, FS biologists Goggans et al., 1989 studied black-backed woodpecker use of unburned stands in the Deschutes NF in Oregon. They discovered that the black-backed woodpeckers used unlogged forests more than cut stands. In other words, effects to the black-backed woodpecker accrue from logging forest habitat that has not been recently burned.

FS biologists Hillis et al., 2002 note that "In northern Idaho, where burns have been largely absent for the last 60 years, black-backed woodpeckers are found amid bark beetle outbreaks, although not at the densities found in post-burn conditions in Montana." Those researchers also state, "The greatest concerns for this species, however, are decades of successful fire suppression and salvage logging targeted at recent bark beetle outbreaks." Hillis et al., 2002

also state:

> Black-backed woodpeckers occupy forested habitats that contain high densities of recently dead or dying trees that have been colonized by bark beetles and woodborer beetles (Buprestidae, Cerambycidae, and Scolytidae). These beetles and their larvae are most abundant within burned forests. In unburned forests, bark beetle and woodborer infested trees are found primarily in areas that have undergone natural disturbances, such as wind-throw, and within structurally diverse old-growth forests (Steeger and Dulisse in press, Bull et al. 1986, Goggans et al. 1987, Villard 1994, Hoffman 1997, Weinhagen 1998).

Hutto, 1995 states: "Fires are clearly beneficial to numerous bird species, and are apparently necessary for some." (Emphasis added.) Hutto, 1995 whose study keyed on forests burned in 1988, noted:

> Contrary to what one might expect to find immediately after a major disturbance event, I detected a large number of species in forests that had undergone stand-replacement fires. Huff et al. (1985) also noted that the density and diversity of bird species in one- to two-year-old burned forests in the Olympic Mountains, Washington, were as great as adjacent old-growth forests…
>
> …Several bird species seem to be relatively restricted in distribution to early post-fire conditions… I believe it would be difficult to find a forest-bird species more

> restricted to a single vegetation cover type in the northern Rockies than the Black-backed Woodpecker is to early [first 6 years] post-fire conditions. (Emphases added.)

USDA Forest Service 2011c states:

> Hutto (2008), in a study of bird use of habitats burned in the 2003 fires in northwest Montana, found that within burned forests, there was one variable that exerts an influence that outstrips the influence of any other variable on the distribution of birds, and that is fire severity. Some species, including the black-backed woodpecker, were relatively abundant only in the high-severity patches. Hutto's preliminary results also suggested burned forests that were harvested fairly intensively (seed tree cuts, shelterwood cuts) within a decade or two prior to the fires of 2003 were much less suitable as post-fire forests to the black-backed woodpecker and other fire dependent bird species. Even forests that were harvested more selectively within a decade or two prior to fire were less likely to be occupied by black-backed woodpeckers.

Also see the agency's Fire Science Brief, 2009, which states, "Hutto found that Black-backed Woodpeckers fared best on sites unharvested before fire and poorest in the heavily harvested sites."

How will the Trail Creek project effect black-backed woodpeckers?

Hutto, 2008 states, “severely burned forest conditions have probably occurred naturally across a broad range of forest types for millennia. These findings highlight the fact that severe fire provides an important ecological backdrop for fire specialists like the Black-backed Woodpecker, and that the presence and importance of severe fire may be much broader than commonly appreciated.”

Hutto, 2006 states:

> The profound failure of many decision makers to appreciate the ecological value of burned forests stems from their taking too narrow a view of what forests provide. …Land managers, politicians, and the public-at-large need to gain a better appreciation of the unique nature of burned forests as ecological communities, … and how important the legacy of standing deadwood is to the natural development of forests (Franklin et al. 2000).

Bond et al., 2012a explain the need for a conservation strategy for the black-backed woodpecker:
In California, the Black-backed Woodpecker’s strong association with recently burned forest, a habitat that is ephemeral, spatially restricted, and often greatly modified by post-fire logging, as well as the species’ relative rarity, may make the woodpecker vulnerable to declines in the state. Additionally, Black-backed Woodpeckers in California are affected by the management of unburned forests – both because pre-fire stand conditions affect the

suitability of post-fire habitat for the species, and because a substantial proportion of California's Black-backed Woodpeckers nest and forage at a low population density in unburned forests. Conserving the Black-backed Woodpecker in California likely requires appropriate management and stewardship of the habitat where this species reaches its highest density – recently burned forest – as well as appropriate management of 'green' forests that have not burned recently

The EA does not disclose the quantity and quality of habitat that is necessary to sustain the viability of the black-backed woodpecker, or an explanation of the FS's methodology for measuring this habitat.

Holt and Hillis, "Current Status and Habitat Associations of Forest Owls in Western Montana" (1987).

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

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

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

Unfortunately, in the BNF and region-wide the FS has failed to meet Forest Plan old-growth standards, does not keep accurate old-growth inventories, and has not monitored population trends in response to management

activities as required by Forest Plans and NFMA (Juel, 2003).

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

Please examine how this project could affect grizzly bears, bull trout, lynx and other species listed under the Endangered Species Act. Please formally consult with the FWS on the impact of the proposed amendments on grizzly bears and all listed and candidate species under the ESA. Please examine how this proposed amendments will affect all MIS and sensitive species.

