July 30, 2024

Kathy Bushnell, Helena District Ranger
2880 Skyway Dr.
Helena, Montana 59602

Re: Larabee Hat Vegetation Project

Dear Ranger Bushnell,

Thank you for the opportunity to comment on the Larabee Hat Vegetation Project Preliminary Analysis.

It appears that the HLCNF ignored my scoping comments and didn't answer most of my questions so I am asking them again.

How can the Helena-Lewis and Clark National Forests (HLC-NF) justify building and rebuilding over 55 miles of new and re-built logging roads in addition to commercial and mechanical logging in a hunting district that has twice the number of elk as desired and logging units that are over 40 acres in watersheds

that are already impaired from logging and roads? An Environmental Impact Statement is necessary to analyze the impacts or better yet just drop this project.

Please analyze the cumulative impacts of this project along with the Ten Mile and Telegraph projects and also the State of Montana's project on the Spotted Dog Wildlife Management Area and activities on private land on grizzly bears, lynx, lynx critical habitat, whitebark pine, wolverine, big game, monarch butterflies, goshawks, and all native fish and wildlife in the Helena Ranger District.

With the new roads will the project be in compliance with the road density standards?
How will the project effect big game?

Following the list of necessary elements, Alliance has also included a general narrative discussion on possible impacts of the

Project, with accompanying citations to the relevant scientific literature. These references should be disclosed and discussed in the EIS or at a minimum an EA for the Project.

The Preliminary Assessment that the Forest Service wrote violates NEPA by not taking a hard look at the impacts of the project and does not demonstrate that the project complies with the Forest Plan, NFMA, the APA, the ESA, and the Clean Water Act.

The Forest Service needs to write an Environmental Impact Statement (EIS)or at a minimum an Environmental Assessment (EA) for this project.

Please include a no commercial logging alternative.

NECESSARY ELEMENTS FOR PROJECT EIS or an EA if you choose to write an EA.

A. Disclose all HLCNF Plan requirements for logging/burning projects and explain how the Project complies with them;

B. Disclose the acreages of past, current, and reasonably foreseeable logging, grazing, and road-building activities within the Project area;

C. Solicit and disclose comments from the Montana Department of Fish, Wildlife and Parks regarding the impact of the Project on wildlife habitat;

D. Solicit and disclose comments from the Montana Department of Environmental Quality regarding the impact of the Project on water quality; Page 7 of the Preliminary Assessment says you have not consulted with them which is odd since the Preliminary Assessment states on page 4:

There is a need to restore bull trout habitat as well as other important riparian and rangeland habitat. The project area includes several streams that are listed by Montana Department of Environmental Quality as impaired, due to historic and current land use practices. Watershed improvement activities would be designed to improve water quality, aquatic habitat,

aquatic organism passage, and the hydrologic capacity of stream crossings.

E. Disclose the biological assessment for the candidate, threatened, or endangered species with potential and/or actual habitat in the Project area;

F. Disclose the biological evaluation for the sensitive and management indicator species with potential and/or actual habitat in the Project area;

G. Disclose the snag densities in the Project area, and the method used to determine those densities;

H. Disclose the current, during-project, and post-project road densities in the Project area; and disclose the number of road closure violations in the Helena Ranger District during the last 5 years.

I. Disclose the HLCNF's record of compliance with state best management practices regarding stream sedimentation from ground-disturbing management activities;

J. Disclose the HLCNF's record of compliance with its monitoring requirements as set forth in its Forest Plan;

K. Disclose the HLCNF's record of compliance with the additional monitoring requirements set forth in previous DN/FONSIs and RODs on the HLCNF;

L. Disclose the results of the field surveys for threatened, endangered, sensitive, and rare plants in each of the proposed units;

M. Disclose the level of current noxious weed infestations in the Project area and the cause of those infestations;

N. Disclose the impact of the Project on noxious weed infestations and native plant communities;

O. Disclose the amount of detrimental soil disturbance that currently exists in each proposed unit from previous logging and grazing activities;

P. Disclose the expected amount of detrimental soil disturbance in each unit after ground disturbance and prior to any proposed mitigation/remediation;

Q. Disclose the expected amount of detrimental soil disturbance in each unit after proposed mitigation/remediation;

R. Disclose the analytical data that supports proposed soil mitigation/remediation measures;

S. Disclose the timeline for implementation;

T. Disclose the funding source for non-commercial activities proposed;

U. Disclose the current level of old growth forest in each third order drainage in the Project area;

V. Disclose the method used to quantify old growth forest acreages and its rate of error based upon field review of its predictions;

W. Disclose the historic levels of mature and old growth forest in the Project area;

X. Disclose the level of mature and old growth forest necessary to sustain viable populations of dependent wildlife species in the area;

Y. Disclose the amount of mature and old growth forest that will remain after implementation;

Z. Disclose the amount of current habitat for old growth and mature forest dependent species in the Project area;

AA. Disclose the amount of habitat for old growth and mature forest dependent species that will remain after Project implementation;

BB. 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;

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

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

EE. Disclose the amount of big game (moose and elk) hiding cover, winter range, and security after implementation;
FF. Disclose the method used to determine big game hiding cover, winter range, and security, and its rate of error as determined by field review;

GG. 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;

HH. Disclose the actions being taken to reduce fuels on private lands adjacent to the Project area and how those activities/or lack thereof will impact the efficacy of the activities proposed for this Project; II.Disclose the efficacy of the proposed activi-

ties at reducing wildfire risk and severity in the Project area in the future, including a two-year, five-year, ten-year, and 20-year projection;

JJ. Disclose when and how the HLCNF made the decision to suppress natural wildfire in the Project area and replace natural fire with logging and prescribed burning and if you are continuing to suppress almost all wildfire;

KK. Disclose the cumulative impacts on the Forest-wide level of the HLCNF's policy decision to replace natural fire with logging and prescribed burning;

LL. Disclose how the Project complies with the Roadless Rule;

MM. Disclose the impact of climate change on the efficacy of the proposed treatments;

NN. Disclose the impact of the proposed project on the carbon storage potential of the area;

OO. Disclose the baseline condition, and expected sedimentation during and after activities, for all streams in the area;

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

1.Past, current, and reasonably foreseeable logging units in the Project area;

2.Past, current, and reasonably foreseeable grazing allotments in the Project area;

3.Density of human residences within 1.5 miles from the Project unit boundaries;

4.Hiding cover in the Project area according to the Forest Plan definition;

5.Old growth forest in the Project area;

6.Big game security areas;

7.Moose winter range;

SOIL PRODUCTIVITY The HLCNF (FNF) adopted the Region 1 Soil Quality Standards, FSM 2500-99-1 (SQS), to assure compliance with the Forest Plan and NFMA. The SQS limit the areal extent of detrimental soil disturbance within logging units to no more than 15%. Soil Quality Standards "provide benchmark values that indicate when changes in soil properties and soil conditions would result in significant change or impairment of soil quality based on available research and Regional experience" (Forest Service Manual 2500, Region 1 Supplement 2500-99-1, Chapter 2550 – Soil Management, Section 2554.1).