Our goals for the BNF include fully functioning stream ecosystems that include healthy, resilient populations of native trout. The highest priority management actions in the BNF are those that remove impediments to natural recovery. We request the FS design a restoration/access

management plan for BNF streams that will achieve recovery goals. The task of management should be the reversal of artificial legacies to allow restoration of natural, self-sustaining ecosystem processes. If natural disturbance patterns are the best way to maintain or restore desired ecosystem values, then nature should be able to accomplish this task very well without human intervention (Frissell and Bayles, 1996).

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

Please disclose in the NEPA document the results of up-to-date monitoring of fish habitat and watershed conditions and how this project will affect the fish in the BNF.

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

This proposed amendments to the old growth definition in the Forest Plan would allow the logging of thousands of acres of old growth without any analysis of whether that forest is necessary for conservation as winter lynx habitat. Please take a hard look at this factor. By failing to include a provision to protect winter lynx habitat, the proposed

amendments fails to apply the best available science and implement the measures necessary for lynx conservation, as required by the ESA.

The current science demonstrates that lynx must travel between areas of high hare densities and resist traveling through low cover areas in winter. Please identify the amount of non or low cover areas that will be created under the proposed amendments. Please use the best available science in regard to lynx habitat which is now Kosterman's masters Thesis, "Correlates of Canada Lynx Reproductive Success in Northwestern Mon-tana" and Holbrook. Please find both attached. They found that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts, i.e. trees under 4 inched dbh. This contradicts the agency's assumption in the Lynx Amendments that 30% of lynx habitat can be clearcut, and that no specific amount of mature forest needs to be conserved. It is now the best available science out there that describes lynx habitat in the Northern Rockies related to lynx viability and recovery. Holbroo's and Kosterman's study demonstrates that the Lynx Amendments standards are not adequate for lynx viability and recovery, as assumed by the Forest Service

The current best science indicates that lynx winter foraging habitat is critical to lynx persistence (Squires et al. 2010), and that this habitat should be "abundant and well-distributed across lynx habitat." (Squires et al. 2010;

Squires 2009.) Existing openings such as clearcuts not yet recovered are likely to be avoided by lynx in the winter. (Squires et al. 2010; Squires et al. 2006.)

Lynx winter habitat, provided only in older, multi-storied forests, is critical for lynx preservation. (Squires et al. 2010.) Winter is the most constraining season for lynx in terms of resource use; starvation mortality has been found to be the most com- mon during winter and early spring. (Squires et al. 2010.) Prey availability for lynx is highest in the summer. (Squires et al. 2013.)

Squires et al. (2013) noted in their research report that some lynx avoided crossing highways; in their own report, they noted that only 12 of 44 radio- tagged lynx with home ranges including 2- lane highways crossed them. Openings, whether

small in uneven-aged management, or large with clearcutting, remove lynx winter travel habitat on those affected acres, since lynx avoid openings in the winter. (Squires et al. 2010.)

Squires et al., 2010 reported that lynx winter habitat should be “abundant and spa- tially well- distributed across the landscape. Those authors also noted that in heavi- ly managed landscapes, retention and recruitment of lynx habitat should be a prior- ity.

Is the proposed amendments to the Forest Plan adequate to ensure conservation and recovery of lynx?

The Endangered Species Act requires the FS to insure that the proposed amendments to the Forest Plan is not likely to result in the destruction or adverse modification of lynx habitat. 16 U.S.C. §1536(a)(2). Activities that may destroy or adversely modify habitat are those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for lynx. 74 Fed. Reg. 8644.

Please analyze the impacts to lynx in the individual LAUs of the proposed amendments. The proposed amendments violates the NFMA if it fails to insure the viability of lynx. According to the 1982 NFMA regulations, fish and wildlife must be managed to maintain viable populations of Canada lynx in the planning area. 36 C.F.R. 219.19. The FS has not shown that lynx will be well-distributed in the planning area. The FS has not addressed how the proposed amendments's adverse modification of denning and foraging habitat will impact distribution. This is important because the agency readily admits that the LAUs already contain a "relatively large percentage of unsuitable habitat." The NRLMD ROD at 40 states that: The national forests subject to this new direction will provide habitat to maintain a viable population of lynx in the northern Rockies by maintaining the current distribution of occupied lynx habitat, and maintaining or enhancing the quality of that habitat."

Please disclose if the FS conducted lynx occurrence surveys of habitat in the LAUs.

Please disclose if surveys target snowshoe hare occurrence data in these stands newly considered unsuitable for lynx. Also, the EA doesn't indicate if the FS surveyed any areas (proposed for logging and/or burning or not) thought to not be lynx habitat based on mapping or stand data were surveyed to confirm unsuitable habitat conditions.

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

It appears the FS doesn't have a coherent strategy for recovering lynx from their Threatened status, including linking currently populated areas with each other through important linkages such as BNF LAUs.

Please analyze and disclose cumulative impacts of proposed amendments on lynx, such as snowmobiles. As the KNF's Galton FEIS states, "The temporal occurrence of forest uses such ... winter (skiing and snowmobiling) ... may result in a temporary displacement of lynx use of that area..."

Please quantify and disclose the cumulative effects on Canada lynx due to trapping or from use of the road and trail networks in the BNF under the proposed amendments.

Please analyze and disclose how lynx habitat capacity for denning will be impaired by Proposed amendments.

The USFWS listed the Canada lynx as a threatened species under the Endangered Species Act in 2000 due to "lack of guidance for conservation of lynx and snowshoe hare habitat..." and subsequent authorization of actions that may cumulatively adversely affect the lynx. Relatively little is known about lynx in the contiguous United States. Historically, lynx inhabited states spanning from Maine to Washington, but it is unknown how many lynx remain.

Lynx are highly mobile and generally move long distances [greater than 60 mi. (100 km.)]; they disperse primarily when snowshoe hare populations decline; subadult lynx disperse even when prey is abundant, presumably to establish new home ranges; and lynx also make exploratory movements outside their home ranges. 74 Peg. Reg. at 8617. The contiguous United States is at the southern edge of the boreal forest range, resulting in limited and patchy forests that can support snowshoe hare and lynx populations.

Lynx subsist primarily on a prey base of snowshoe hare, and survival is highly dependent upon snowshoe hare habitat, forest habitat where young trees and shrubs grow densely. In North America, the distribution and range of

lynx is nearly “coincident” with that of snowshoe hares, and protection of snowshoe hares and their habitat is critical in lynx conservation strategies.

Since more often than not when the FS conducts logging projects in LAUs surveys of stands for lynx habitat result in less suitable habitat than previously assumed, the FS needs to take a few steps backward and consider that its range-wide Canada lynx suitable habitat estimations were too high.

Squires et al. (2013) noted that long-term population recovery of lynx, as well as other species as the grizzly bear, require maintenance of short and long-distance connectivity. The importance of maintaining lynx linkage zones is also recognized by the FS's Lynx Conservation Assessment and Strategy (LCAS), as revised in 2013, which stresses that landscape connectivity should be maintained to allow for movement and dispersal of lynx.

Squires et al. (2013) noted in their research report that some lynx avoided crossing highways; in their own report, they noted that only 12 of 44 radio-tagged lynx with home ranges including 2- lane highways crossed them.

The current best science indicates that lynx winter foraging habitat is critical to lynx persistence (Squires et al. 2010), and that this habitat should be “abundant and well-distributed across lynx habitat.” (Squires et al. 2010; Squires 2009.) Existing openings such as clearcuts not yet recovered are likely to be avoided by lynx in the winter. (Squires et al. 2010; Squires et al. 2006a.)

Lynx winter habitat, provided only in older, multi-storied forests, is critical for lynx preservation. (Squires et al. 2010.) Winter is the most constraining season for lynx in terms of resource use; starvation mortality has been found to be the most common during winter and early spring. (Squires et al. 2010.) Prey availability for lynx is highest in the summer. (Squires et al. 2013.)

Openings, whether small in uneven-aged management, or large with clearcutting, remove lynx winter travel habitat on those affected acres, since lynx avoid openings in the winter. (Squires et al. 2010.)

Squires et al., 2010 reported that lynx winter habitat should be "abundant and spatially well- distributed across the landscape." Those authors also noted that in heavily managed landscapes, retention and recruitment of lynx habitat should be a priority.

The LCAS (Ruediger et al. 2000) recommends, until conclusive information is developed concerning lynx management, the agencies retain future options; that is, choose to err on the side of maintaining and restoring habitat for lynx and their prey. To err on the side of caution, the KNF would retain all remaining stem exclusion forests for recruitment into lynx winter habitat, so that this key habitat would more closely resemble historic conditions.

As early as 2000, the LCAS noted that lynx seem to prefer to move through continuous forest (1- 4); lynx have been observed to avoid large openings, either natural or created (1-4); opening and open forest areas wider than 650 feet

may restrict lynx movement (2-3); large patches with low stem densities may be functionally similar to openings, and therefore lynx movement may be disrupted (2-4). Squires et al. 2006a reported that lynx tend to avoid sparse, open forests and forest stands dominated by small-diameter trees during the winter. Squires et al. 2010 again reported that lynx avoid crossing clearcuts in the winter; they generally avoid forests composed of small diameter saplings in the winter; and forests that were thinned as a silvicultural treatment were generally avoided in the winter.

Squires et al. 2010 show that the average width of openings crossed by lynx in the winter was 383 feet, while the maximum width of crossed openings was 1240 feet.

Recent scientific findings undermine the Forest Plan/ NRLMD direction for management of lynx habitat. This creates a scientific controversy the FS fails to resolve, and in fact it essentially ignores it.

For one, Kosterman, 2014 found that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts, i.e. trees under 4 inched dbh. Young regenerating forest should occur only on 10-15% of a female lynx home range, i.e. 10-15% of an LAU. This renders inadequate the agency's assumption in the Forest Plan/NRLMD that 30% of lynx habitat can be open, and that no specific amount of mature forest needs to be conserved. Kosterman, 2014 demonstrates that Forest Plan/NRLMD standards are not adequate for lynx viability and recovery.