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

Please disclose percent detrimental disturbance estimates provided by watershed. What is the relevance of the areal extent of management-induced soil damage over such a geographic area? Alexander and Poff (1985) reviewed literature and found that the amount of soil damage varies even with the same logging system, depending on many factors. For example, as much as 10% to 40% of a logged area can be disturbed by skyline logging. They state: There are many more data on ground disturbance in logging, but these are enough to indicate the wide diversity of results obtained with different equipment operators, and logging techniques in timber stands of different composition in different types of terrain with different soils. Added to all these variables

are different methods of investigating and reporting disturbance. The Sheep Creek Salvage FEIS (USDA Forest Service, 2005a) states at p. 173: Noxious weed presence may lead to physical and biological changes in soil. Organic matter distribution and nutrient flux may change dramatically with noxious weed invasion. Spotted knapweed (Centaurea biebersteinii D.C.) impacts phosphorus levels at sites (LeJeune and Seastedt, 2001) and can hinder growth of other species with allelopathic mechanism. Specific to spotted knapweed, these traits can ultimately limit native species' ability to compete and can have direct impacts on species diversity (Tyser and Key 1988, Ridenour and Callaway 2001). Please disclose how the productivity of the land and soils been affected in the project area and forest wide due to noxious weed infestations, and how that situation is expected to change in the coming years and decades.

From Grier et al., (1989): The potential productivity of a site can be raised or lowered by management activities causing a perma-

nent or long-term increase or decrease in the availability of nutrients essential for plant growth. (P. 27.) ...Any time organic matter is removed from a site, a net loss of nutrients from that site also occurs. In timber harvesting or thinning, nutrient losses tend to be proportional to the volume removed. (P. 27.) ...Slash burning is a common site preparation method that can affect soil chemical properties tremendously. A great deal of controversy is often associated with using fire because of the wide variety of effects, some of which are definitely detrimental to site quality and some of which are beneficial. (P. 30.) The FNF has never attempted to put in place a scientifically sound definition of "soil productivity" that

REVIEW AND PROTECT CULTURAL AND HISTORICAL RESOURCES

Consultation with the State Historic Preservation Office (SHPO) must be completed prior to a decision being signed.

Any required protection measures provided from SHPO will be incorporated into my final decision.

Crucial to the preservation of the historical and cultural foundations of the nation, Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 C.F.R. Part 800 (PDF) (revised August 5, 2004) re- quire Federal agencies to consider the effects of projects they carry out, approve, or fund on historic properties. Additionally, Federal agencies must provide the Advisory Council on Historic Preservation (ACHP) opportunity to comment on such projects prior to the agency's final decision.

A Federal project that requires review under Section 106 is defined as an "undertaking." An undertaking means a project, activity or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with

Federal financial assistance; and those requiring a Federal permit, license, or approval.

Section 110 of the NHPA

Added to the NHPA in 1992, Section 110 requires Federal agencies to emphasize the preservation and enhancement of cultural re- sources. Section 110 directs agencies to initiate measures necessary to direct their policies, plans, and programs in such a way that federally-owned sites, structures, and objects of historical architectural or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the public. The agencies are also encouraged to institute (in consultation with the ACHP) procedures to assure Federal plans and programs contribute to the preservation and enhancement of non-Federally owned sites, structures, and objects of historical, architectural, and archaeological significance. Has the MT SHPO received this survey? The cultural surveys need to be done before the NEPA and NHPA process can be completed,

which has not occurred. The project must be approved by the SHPO and the public needs to given a chance to comment on this.

1. Preparation of an EA or EIS should be integrated with the NHPA Section 106 review. If the EA or EIS do not reference the NHPA Section 106 review or include a cultural resource NHPA Section 106 report, it could be grounds for an objection.

2. A NHPA Section 106 Review is usually required for every project, program, or activity on federal lands prior to approval of the action - see 36 CFR 800.2(a) and 36 CFR 800.1(c). The NHPA Section 106 review is required in addition to requirements under NEPA.

3. Comments and objections can be submitted for inadequate compliance for both NEPA and NHPA, as they are separate regulations but are both regulatory requirements for federal agencies.

4. If the NEPA administrative record does not include the NHPA Section 106 review document, you can request the document as part of your comments. If the document is not provided, you can then object that the document has not been provided for public review as required - see 36 CFR 800.2(d)

5. Agencies often claim they cannot disclose information about cultural resources because of confidentiality concerns. This is partially true, but agencies can only withhold information "when

disclosure may cause a significant invasion of privacy; risk harm to the historic property; or impede the use of a traditional religious site by practitioners." 36 CFR 800.11(c). So for example, agencies can withhold cultural site location maps, but they cannot withhold documentation about the quantity and type of cultural resources affected by a project or documentation about how the resources may be impacted. If agencies continue to withhold information that does not risk harm to the historic property, you can object on the failure to disclose information as required. For specific regulatory requirements, see below.

6. The NHPA Cultural Resource review process requires agencies to prepare documents as part of the NHPA Section 106 process, and most of the documents must be shared with the public 36 CFR 800.2(d)

7. Generally, if cultural resources are present in the project area, the agency must prepare a document with the following components and must "provide information on the finding to the public on request, consistent with the confidentiality provisions" per regulations at 36 CFR 800.5(d) .

Required documents are listed at 36 CFR 800.11(e)

1. A description of the undertaking, specifying the Federal involvement, and its area of potential effects, including photographs, maps, and drawings, as necessary
2. A description of the steps taken to identify historic properties
3. A description of the affected historic properties, including information on the characteristics that qualify them for the National Register

4. A description of the undertaking's effects on historic properties
5. An explanation of why the criteria of adverse effect were found applicable or inapplicable, including any conditions or future actions to avoid, minimize or mitigate adverse effects; and
6. Copies or summaries of any views provided by consulting parties and the public.

8. If any of the components listed above are not included during scoping or comment periods, the reviewers can request the information. If the information is not provided when the EA or EIS are released, you can object because the agency did not comply with the regulations – either because they did not prepare the documents or because they did not disclose the documents to the public.

9. Be aware that the NHPA regulations frequently use the term - "historic property", which means “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places.” 36 CFR 800.16(I).

Did the Forest Service conduct NEPA analysis (i.e. an EA or EIS) for the Fire Plan the Forest is using for this project? If you don’t the project will be in violation of NEPA, NFMA, and the APA.

We wrote in our scoping comments:

Please provide a map showing the WUI and the locations of all homes in comparison to the project area.

Please explain why the area qualifies as Wildland Urban Interface (WUI).

Please demonstrate that the WUI follows the statutory definition of the WUI in the Healthy Forest Restoration Act os 2003 which is 1 1/2 miles from a community.

The Forest Service did not answer our questions or respond to our comments about the Wildland Urban Interface.

Page 3 of the Preliminary Assessment states:

- ***Modify Vegetation within the Wildland Urban Interface Historically, fire was the primary disturbance and would determine composition and patterns of vegetation, with the most recent large fire in the project area occurring in the 1860s. Fire has been largely absent within most of the project area, which has resulted in decades of surface fuel buildup. Treatment would include both initial entry and maintenance to ensure desired vegetative conditions would***

be achieved. Achieving this would also contribute to FW-VEGT-OBJ-01. While wildfire plays an essential role in maintaining the health and function of the Forest's plant and animal communities, depending on intensity and fire behavior, wildfire can also threaten human safety, health, livelihoods, homes, and property. In some cases, wildfire may also pose an unacceptable threat to specific ecosystem components.

Fire management strives to balance the natural role of fire while minimizing the impacts from fire on values to be protected, especially in the wildland urban interface. This can be accomplished by implementing a coordinated risk management approach to promote landscapes that are resilient to fire- related disturbances and preparing for and executing a safe, effective, and efficient response to fire. Approximately 56% of the project area lies within designated wildland urban interface.

The Larabee Hat project does not demonstrate that it is following the statutory definition of the WUI in the Healthy Forest Restoration Act os 2003 which is 1 1/2 miles from a community in violation of the Healthy Forest Restoration Act, NEPA, NFMA and the APA.

Since the Forest Service did not conduct NEPA for the Fire Plan, please disclose the cumulative effects of Forest-wide implemen-

tation of the Fire Plan in the project EIS, or EA if you refuse to write an EIS, to avoid illegally tiering to a non- NEPA document. Specifically analyze the decision to prioritize mechanical, human-designed, somewhat arbitrary treatments as a replacement for naturally-occurring fire.

Did the Forest Service conduct ESA consultation for the Fire Plan?

Will the Forest Service be considering amending the HLCNF Forest Plan to include binding legal standards for noxious weeds?

How effective have BMPs been at stopping (i.e. preventing) new weed infestations from starting during logging and related road operations?

Is it true that new roads are the number one cause of new noxious weed infestations?

Why isn't the Forest Service considering a Forest Plan amendment in this Project to amend the Forest Plan to include binding legal standards that address noxious weeds?

Is it true that noxious weeds are one of the top threats to bio-diversity on our National Forests?

How can the Forest Service be complying with NFMA's requirement to maintain biodiversity if it has no legal standards that address noxious weeds?

Will this Project address all Project area BMP needs, i.e. will the BMP road maintenance backlog and needs from this Project all be met by this Project?

The scoping notice was not clear if any MIS were found. What MIS did you find, how many and how did you look for these MIS?

How will the decreased elk security and thermal cover affect wolverines? Please formally consult with the US FWS on the

impact of this project on wolverines. Wolverines need secure habitat in big game winter range.

Please formally consult with the US FWS on the impact of this project on Whitebark pine. How many whitebark pine will this project kill?

Will any of the clearcuts or openings be bigger than 75 acres? If so please take public comment on the impact of openings over 75 acres using a 60 day comment period as required by law. Birds and many mammals are sensitive to increased temperature.

Please see the following article titled:

Temperature changes wreak havoc in deforested areas

By Trent Knoss •
Published:
Feb. 22, 2016

https://www.colorado.edu/asmagazine/2016/02/22/temperature-changes-wreak-havoc-deforested-areas#:~:text=The%20warming%20effect%20is%20most,much%20more%20rapid%20time%20scales.

The newly exposed edges of deforested areas are highly susceptible to drastic temperature changes, leading to hotter, drier and more variable conditions for the forest that remains, according to new research from the University of Colorado Boulder.

The findings suggest that thermal biology—an emerging discipline that examines the effects of temperature on biological and ecological processes—could be an effective tool for understanding how temperature changes in fragmented habitats can potentially wreak havoc on species activity and other critical ecosystem functions.

A study outlining a framework for applying thermal biology to deforestation research was recently published in the journal Ecology Letters.

Previous research has shown that widespread deforestation is a threat to global biodiversity, but scientists are only just now beginning to examine the role that temperature may play when trees are removed from an ecosystem—especially near the newly-cut edges of forests.

"When you chop down trees, you create hot spots in the landscape that are just scorched by the sun," said Kika Tuff, a PhD candidate in the Department of Ecology and Evolutionary Biology at CU-Boulder and the lead author of the new paper. "These hot spots can change the way that heat moves through the landscape."

In some cases, this creates a phenomenon known as the 'vegetation breeze,' where low air pressure in the cleared areas pulls the cool, moist air out of the forest and feeds hot, dry air back in.

"So now the cleared areas get all the rain and the forests gets sucked dry," said Tuff.

The warming effect is most pronounced between 50 and 100 meters of a forest edge, the study reports, where temperatures can be anywhere from 4 to 18 degrees Fahrenheit warmer than in the forest interior.

"This is like climate change on steroids," Tuff said, "and it happens over much more rapid time scales."

Biologists estimate that 20 percent of the world's remaining forests lie within 100 meters of an edge, while more than 70 percent lie within a kilometer of one. This means that much of the world's forests may be experiencing the vegetation breeze and other warming effects.

Increased temperature variation near forest edges could affect species' ability to regulate their body temperatures, resulting in behavioral changes that could alter the local ecosystem.

One such example, Tuff said, could be the feeding patterns of animals living at the forest edge. Animals are very temperature sensitive, so they hunt for food when they have sufficiently warmed up in the morning and stop hunting for food when it is too hot in the afternoon. If temperatures are higher at the

forest edge, species may respond by retreating to hunt in the cooler, deeper forest, where they become dependent on new types of food, sparking a domino effect in the food chain.

Another example might be the timing and duration of species activity. If temperatures were to increase due to tree loss, predators may start foraging later in the day to avoid the heat. Such a change could increase how frequently predators come across their prey, intensifying predation events and resulting in localized prey population crashes in some cases.

Such effects should also apply in instances of natural treefall, Tuff said. In Colorado, for example, high winds, wildfires and beetle kill can create edges in the treeline where greater sunlight exposure would subsequently increase the solar radiation and temperature in localized areas.

The sensitivity of animals and plants to temperature could have implications for future conservation strategies as deforestation and habitat fragmentation continue worldwide.

"Applying thermal biology on the scale of landscapes is a fairly new idea," Tuff said. "Thermal biology presents a new imperative for forest conservation and makes the value of forests all the greater because of what they do for thermal regulation. Trees aren't just habitat for animals, they are the world's insurance for a thermally stable and habitable planet."