Also, the Forest Plan essentially assumes that persistent effects of vegetation manipulations other than regeneration logging and some intermediate treatments are essentially nil. However, Holbrook, et al., 2018 "used univariate analyses and hurdle regression models to evaluate the spatio-temporal factors influencing lynx use of treatments." Their analyses "indicated ...there was a consistent cost in that lynx use was low up to ~10 years after all silvicultural actions." (Emphasis added.) From their conclusions:

First, we demonstrated that lynx clearly use silviculture treatments, but there is a ~10 year cost of implementing any treatment (thinning, selection cut, or regeneration cut) in terms of resource use by Canada lynx. This temporal cost is associated with lynx preferring advanced regenerating and mature structural stages (Squires et al., 2010; Holbrook et al., 2017a) and is consistent with previous work demonstrating a negative effect of precommercial thinning on snowshoe hare densities for ~10 years (Homyack et al., 2007). Second, if a treatment is implemented, Canada lynx used thinnings at a faster rate post- treatment (e.g.,~20 years posttreatment to reach 50% lynx use) than either selection or regeneration cuts (e.g., ~34–40 years post-treatment to reach 50% lynx use). Lynx appear to use regeneration and selection cuts similarly over time suggesting the difference in vegetation impact between these treatments made little difference concerning the potential impacts to lynx (Fig. 4c). Third, Canada lynx tend to avoid silvicultural treatments when a preferred structural stage (e.g., mature, multi-storied forest or

advanced regeneration) is abundant in the surrounding landscape, which highlights the importance of considering landscape-level composition as well as recovery time. For instance, in an area with low amounts of mature forest in the neighborhood, lynx use of recovering silvicultural treatments would be higher versus treatments surrounded by an abundance of mature forest (e.g., Fig. 3b). This scenario captures the importance of post-treatment recovery for Canada lynx when the landscape context is generally composed of lower quality habitat. Overall, these three items emphasize that both the spatial arrangement and composition as well as recovery time are central to balancing silvicultural actions and Canada lynx conservation.

So Holbrook et al., 2018 fully contradict Forest Plan assumptions that clearcuts/regeneration can be considered useful lynx habitat as early as 20 years post-logging.

Results of a study by Vanbianchi et al., 2017 also conflict with Forest Plan/NRLMD assumptions: “Lynx used burned areas as early as 1 year postfire, which is much earlier than the 2–4 decades postfire previously thought for this predator.” The NRLMD erroneously assumes clearcutting/ regeneration logging have basically the same temporal effects as stand-replacing fire as far as lynx re-occupancy.

Kosterman, 2014, Vanbianchi et al., 2017 and Holbrook, et al., 2018, Holbrook 2019 demonstrate that Forest Plan direction is not adequate for lynx viability and recovery, as the FS assumes. Holbrook 2019 such all lynx habitat must be surveyed. Please do this.

Please describe the quantity and quality of habitat that is necessary to sustain the viability of the Canada lynx and explain how the proposed amendments to the Forest Plan will effect lynx and their habitat.

The current best science indicates that connectivity between the Yellowstone and Glacier ecosystems are necessary for the long term genetic health of both populations, especially bears in the Yellowstone ecosystem. The BNF lies within an identified linkage zone for grizzly bears as well as lynx. However, there are no management standards for either species to ensure connectivity is maintained, based on the current best science as required by the ESA. This requires limits on open road densities, limits on travel barriers, and retention of at least 50% dense, older forest habitats for lynx. Grizzly bears are known to be expanding into this landscape, and it is also historic habitat for lynx. Since lynx occupied this area at the time of listing as a threatened species, this landscape may qualify as critical habitat. It's suitability for lynx must therefore be retained until a final deci- sion is made on critical habitat. And suitability for grizzly bear use must also be retained/ restored.

Please analysis and impacts on ESA-listed grizzly bear and lynx of the proposed amendments. Because there are endangered species present and will be effect, the Forest Service must complete and EIS. The Project EIS and BA/ BiOp must disclose and apply the best available science on recommended open motorized route density, total

motorized route density, and core habitat thresholds for NCDE grizzly bears under the proposed amendments.

Please address what the level of security, OMARD, and TMARD are recommended for grizzly bears in the NCDE, and how these compare to those available in the BNF. This comparison would demonstrate compatibility of existing and planned management of grizzly bears to the general public.

Please include an analysis of TMARD before or after the implementation of the proposed amendments. Decommissioning of roads will reduce OMARD, but will not reduce TMARD. The road would have to be completely obliterated, and no future use can be planned (IGBC 1998). The claim that all new temporary roads will be obliterated, and thus no add to TMARD after the projects are completed, is never actually verified in the project FEIS.

Please analyze how the proposed amendments result in the increase or decrease of clearcutting existing cover, including openings up to large clearcuts and how this will affect grizzly bear and lynx movement through this landscape.

The Forest Service and the USFWS will violate the ESA, the NEPA, and the NFMA if the amendments is implemented, because of the following:

-the BDF has no conservation strategy for grizzly bears on the Forest.

-the ability of grizzly bears to traverse through the BNF has been never evaluated.

-the current best science, including levels of grizzly bear security, open and total road densities, was not used in evaluating project impacts on grizzly bear during as well as after implementation.

-mitigation measures cited by both the Forest Service and the USFWS for grizzly bears as per landscape levels of OMRTD are invalid as direct effects are washed out.

-mitigation measures as per OMRTD at the landscape level do not apply to project implementation, and do therefore no mitigate disturbance impacts to grizzly bears from motorized routes during project activities.

-the cumulative effects of proposed activities on the BNF are not evaluated.

-Please include an alternative that would restore grizzly bear habitat in the BNF to improve habitat connectivity.