The study was co-authored by Assistant Professor Kendi Davies and graduate student Ty Tuff, both of the Department of Ecology and Evolutionary Biology (EBIO) at CU-Boulder.

Trent Knoss is a science editor at the CU Office of News Services.

Please find attached: Tuff KT, Tuff T, Davies KF. A framework for integrating thermal biology into fragmentation research. Ecol Lett. 2016 Apr;19(4):361-74. doi: 10.1111/ele.12579. Epub 2016 Feb 19. PMID: 26892491; PMCID: PMC4794773.

They found that: ***Specifically, the framework addresses how fragmentation changes temperature and how the effects of those temperature changes spread through the ecosystem, from organism response via thermal sensitivity, to changes in species distribution and activity patterns, to shifts in community structure following species' responses, and ultimately to changes in ecosystem functions.***

Please demonstrate that the project complies with the Migratory

Bird Treaty Act.

Please formally consult with the US FWS on the impact of the project on whitebark pine.

Please formally consult with the US FWS on theHLCNF forest plan since whitebark pine were listed after the forest plan was signed.

Does the HLCNF have any forest plan biological assessment,

biological opinion, incidental take statement, and management

direction amendment for whitebark pine? Please see the attached

paper by Six et al 2021 Whitebark Genetics 2021. Six et al. found:

"Anthropogenic change is creating or enhancing a number of stressors on forests. To aid forests in adapting to these stressors, we need to move beyond traditional spacing and age- class prescriptions and take into account the genetic variability within and among populations and the impact our actions may have on adaptive potential and forest trajectories. Because so little is known about the genetic diversity in most forest trees, and because it is key to effective conservation, studies of genetic diversity and structuring in forest trees should be a top priority in forest adaptation and conservation efforts."

The project is not following the best available science and is not meeting the purpose and need. Since Whitebark pine are listed under the ESA, you must formally consult with the FWS on the impact of the project on whitebark pine. To do this the Forest Service will need to have a complete and recent survey of the entire project area for whitebark pine and consider planting whitebark pine as the best available science by Keene et al. states is the only way to get new whitebark pine to grow.

Page 23 of the Preliminary Analysis states:

Whitebark Pine

Complete whitebark pine surveys prior to treatment implementation to determine

whitebark pine size class and estimated number of individuals.

Do not cut whitebark pine of any size. Avoid damage or mortality to whitebark pine

of any size from ground disturbing activities to the extent possible.

WBP-3

Ground disturbance from heavy equipment, such as placement of skid trails, would

All units

not occur within 10 meters (33 feet) of whitebark pine to protect roots, prevent soil

compaction, and minimize crushing and destroying whitebark pine seedlings and

saplings.

Prescribed fire would be applied adjacent to and not in whitebark pine dominated

WBP-5

Reduce fuel loads adjacent to whitebark pine prior to prescribed burns by pulling

All units

slash away or piling slash greater than 3 inches diameter at breast height 10 to 20

feet (depending on tree size) or reduce slash away from the dripline (whichever is

the greater distance).

Implement ignition to reduce fire intensity to whitebark individuals including but not

limited to burning under higher moisture prescriptions, using thinner strips to

achieve a patchier burn.

Fuel piles will be arranged to avoid scorching whitebark trees in the vicinity and

target seedlings and saplings of competing tree species, such as subalpine fir.

The surveys need to be done before the Forest Service signs the

Draft Decision Notice or Draft Record of Decision and before

the Biological Assessment is written so the public can comment on if the project complies with the ESA, NFMA and NEPA or not.

Do spruce beetle effect whitebark pine?

In some areas the few remaining whitebark that show the potential for blister rust resistance are being attacked and killed by mountain pine beetles, thus accelerating the loss of key mature cone- bearing trees. Whitebark pine seedlings and saplings are very likely present in the subalpine forests proposed for burning and logging. In the absence of fire, this naturally occurring white- bark pine regeneration would continue to function as an important part of the subalpine ecosystem.

Since 2005, rust resistant seed sources have been identified in the Northern Rockies (Mahalovich et al 2006). Due to the severity of blister rust infection within the region, natural whitebark pine regeneration in the project area is prospective rust resistant stock. Although prescribed burning can be useful to reduce areas of high-density subalpine fir and spruce and can create favorable ecological conditions for whitebark pine regeneration and growth, in the absence of sufficient seed source for natural regeneration maintaining the viability and function of whitebark pine would not be achieved through burning. Please find Keane and Arno attached. Planting of rust-resistant seedlings would likely not be sufficient to replace whitebark pine lost to fire activities. What surveys have been conducted to determine presence and abundance of whitebark pine re-generation?

Since Whitebark pine are listed under the ESA, the USFS-USDA must formally reconsult with the USFWS on the impact of the project on whitebark pine. To do this the Forest Service will need to have a complete and recent survey of the entire project area for the presence of whitebark pine and consider planting whitebark pine as the best available science. Keene et al. states that the only way to get new whitebark pine is to grow (seedlings) them (submitted in our DEA comments).

Hundreds of acres of clearcutting and burning threaten individual whitebark pine trees in the project area, including miles and miles of new roads, and including clearings around individual whitebark pines. The Forest Service fails to disclose the level of "take" and the incredibly high failure rate of these practices as a technique for natural restoration, regeneration and recovery of whitebark pine under these conditions.

The Forest Service does not disclose or address the results of its only long-term study on the effects of tree cutting and burning on whitebark pine. This study, named "Restoring Whitebark Pine Ecosystems," included prescribed fire, "thinning", "selection cuttings," and "fuel enhancement cuttings" on multiple different sites. The results were that "[a]s with all the other study results, there was very little whitebark pine regeneration observed on these plots." See U.S. Forest Service, General Technical Report RMRS-GTR- 232 (January 2010). These results directly undermine the representations the Forest Service makes in the Project EIS. More specifically, the Forest Service's own research at RMRS-GTR-232 finds: "the whitebark pine regeneration that was expected to result from this [seed] caching [in new openings] has not yet materialized. Nearly all sites contain very

few or no whitebark pine seedlings." Thus, even ten years after cutting and burning, regeneration was "marginal." Moreover, as the Forest Service notes on its website: "All burn treatments resulted in high mortality in both whitebark pine and subalpine fir (over 40%)." Accordingly, the only proven method of restoration of whitebark pine is planting: "Manual planting of whitebark pine seedlings is required to adequately restore these sites."

Therefor the project's plan to cut down trees around whitebark pine will cause the whitebark pine to grow faster and then die from beetles. This is a violation of NEPA, NFMA, the APA and the ESA.

Please see the attached memo from the FWS about requirements for consulting with the FWS about whitebark pine now that they are listed as threatened.