ELK

The elimination of any requirements for habitat effectiveness, thermal cover, and elk security areas is somehow determined to have no significant adverse

impacts on elk, which would require an Environmental Impact Statement (EIS) for this amendment. With the elimination of these standards/guidelines, the agency has no actual proxy to measure amendment impacts on elk. This is why there is no actual analysis of how the amendment will impact elk. This analysis is not possible because the agency cannot define how many areas of the forest will exceed the 50% habitat effectiveness levels required for productive elk summer habitat. Measures of amendment impacts on elk security were not possible because security is not actually defined as per the current best science. Thus it cannot also be measured on the landscape, such as meeting the minimum 30% threshold to avoid significant impacts. As for thermal cover, the agency cites a 1998 paper by Cook and others that has been discredited by the 2013 Eastside Assessment that is also cited in the amendment. This assessment clearly notes that thermal cover may be important to wildlife, as does the 1985 Elk-Logging study by Lyon and others. Elimination of road density standards, elk security, and thermal cover requirements will clearly create significant reductions in elk habitat quality on this forest, a factor that was not acknowledged in the amendment draft EA, in violation of the NEPA.

Another factor that was clearly misrepresented by the agency in this amendment is the use of elk population levels as a measure of habitat quality on the forest, including security and elk vulnerability. It has been well documented that high elk population numbers indicate a

lack of security, not good habitat on a forest. This is one of 2 actual “proxies” for elk security on a forest. The first is the percentage of the landscape that qualifies as security as per the Hillis Paradigm, or newer science by Lowrey et al. (2019). That article discredited measures of elk security by Rangelack and others. We also note that the Proffitt article cited by the agency used the Hillis Paradigm to measure security. The second measure of adequate levels of security on public lands is total elk population numbers. When elk find security on private lands during the hunting season, it becomes very difficult to control population numbers. There is also another method to evaluate elk security, that that are population criteria per herd unit, especially bull/cow ratios. None of these methods for analysis of security were provided in the Amendment. In effect, there is no actual analysis as to how this amendment will affect elk.

We note that the Eastside Assessment (2013) cited in the Amendment clearly defines the need for thermal cover on winter ranges, as does the 1985 Elk-Logging study by Lyon and others. The agency’s claim that the current best science has found no thermal cover benefits is clearly false, and is a false justification for removing this requirement in the amendment.

There was no actual analysis as to why the Guides for Elk Habitat Objectives will be removed as a requirement in the Amendment. Specifically, what is the problem with this

document that it no longer is relevant to elk management, including winter ranges?

The amendment continues that existing claim in the Forest Plan that management of big game winter ranges for forage will improve elk habitat. Currently, there has been no actual documentation that logging and burning will improve elk forage on winter range. This lack of documentation includes any monitoring of the current forest plan program.

The amendment repeatedly claims that forage is the most critical need for elk management on the Bitterroot National Forest, without providing any actual reports or publications as to how this has been determined. The Eastside Assessment, as well as the Elk-Logging Study by Lyon and others (1985) document that elk require hiding cover, up to 66% for good cover, and management of cover on winter ranges. It is not clear specifically how the agency has determined that forage is limiting on the forest, and if so, why limiting motorized access through restriction of habitat effectiveness would not benefit elk. Somehow, more disturbances to elk will not affect their ability to forage.

Although the 2013 Eastside Assessment claims there is no science for a given level of hiding cover for elk, this is clearly not true. The 1985 Elk-Logging study reported, after 15 years of research, that good cover for elk is 66% or

greater. And the Hillis Paradigm, as well as Lowrey et al. (2019) both found that cover is an important factor in elk security. The lack of any requirements of hiding cover on the Bitterroot National Forest has yet to be supported in the Amendment.

The Amendment suggests that administrative vehicle use, which includes logging trucks, does not displace elk, but no references were cited. The Eastside Assessment (2013) clearly noted that 2-4 vehicle trips per 12 hours displaces elk.

The Amendment claims that a goal of this amendment is to keep elk on public lands in the hunting season. Yet all the factors that promote elk retention on the forest are being eliminated in the amendment. The actual reason elk retention on the forest in the fall hunting season will be maintained and/or improved was never provided.

The population criteria for hunting districts 204, 240, 250, 260, 261, 262, and 270 were not provided in the draft EA. This information is important to demonstrate how current management has affected elk. If management has not been effective, given the multiple forest plan exemptions for elk habitat, with only 40% of the 3rd order drainages meeting Forest Plan standards for elk habitat, it is important for the agency to fully evaluate how these exemptions have

impacted elk. The agency did not do this analysis. Instead, they claimed that elk population numbers are up "dramatically," so that all these exemptions did not matter, or actually benefited elk. As we noted before, high population numbers indicates a lack of good elk habitat on a forest, not an abundance of high quality habitat. The current population levels of elk on this forest demonstrate that habitat measures have clearly failed, and need to be increased, not eliminated.

Page 46 of the EA states:

Executive Order 14072 recognizes the threats to old growth and mature forests from climate impacts, wildfire, insect infestation and disease; it directs us to act to conserve, restore, reforest, and manage our forestsThe project is in violation of NEPA, NFMA, the APA, the ESA for not examining the impacts of the project on climate change.

Will the amendments result in the eliminate the old growth forests because additional logging will be allowed in currently defined old growth forests in the BNF. Forests absorb carbon? The project will destroy soils in the BNF. Soils are carbon sinks.

The EA does not demonstrate that the EA is in compliance with Executive Order 14072, NEPA, NFMA, or the APA.

Please see the following article that ran in the Missoulian on March 11, 2019.