For whitebark pine, spring or fall burning may kill seedlings susceptible to fire. For mature whitebark pine trees, the bark is relatively thin compared to other species such as ponderosa pine and susceptible to scorching from fire. Fires that approach the tree trunks may scorch the bark, diminishing the bark's protective properties from other stressors. Depending on the fireline intensity and residence time of lethal temperatures, the heat from the fire may also penetrate the bark, killing the underlying cambium layer. Harm to the bark and cambium may reduce individual tree vigor and also increase susceptibility to infections such as white pine blister rust or infestations by the mountain pine beetle.Whitebark pine seed banks and fine roots may also be impacted should fire move through an area when fuels and soil moisture is conducive to longer residence time of lethal temperatures. Seeds are buried by Clark's nutcrackers generally within

one inch of the soil surface and may be susceptible to longer residence time of lethal temperatures. Fine roots located near the soil surface serve as the primary water absorbing roots for trees and may be harmed or killed with longer residence times of lethal temperatures when soil moisture is low which would lead to an increase in the penetration depth of lethal temperatures. In general, the proposed prescription would attempt to achieve a low severity surface fire in which shrubs, needle cast and upper duff layers would be consumed. In some instances, including dense stands in which commercial or non-commercial thinning is not feasible, higher severity fire effects may be preferred to achieve the desired condition for those forested stands.In the long term, broadcast burning in the vicinity of living whitebark pine stands may improve the habitat suitability for seed caching by Clark's nutcracker; seed germination; and whitebark pine seedling establishment. Clark's nutcrackers prefer to cache seeds in recently burned areas as fire removes understory plants and creates soils surfaces that are easier to penetrate for seed caching. In addition, in the long term, broadcast burning may reduce the vigor of other species that would compete with whitebark pine seedlings for sunlight, soil water, and nutrients."

Whatebark pine are now a threatened species and the project is in violation of the ESA.

On December 2, 2020, the U.S. Fish and Wildlife Service issued a rule proposing to list whitebark pine (Pinus albicaulis) under the Endangered Species Act. The Project area includes whitebark pine. The whitebark pine present in the project area represents a major source within the larger geographic area. The Project proposes tree cutting and burning across thousands of

acres where whitebark pine may be present. Regardless of whether individual activities are intended to im-pact whitebark pine, whitebark pine may be affected by damage from equipment and equipment trails, cutting, soil compaction and disturbance, mortality from prescribed burning, scorching from jackpot burning, trampling of seedlings and saplings, and removal of necessary microclimates and nursery trees needed for sapling survival. Additionally, thousands of acres of whitebark pine habitat manipulation are proposed for the Project, including intentionally cutting and burning Whitebark pine trees. No discussion on the success rate of natural regeneration under these conditions is provided. No discussion of the success rate of planting seedlings in clearcuts is provided. There have been no surveys for whitebark pine in violation of the ESA, NEPA, NFMA, and the APA.

The Forest Service admits that whitebark pine is known to be present in the area and that the Project "may impact individuals. . . ." The Forest Service further admits: "some adverse impacts are possible." The Forest Service further admits that "implementation of the project may cause incidental loss of whitebark pine seedlings and saplings . . . ." Crucially, the Forest Service does not disclose or address the re- sults of its only long-term study on the effects of tree cutting and burning on whitebark pine. This study, named "Restoring Whitebark Pine Ecosystems," included prescribed fire, thinning, selection cuttings, and fuel enhancement cuttings on multiple different sites. The results were that "[a]s with all the other study results, there was very little whitebark pine regeneration ob- served on these plots." See U.S. Forest
Service, General Technical Report RMRS-GTR-232 (January

2010). More specifically: “the whitebark pine regeneration that was expected to result from this [seed] caching [in new openings] has not yet materialized. Nearly all sites contain very few or no whitebark pine seedlings.” Thus, even ten years after cutting and burning, regeneration was “marginal.” Moreover, as the Forest Service notes on its website: “All burn treatments resulted in high mortality in both whitebark pine and subalpine fir (over 40%).” Accordingly, the only proven method of restoration of whitebark pine is planting: “Manual planting of whitebark pine seedlings is required to adequately restore these sites.”

Which wildlife species and ecosystem processes, if any, does the fire-proofing in the proposed project benefit? Which species and processes do fire-proofing harm?

What is your definition of healthier?

What is your definition of resilient?

How will building 3.2 miles of new roads and clearcutting openings greater than 40 acres in size reduce sediment in streams?

What evidence do you have that this logging will make the forest healthier for fish and wildlife? What about the role of mixed

severity and high severity fire – what are the bene- fits of those natural processes?

How have those processes (mixed and high severity fire) created the ecosystems we have today?

Over how many millennia have mixed and high severity fire have been occurring with- out human intervention?

What beneficial ecological roles do beetles play? You didn't an- swer this in violation of NEPA, NFMA and the APA.

Can the forest survive without beetles?

Will all WQLS streams in the project area have completed TMDLs before a decision is signed?

Will this project leave enough snags to follow the Forest Plan requirements and the requirements of sensitive old growth species such as flammulated owls and goshawks?

Will this Project exacerbate existing noxious weed infestations and start new infestations?

Do unlogged old growth forests store more carbon than the wood products that would be removed from the same forest in a logging operation?

What is the cumulative effect of National Forest logging on U.S. carbon stores? How many acres of National Forest lands are logged every year? How much carbon is lost by that logging?

Is this Project consistent with "research recommendations (Krankina and Harmon 2006) for protecting carbon gains against the potential impacts of future climate change? That study rec- ommends "[i]ncreasing or maintain- ing the forest area by avoiding deforestation," and states that "protecting forest from logging or clearing offer immediate benefits via pre- vented emissions."

Please take a hard look on how this project will effect climate change.

Please list each visual quality standard that applies to each unit and disclose whether each unit meets its respective visual quality standard.

Please disclose whether you have conducted surveys in the Project area for this Project for whitebark pine, Monarch butterflies, wolverines, grizzly bears, pine martins, northern goshawk bull trout, bull trout critical habitat, lynx critical habitat, and lynx, as required by the Forest Plan.

Page 24 of the Preliminary Assessment states:

If federally listed - bear or Canada lynx are found in the project area before or during implementation, effects of management actions would be mitigated through application of limited operating periods as prescribed by the wildlife biologist based on species needs and site-specific considerations.

It appears that you are delegating the threatened species survey responsibility to loggers in violation of NEPA

Fish and wildlife surveys need to be done before the decision is signed by qualified professionals not untrained loggers who have a financial incentive to not report wildlife sightings.

Also pages 2-3 of the wildlife report states that there are grizzly bears and lynx in the project area:

Lynx are present in the analysis area and are considered as occupying the Divide geographic area. The proposed project area would fall in the northern part of the Divide Geographic Area which occurs in core habitat. Core habitat is defined as an area "with the strongest long-term evidence of the persistence of lynx populations supported by a sufficient quality and quantity of habitat" for long-term lynx occupation (U.S. Department of Agriculture 2021c).