Fire study shows landscapes such as Bitterroot's Sapphire Range too hot, dry to restore trees

ROB CHANEY rchaney@missoulian.com Mar 11, 2019

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

Courtesy Kim Davis

Fire-scarred forests like the Sapphire Range of the Bitterroot Valley may become grasslands because the growing seasons have become

too hot and dry, according to new research from the University of Montana.

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

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

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

The study concentrated on regrowth of Ponderosa pine and Douglas fir seedlings in Montana, Idaho, Colorado, New Mexico,

Arizona and northern California. Field workers collected trees from 90 sites, including 40 in the northern Rocky Mountains, scattered within 33 wildfires that had occurred within the past 20 years.

“We did over 4,000 miles of road-tripping across the West, as well as lots of miles hiking and backpacking,” Davis said. The survey crews brought back everything from dead seedlings to 4-inch-diameter tree rings; nearly 3,000 samples in total. Then they analyzed how long

each tree had been growing and what conditions had been when it sprouted.

Before the 1990s, the test sites had enough soil moisture, humidity and other factors to recruit new seedlings after forest fires, Do- browski said.

“There used to be enough variability in seasonal conditions that seedlings could make it across these fixed thresholds,” Dobrowski said. “After the mid-‘90s, those windows have been closing more of- ten. We’re worried we’ll lose these

low-elevation forests to shrubs or grasslands. That's what the evidence points to."

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

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

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

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

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

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

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

Rob Chaney

Natural Resources & Environment Reporter

Natural Resources Reporter for The Missoulian.

The NFMA requires in the face of increasing climate risk, growing impacts of wildfire and insect activity, plus scientific research find- ings, the FS must disclose the significant trend in post-fire regeneration failure. The forest has already experienced considerable difficulty restocking on areas that have been subjected to prescribed fire, clear-cut logging, post- fire salvage logging and other even-aged management “systems.”

NFMA (1982) regulation 36CFR 219.27(C)(3) implements the NFMA statute, which requires restocking in five years.

Forest managers must analyze and disclose the fact that the BNF can no longer “insure that timber will be harvested from the National Forest system lands only where...there is assurance that such lands can be restocked within five years of harvest?” (NFMA§6(g)(3)(E)(ii)).

The project goals and expectations are not consistent with NFMA's "adequate restocking" requirement. Scientific research can no longer be ignored.

"At dry sites across our study region, seasonal to annual climate conditions over the past 20 years have crossed these thresholds, such that conditions have become increasingly unsuitable for regenera- tion. High fire severity and low seed availability further reduced the probability of post-fire regeneration. Together, our results demon- strate that climate change combined with high severity fire is leading to increasingly fewer opportunities for seedlings to establish after wildfires and may lead to ecosystem transitions in low-elevation ponderosa pine and Douglas-fir forests across the western United States." Wildfires and climate change push low-elevation forests across a critical climate threshold for tree regeneration, PNAS (2018), Kimberley T. Davis, et al. (Please, find attached)

Forests are already experiencing emissions-driven deforestation on both the post-fire and post-logging acreage. Areas where the cumula- tive effects of wildfire, followed by salvage logging on the same piece of ground

are error upon error, with decades of a routine that can rightfully be described as willful ignorance and coverup.

“In the US Rocky Mountains, we documented a significant trend of post-fire tree regeneration, even over the relatively short period of 23 years covered in this analysis. Our findings are consistent with the expectation of reduced resilience of forest ecosystems to the combined impacts of climate warming and wildfire activity. Our results suggest that predicted shifts from forest to non-forested vegetation.” Evidence for declining forest resilience to wildfires under climate change, Ecology Letters, (2018) 21: 243–252, Stevens-Ru- mens et al. (2018). (Please find attached)

The Forest Plan is based on assumptions largely drawn from our past that no longer hold true. These assumptions, made decades ago, must be challenged, and amended, where overwhelming evidence demon- strates a change of course is critical. It is time to take a step back, as- sess the present and future and make the necessary adjustments, all in full public disclosure to the Congress and the American people. Many acres of (conifers) In many areas, conifers haven’t shown “re- silience” enough to spring back from

disturbance. Regeneration is already a big problem. (Emphasis added).

Both RPA and NFMA mandate long-range planning which impose numerous limitations on commodity production, including grazing, timber harvesting practices and the amount of timber sold annually.

These long-range plans are based on assumptions, which are based on data, expert opinion, public participation and other factors that all, well almost all, view from a historical perspective. Assumptions that drove forest planning guidance decades ago, when climate risk was not known as it is today, are obsolete today.

Present and future climate risk realities demand new assumptions and new guidance.

A proper reexamination of the assumptions relating to resilience and sustainability contained in the Forest Plan is necessary. Scientific research supporting our comments focus on important data and analysis. A full discussion and disclosure of the following is required: 1) trends in wildfires, insect activity and tree mortality, 2) past regeneration success/failure in the BNF, and 3) climate-risk science – some of which is cited below. Our comments, and

supporting scientific re- search clearly “demonstrates connection between prior specific written comments on the particu- lar proposed project or activity and the content of the objection...”

The project is in violation of NEPA, NFMA, the Forest Plan and the APA.

Sec. 6. of the National Forest Management Act states:

(g) As soon as practicable, ... the Secretary shall ... promulgate regulations, under the principles of the Multiple-Use, Sustained-Yield Act of 1960...