Grizzly bears have been verified in the analysis area and project area due to the recent expansion of the species across central Montana (U.S. Department of Agriculture 2021c).

The project area occurs in Zone 2 where the management objective is to maintain existing resource management and recreation activities while maintaining the opportunity for grizzly bears to move between the Northern Continental Divide Ecosystem and other ecosystems to the south and southwest. (U.S. Department of Agriculture 2021c), (page 335).

Please don't pretend that the Forest Service doesn't know that there are currently lynx and grizzly bears in the project area the project needs to stay out of secure grizzly bear areas and lynx analysis units. The Wildlife Analysis also claims that the

planned burning won't affect grizzly bears even though it will reduced the amount of secure area. This violated NEPA, NFMA, the ESA and the APA.

Please disclose the last time the Project area was surveyed for whitebark pine, Monarch butterflies, grizzly bears, wolverines, pine martins, bull trout, whitebark pine, northern goshawk, and lynx.

Please disclose how often the Project area has been surveyed for whitebark pine, bull trout, wolverines, Monarch butterflies, grizzly bears, pine martins, northern goshawks, and lynx.

Would the habitat be better for whitebark pine, Monarch butterflies, grizzly bears, wolverines, pine martins, northern goshawks, bull trout, and lynx if roads were removed in the Project area?

Please provide us with the full BA for the whitebark pine, Monarch butterflies, bull trout, grizzly bears, wolverines, pine martins, northern goshawks, lynx critical habitat, and lynx.

Please formally consult with the U.S. Fish and Wildlife Service on the impact of the project on bull trout, whitebark pine, Monarch butterflies, grizzly bears, wolverines, pine martins, northern goshawks, lynx critical habitat, and lynx.

The Forest Plan and the Larabee Hat project weakens grizzly bear habitat protections by allowing new roadbuilding throughout the project area, without meaningful and permanent reclamation of other roads elsewhere in the Forest to compensate for the new road construction.

Page 3 of the Wildlife Report states:

Secure Habitat

Grizzly bear secure areas have been identified as a means of analyzing effects to grizzly bears. Secure areas have been updated to include any area at least 0.3 miles from all motorized routes except those that have been decommissioned and/or naturally revegetated. See the "Documentation for Development of Secure Habitat Analysis for Grizzly Bears Outside of the Northern Continental Divide Ecosystem Recovery Zone/Primary Conservation Area on the Helena-Lewis and Clark National Forest" in the project record.

Please find Proctor 2020 found:

The most important mechanism influencing grizzly bear population growth emanates from the combination of 2 factors. First, female survival has the greatest influ- ence on population trend (McLellan 1989, Eberhardt et al. 1994, Garshelis et al. 2005, Harris et al. 2006, Mace et al. 2012), and second, fe-

male survival is reduced in habitats with higher road densities where people use the roads (Schwartz et al. 2010, Boulanger and Stenhouse 2014). Open road density and the amount of secure habitat in female home ranges are important predictors of female survival and both contribute different yet important com- ponents influencing survival (Mace et al. 1996, Wakkinen and Kasworm 1997, Schwartz et al. 2010).

The current best science recommendation for grizzly bear security areas ranges from 2500 acres in northwestern Montana and Canada, and 7,000 acres in the Greater Yellowstone Ecosystem. The latter is based on recommendation by Mattson (1993), whereby movements of Yellowstone grizzly bears during a 24-48 hour foraging radius where the bear was not required to cross any roads. The recommendations for a 2500 acre security area in northwestern Montana were proposed for management of grizzly bears in the Northern Continental Divide Ecosystem (NCDE Access Management Rule set Proposed Direction 2002; Protocol Paper 2008). These recommendations have been substantiated by a recent large assessment of grizzly bear habitat use and mortality in British Columbia and Alberta, Canada by 6 grizzly bear experts (Proctor et al. 2020), where 2500 acre security areas were recommended. Please find Proctor et al. 2023 attached. The difference between security recommendations for grizzly bears between the NCDE and the Yellowstone Ecosystem may be related to the higher productivity of grizzly bear habitat in the former, so daily movements would be lower. However, even if the more conservative recommendation for grizzly bear security areas were applied to the Greater Yellowstone Ecosystem, this would be 250 times the size of the CG RFP definition of security as only 10 acres. This definition clearly is not

based on the average daily foraging radius of a grizzly bear. The actual basis of this definition has never been provided in the HLCNF RFP or associated FEIS. Use of this invalid definition of security for the grizzly bear to define landscape security is clearly invalid, and cannot provide a reliable measure of grizzly bear habitat quality, including on the HLCNF or the Larabee Hat Project Area, because the key value of security areas is to keep grizzly bears away from humans and roads (Schwartz et al. 2010). Tiny pieces of unroaded habitat scattered in a heavily-roaded landscape will not limit grizzly bear exposure to humans and roads, since daily movements would require extensive crossing of roads and/or exposure to human in logging/fuels treatment units. A security area that doesn't have a minimum size of at least 2500 acres will not provide what these security areas are supposed to do: keep bears away from roads. The HLCNF RFP has no scientific criteria for managing security areas, and needs to be amended to address this severe failure in managing to conserve grizzly bears.

The new roadbuilding in the Larabee Hat project without meaningful reclamation to ensure no net increase in the road system presents a significant threat to grizzly bears, because motor vehicle users and other recreation can trespass on the supposedly "impassable" roads and thus encroach on grizzly bear habitat. Further, even unused roads cause detrimental impacts to grizzly bear survival and reproduction, because grizzly bears are displaced from roaded habitat, regardless of whether the roads re-

ceive public or administrative use. However, in concluding that the Forest Plan will not jeopardize the species, FWS's

Please see the attached paper titled: "Management of forests and forest carnivores: Relating landscape mosaics to habitat quality of Canada lynx at their range periphery" by Holbrook et al. 2019. It states that all lynx habitat has to be monitored for lynx.

The vast majority of the project area is in lynx habitat.

Weeds

Native plants are the foundation upon which the ecosystems of the Forest are built, providing forage and shelter for all native wildlife, bird and insect species, supporting the natural processes of the landscape, and providing the context within which the public find recreational and spiritual opportunities. All these uses or values of land are hindered or lost by con- version of native vegetation to invasive and noxious plants. The ecological threats posed by noxious weed infestations are so great that a former chief of the Forest Service called the invasion of noxious

weeds “devastating” and a “biological disaster.” Despite implementation of Forest Service “best management practices” (BMPs), noxious weed infestation on the Forest is getting worse and noxious weeds will likely overtake native plant populations if introduced into areas that are not yet infested. The Forest Service has recognized that the effects of noxious weed invasions may be irreversible. Even if weeds are eliminated with herbicide treatment, they may be replaced by other weeds, not by native plant species.

Invasive plant species, also called noxious weeds, are one of the greatest modern threats to biodiversity on earth. Noxious weeds cause harm because they displace native plants, resulting in a loss of diversity and a change in the structure of a plant community. By re- moving native vegetative cover, invasive plants like knapweed may increase sediment yield and surface runoff in an ecosystem. As well knapweed may alter organic matter dis- tribution and nutrient through a greater ability to uptake phosphorus

over some native species in grasslands. Weed colonization can alter fire behavior by increasing flammability: for example, cheatgrass, a widespread noxious weed on the Forest, cures early and leads to more frequent burning. Weed colonization can also deplete soil nutrients and change the physical structure of soils.

The Forest Service's own management activities are largely responsible for noxious weed infestations; in particular, logging, pre- scribed burns, and road construction and use create a risk of weed infestations. The introduction of logging equipment into the Forest creates and exacerbates noxious weed infestations. The removal of trees through logging can also facilitate the establishment of noxious weed infestations be- cause of soil disturbance and the reduction of canopy closure In general, noxious weeds occur in old clearcuts and forest openings, but are rare in mature and old growth forests. Roads are of- ten the first place new invader weeds are introduced. Vehicle traffic and soil dis-

turbances from road construction and maintenance create ideal establishment conditions for weeds. Roads also provide obvious dispersal corridors. Roadsides throughout the project area are infested with noxious weeds. Once established along roadsides, invasive plants will likely spread into adjacent grass- lands and forest openings.

Prescribed burning activities within the analysis area would likely cumulatively con- tribute to increases to noxious weed distribution and populations. As a disturbance process, fire has the potential to greatly exacerbate infestations of certain noxious weed species, depending on burn severity and habitat type (Fire Effects Information System 2004). Soil disturbance, such as that resulting from low and moderate burn severities from prescribed fire and fire suppression related disturbances (dozer lines, drop spots, etc.), provide optimum conditions for noxious weed invasion. Dry site vegetation types and road corridors are extremely vulnerable, especially where recent ground disturbance (timber

management, road construction) has occurred. Units proposed for burning within project area may have closed forest service access roads (jammers) located within units. These units have the highest potential for noxious weed infestation and exacerbation through fire activities. Please provide an alternative that eliminates units that have noxious weeds present on roads within units from fire management proposals.

Please address the ecological, social and ascetic impact of current noxious weed infestations within the project area. Include an analysis of the impact of the actions proposed by this project on the long and short term spread of current and new noxious weed infestations. What treatment methods will be used to address growing noxious weed problems? What noxious weeds are currently and historically found within the project area? Please include a map of current noxious weed infestations which includes knapweed, Saint Johnswort, cheat grass, bull thistle, Canada thistle, hawkweed, hound's- tongue, oxeye daisy and all

other Category 1, Category 2 and Category 3 weeds classified as noxious in the Montana COUNTY NOXIOUS

WEED LIST. State-listed Category 2 noxious weed species yellow and orange hawkweeds are recently established (within the last 5 to 10 years) in Montana and are rapidly expand- ing in established areas. They can invade undisturbed areas where native plant communities are intact. These species can persist in shaded conditions and of- ten grow under- neath shrubs making eradication very difficult. Their stoloniferous (growing at the surface or below ground) habit can create dense mats that can persist and spread to densities of 3500 plants per square mile (Thomas and Dale 1975). Are yellow and orange hawk- weeds present within the project area?

Please address the cumulative, direct and in- direct effects of the proposed project on weed introduction, spread and persistence that includes how weed infestations have been and will be influenced by the following management actions: road construction

including new permanent and temporary roads and skid trails proposed within this project; opening and decommissioning of roads represented on forest service maps; ground disturbance and traffic on forest service template roads, min- ing access routes, and private roads; removal of trees through commercial and pre-commercial logging and understory thinning; and pre-scribed burns. What open, gated, and de-commissioned Forest Service roads within the project area proposed as haul routes have existent noxious weed populations and what methods will be used to assure that noxious weeds are not spread into the pro-posed action units?

Noxious weeds are not eradicated with single herbicide treat-ments. A onetime application may kill an individual plant but dormant seeds in the ground can still sprout after herbicide treatment. Thus, herbicides must be used on consistent, repeti-tive schedules to be effective.

What commitment to a long-term, consistent strategy of ap- plication is being proposed for each weed infested area wi- thin the proposed action area? What long term monitoring of weed populations is proposed?

When areas treated with herbicides are re- seeded on national forest land, they are usually reseeded with exotic grasses, not native plant species. What native plant restoration activities will be implemented in areas disturbed by the actions proposed in this project? Will disturbed areas including road corridors, skid trails, and burn units be planted or reseeded with native plant species?

The scientific and managerial consensus is that prevention is the most effective way to manage noxious weeds. The Forest

Service concedes that preventing the introduction of weeds into un-infested areas is “the most critical component of a weed management program.” The Forest Service’s national management

strategy for noxious weeds also recommends "develop[ing] and implement[ing] forest plan standards . . . ." and recognizes that the cheapest and most effective solution is prevention. Which units within the project area currently have no noxious weed populations within their boundaries? What minimum standards are in the HLCNF Forest Plan to address noxious weed infestations? Please include an alternative in the DEIS that includes land management standards that will prevent new weed infestations by addressing the causes of weed infestation. The failure to include preventive standards violates NFMA because the Forest Service is not ensuring the protection of soils and native plant communities. Additionally, the omission of an EIS alternative that includes preventive measures would violate NEPA because the Forest Ser- vice would fail to consider a reasonable alter- native.

Rare Plants

The ESA requires that the Forest Service con- serve endangered and threatened species of plants as well as animals. In addition to plants protected under the ESA, the Forest Service identifies species for which population viability is a concern as "sensitive species" designated by the Regional Forester (FSM 2670.44). The response of each of the sensitive plant species to manage- ment activity varies by species, and in some cases, is not fully known. Local native vegetation has evolved with and is adapted to the climate, soils, and natural processes such as fire, in- sect and disease infestations, and windthrow. Any management or lack of management that causes these natural processes to be al- tered may have impacts on native vegetation, including threat- ened and sensitive plants. Herbicide application – intended to eradicate invasive plants – also results in a loss of native plant diversity because herbicides kill native plants as well as invasive plants.

Not all ecosystems or all Rocky Mountain landscapes have experienced the impacts of fire exclusion. In some wilderness areas, where in recent decades natural fires have been allowed to burn, there have not been major shifts in vegetation composition and structure (Keane et al. 2002). In some alpine ecosystems, fire was never an important eco- logical factor. In some upper subalpine ecosystems, fires were important, but their rate of occurrence was too low to have been significantly altered by the relatively short period of fire suppression (Keane et al. 2002).