The regulations shall include, but not be limited to-

(3) specifying guidelines for land management plans developed to achieve the goals of the Program which-

(E) insure that timber will be harvested from National Forest System lands only where-

(i) soil, slope, or other watershed conditions will not be irreversibly damaged;

NFMA regulations at 36 C.F.R. § 219.27 (Management requirements) state:

(a) Resource protection. All management prescriptions shall—

(1) Conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land;

(b) Vegetative manipulation. Management prescriptions that involve vegetative manipulation of tree cover for any purpose shall--

(5) Avoid permanent impairment of site productivity and ensure conservation of soil and water resources;

The project-level, and programmatic-level (Forest Plan) fail to publicly disclose the current and future impacts of climate risk to our national forests. NEPA requires cumulative effects analysis at the programmatic level, and at the project-level. Please assess and disclose all risks associated with additional vegetative-manipulation (slash and burn) units in currently defined old growth in the BNF in the proper climate-risk context/scenario under the proposed amendmentss to the Forest Plan.

In the face of increasing climate risk, growing impacts of wildfire and insect activity, plus scientific research findings, NEPA analysis and disclosure must address the

well-documented trend in post-fire regeneration failure. The BNF has already experienced difficulty restocking on areas that burned in the 1988 wildfire. NFMA (1982) regulation 36 CFR 219.27(c)(3) implements the NFMA statute, which requires adequate restocking in five years.

Given the forest's poor history of restocking success and its failure to employ the best available science, the adequacy of the site-specific and programmatic NEPA/NFMA process begs for further analysis and disclosure of the reality of worsening climate conditions which threaten – directly and cumulatively – to turn forest into non-forested vegetation, or worse.

The Forest Plan is based on assumptions largely drawn from our past. These assumptions must be challenged, and amended, where overwhelming evidence demonstrates a change of course is critically important. It is time to take a step back, assess the future and make the necessary adjustments, all in full public disclosure to the Congress and the American people.

Please acknowledge the likelihood that "...high seedling and sapling mortality rates due to water stress, competing vegetation, and repeat fires that burn young stands," which

will likely lead to a dramatic increase in non- forest land acres. Many acres of (conifers) trees already fail to regenerate. (Emphasis added). A map of these areas is required. In many areas, conifers haven't shown "resilience" enough to spring back from disturbance.

Looking to the Future and Learning from the Past in our Na- tional Forests: Posted by Randy Johnson, U.S. Forest Service Research and Development Program, on November 1, 2016 at 11:00 AM http://blogs.usda.gov/2016/11/01/looking-to-the- future-and-learning-from-the-past-in-our-national-forests/

Excerpt:

"Forests are changing in ways they've never ex- perienced before because today's growing conditions are different from anything in the past. The climate is chang- ing at an unprecedented rate, exotic diseases and pests are present, and landscapes are fragmented by human ac- tivity often occurring at the same time and place.

When replanting a forest after disturbances, does it make sense to try to reestablish what was there before? Or,

should we find re-plant material that might be more appropriate to current and future conditions of a changing environment?

Restoration efforts on U.S. Forest Service managed lands call for the use of locally adapted and appropriate native seed sources. The science-based process for selecting these seeds varies, but in the past, managers based deci- sions on the assumption that present site conditions are similar to those of the past."

"This may no longer be the case."

The selected scientific research presented above is only a sampling of the growing body of evidence that supports the need to disclose the consequences of the proposed action in a proper context – a hotter forest environment, with more frequent drought cycles. This evidence brings into question the Purpose and Need for the project. It also requires the FS to reconsider the assumptions, goals and expected desired future condition expressed in the existing Forest Plan. Plan expectations must be amended at the programmatic level before proceeding with proposed project-level action(s). According to best available science, implementing the project will most likely accomplish the opposite of the de-

sired future condition. We can adjust as we monitor and find out more. However, to willfully ignore what we do know and fail to disclose it to the public is a serious breach of public trust and an unconscionable act. Climate risk is upon us. A viable alternative to the proposal is not only reasonable and prudent, but it is the right thing to do.

The proposed amendmentss will be in violation of NEPA, NFMA, the Clean Water Act, the ESA and the APA if the prosed amendmentss adversely affect biological diversity and it is not following the best available.

The NEPA requires a “hard look” at climate issues, including cumulative effects of the “treatments” in the proposed project when added to the heat, drought, wind and other impacts associated with in- creased climate risk including the proposed amendmentss. Regeneration/ Restocking failure following wildfire, prescribed fire and/ or mechanical tree-killing has not been analyzed or disclosed. There is a considerable body of science that

suggests that regeneration following fire is increasingly problematic.

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

In an uncertain future of rapid change and abrupt, unforeseen transitions, adjustments in management approaches will be necessary and some actions will fail. However, it is increasingly evident that the greatest risk is posed by continuing to implement strategies inconsistent with and not informed by current understanding of our novel future....

Achievable future conditions as a framework for guiding forest conservation and management, Forest Ecology and Management 360 (2016) 80–96, S.W. Golladay et al. (Please, find attached)

Stands are at risk of going from forest to non-forest, even without the added risk of "management" that appears would be increases in the BNF. The District Court of Montana ruled in Case 4:17-cv-00030- BMM that and in an additional case that the Federal government did have to evaluate the climate change impacts of the federal government coal program. Please find the orders attached.

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

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

Resource Council, Northern Plains Resource Council, the Sier- ra Club, and the Natural Resources Defense Council.

The proposed amendments will be in violation of NEPA, NFMA, the APA, the ESA if the BNF does not examine the impacts of the proposed amendments on climate change. The proposed amendments could result in the eliminate of many old growth forests in the BNF. Forests absorb carbon and old growth forest absorb the most carbon. The proposed amendments could result in more soil that is destroyed in the BNF. Soils are carbon sinks.

Please include an alternative that keeps the current definition of old growth forests in the Forest Plan. Please include an alternative that uses the complete definition of old growth forest based on the best available science.

Sec. 6. of the National Forest Management Act states:

(g) As soon as practicable, ... the Secretary shall ... promulgate regulations, under the principles of the Multiple-Use, Sustained-Yield Act of 1960...

The regulations shall include, but not be limited to-

(3) specifying guidelines for land management plans developed to achieve the goals of the Program which-

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(b) Vegetative manipulation. Management prescriptions that involve vegetative manipulation of tree cover for any purpose shall--

(5) Avoid permanent impairment of site productivity and ensure conservation of soil and water resources;

In the face of increasing climate risk, growing impacts of wildfire and insect activity, plus scientific research

findings, NEPA analysis and disclosure must address the well-documented trend in post-fire regeneration failure. The project has already experienced difficulty restocking on areas that burned in the 1988 wildfire. NFMA (1982) regulation 36 CFR 219.27(c)(3) implements the NFMA statute, which requires adequate restocking in five years.

Given the forest's poor history of restocking success and its failure to employ the best available science, the adequacy of the site-specific and programmatic NEPA/NFMA process begs for further analysis and disclosure of the reality of worsening climate conditions which threaten – directly and cumulatively – to turn forest into non-forested vegetation, or worse. The desired future condition described in the Purpose and Need, or in the Forest Plan is not deforestation.

Please formally consult with the FWS on the impact of the proposed amendments on the Monarch Butterfly.

Water quality

Please disclose the baseline condition, and expected sedimentation during and after the proposed amendments, for all streams in the BNF.

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

How will the proposed amendments effect bull trout and cutthroat throat and their habitat?

From the 2012/2015 Planning Rule:
Initiating plan amendments All plan amendments initiated after May 9, 2012, are subject to the objection process in subpart B of this part. With respect to plans approved or revised under a prior planning regulation, including the transition provisions of the reinstated 2000 rule (36 CFR part 219, published at 36 CFR parts 200 to 299, revised as of July 1, 2010), plan amendments may be initiated under the provisions of the prior planning regulation for 3 years after May 9, 2012, and may be completed and approved under those provisions (except for the optional appeal procedures of the prior planning regulation); or may be initiated, completed, and approved under the

requirements of this part. After the 3-year transition period, all plan amendments must be initiated, completed, and approved under the requirements of this part. 36 CFR 219.17(b)(2).

Is the (legally sufficient), meeting the requirements to initiate aprogrammatic Forest Plan Amendments under the 2012/2015 Planning Rule?,
Is Green et al. the best available science as required by the 2012/2015 Planning Rule? If so, the BNF must follow it, all of it. What we have noticed since dealing with Green et al. – a comprehensive old growth definition and procedural guide – is that the agency (state and/or federal) claiming to be following Green never do so in total, usually ignoring the qualitative elements that require extensive field surveys and monitoring –especially old-growth habitat conditions, quality, habitat effectiveness and connectivity – resorting to quantitative minimums (spacing, dbh, canopy cover, etc.) elements with a lot of numbers, computer models and happy talk. Alway, always there is less habitat quality and fewer high-quality acres of old-growth habitat following project completion when misapplying Green.

It appears that the BNF is cherry-picking Green et al. Green et al. is based on (Pfister et al.) habitat types. The following quote explains the "ecologically based classification" methodology.
Quote from Green et al. (April, 1992)

Within the Northern Rockies various attempts at old growth definition were made during the Forest planning process. Unfortunately, these efforts continued to follow the definitions being developed in Oregon and Washington or emphasized structural characteristics related to old growth-associated wildlife species. Pfister (1987) conducted the first quantitative analysis based on ecological data for the Northern Rockies. This effort concentrated on the Kootenai and Nez Perce National Forests and provided a structure for the analysis presented in this paper. The analysis provided a basic review of concepts and provided an ecologically based classification of old growth based on numbers of large trees, snags, and down logs and described associated attributes of layers, canopy cover, age, and basal area. Pfister (1987) provided eight recommendations for further analysis, some of which have been crucial in conducting the regional level analysis.

ECOLOGICAL STRATIFICATION FOR THE NORTHERN REGION

In order to classify old growth forests it was decided that the most applicable system for stratification of site potential would be groups of habitat types. The habitat type classification systems used for this grouping are the "Forest Habitat Types of Northern Idaho: A Second Approximation (Cooper and others 1991) and "Forest Habitat Types of

Montana":(Pfister and others 1977). OLD-GROWTH FOREST TYPES OF THE NORTHERN REGION by P. Green, J. Joy, D. Sirucek, W. Hann, A. Zack, and B. Naumann* NORTHERN REGION
USDA FOREST SERVICE APRIL 1992 R-1 SES 4/92 (errata corrected 02/05,12/07,10/08/,12/11)

Thank you for your time and consideration of our comments.
Sincerely yours,

Mike Garrity

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