For example, the last 70 to 80 years of fire suppression have not had much influence on subalpine landscapes with fire intervals of 200 to several hundred years (Romme and Despain).

Consequently, it is unlikely that fire exclusion has yet to significantly alter stand conditions or forest health within Rocky

Mountain sub- alpine ecosystems.

Whitebark pine seedlings, saplings and mature trees, present in subalpine forests proposed for burning, would experience mortality from project activity. Whitebark pine is fire intolerant (thin bark). Fire favors whitebark pine regeneration (through canopy opening and reducing competing vegetation) only in the presence of adequate seed source and dispersal mechanisms (Clarks Nutcracker or humans planting white- bark pine seedlings).

White pine blister rust, an introduced disease, has caused rapid mortality of whitebark pine over the last 30 to 60 years. Keane and Arno (1993) reported that 42 percent of whitebark pine in western Montana had died in the previous 20 years with 89 percent of remaining trees being infected with blister rust. The ability of whitebark pine to reproduce naturally is strongly affected by blister rust infection; the rust kills branches in the upper cone bearing crown, effectively ending seed production.

What surveys have been conducted to determine presence and abundance of whitebark pine re-generation? If whitebark pine seedlings and saplings are present, what measures will be taken to protect them? Please include an alternative that excludes burning in the presence of whitebark pine regeneration (consider 'Daylighting' seedlings and saplings as an alternative restoration method). Will restoration efforts include planting whitebark pine? Will planted seedling be of rust-resistant stock? Is rust re-sistant stock available? Would enough seedlings be planted to replace whitebark pine lost to fire activities? Have white pine blister rust surveys been accompli- shed? What is the severity of white pine blister rust in proposed action areas?

Montana is currently experiencing a mountain pine beetle epi-demic. Mountain pine beetle prefer large, older whitebark pine, which are the major cone producers. In some areas the few re-maining whitebark that show the potential for blister rust resis-

tance are being at- tacked and killed by mountain pine beetles, thus accelerating the loss of key mature cone- bearing trees.

Whitebark pine seedlings and saplings are very likely present in the subalpine forests proposed for burning and logging. In the absence of fire, this naturally occurring white- bark pine regeneration would continue to function as an important part of the subalpine ecosystem. Since 2005, rust resistant seed sources have been identified in the Northern Rockies (Mahalovich et al 2006). Due to the severity of blister rust infection within the region, natural whitebark pine regeneration in the project area is prospective rust resistant stock.

Although prescribed burning can be useful to reduce areas of high-density subalpine fir and spruce and can create favorable ecological conditions for whitebark pine regeneration and growth, in the absence of sufficient seed source for natural regeneration maintaining the viability and function of whitebark pine would not be achieved through burning.

Does the Kootenai N.F. have any forest plan biological assessment, biological opinion, incidental take statement, and management direction amendment for whitebark pine?

Planting of rust-resistant seedlings would likely not be sufficient to replace whitebark pine lost to fire activities.

What surveys have been conducted to determine presence and abundance of whitebark pine regeneration? If whitebark pine seedlings and saplings are present, what measures will be taken to protect them? Please include an alternative that excludes burning in the presence of whitebark pine regeneration (consider 'Daylighting' seedlings and saplings as an alternative restoration method). Will restoration efforts include planting whitebark pine? Will planted seedling be of rust- resistant stock? Is rust resistant stock available? Would enough seedlings be planted to replace whitebark pine lost to fire activities? Have white pine blister rust surveys been accomplished? What is the severity of white pine blister rust in proposed action areas?

For whitebark pine, spring or fall burning may kill seedlings susceptible to fire. For mature whitebark pine trees, the bark is relatively thin compared to other species such as ponderosa pine and susceptible to scorching from fire. Fires that approach the tree trunks may scorch the bark, diminishing the bark's protective properties from other stressors. Depending on the fireline intensity and residence time of lethal temperatures, the heat from the fire may also penetrate the bark, killing the underlying cambium layer. Harm to the bark and cambium may reduce individual treevigor and also increase susceptibility to infections such as white pine blister rust or infestations by the mountain pine beetle.Whitebark pine seed banks and fine roots may also be impacted should fire move through an area when fuels and soil moisture is conducive to longer residence time of lethal temperatures. Seeds are buried by Clark's nutcrackers generally within one inch of the soil surface and may be susceptible to longer residence time of lethal temperatures. Fine roots located near the soil surface serve as the primary water absorbing roots for trees and may be harmed or killed with longer residence times of lethal temperatures when soil moisture is low which would lead to an increase in the penetration depth of lethal temperatures. In general, the proposed prescription would attempt to achieve a low severity surface fire in which shrubs, needle cast and upper duff layers would be consumed. In some instances, including dense stands in which commercial or non-commercial thinning is not feasible, higher severity fire effects may be preferred to achieve the desired condition for those forested stands.In the long term, broadcast burning in the vicinity of living whitebark pine stands may improve the habitat suitability for seed caching by Clark's nutcracker; seed germination; and whitebark pine

seedling establishment. Clark's nutcrackers prefer to cache seeds in recently burned areas as fire removes understory plants and creates soils surfaces that are easier to penetrate for seed caching. In addition, in the long term, broadcast burning may reduce the vigor of other species that would compete with whitebark pine seedlings for sunlight, soil water, and nutrients."

Whitebark pine are now a threatened species and the project is in violation of the ESA.

On December 2, 2020, the U.S. Fish and Wildlife Service issued a rule proposing to list whitebark pine (Pinus albicaulis) under the Endangered Species Act. The Sage Hen Project area includes whitebark pine. The whitebark pine present in the project area represents a major source within the larger geographic area. The Project proposes tree cutting and burning across thousands of acres where whitebark pine may be present. Regardless of whether individual activities are intended to impact whitebark pine, whitebark pine may be affected by damage from equipment and equipment trails, cutting, soil compaction and disturbance, mortality from prescribed burning, scorching from jackpot burning, trampling of seedlings and saplings, and removal of necessary microclimates and nursery trees needed for sapling survival. Additionally, hundreds of acres of whitebark pine habitat manipulation are proposed for the Project, including intentionally cutting and burning Whitebark pine trees. No discussion on the success rate of natural regeneration under these conditions is provided. No discussion of the success rate of planting seedlings in clearcuts is provided.

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Please find attached "Restoring Whitebark Pine Ecosystems in the Face of Climate Change

Robert E. Keane, Lisa M. Holsinger, Mary F. Mahalovich, and Diana F. Tomback" and "Restoring Whitebark Pine Forests of the Northern Rocky Mountains, USA Robert E. Keane and Russell a. Parsons."

Please formally consult with he FWS on the impact of this project on lynx, lynx critical habitat, whitebark pine, monarch butterflies, bull trout, and grizzly bears.

Please disclose if the project is meeting:

(1) Forest Plan Standard 3 - Hiding Cover,

(2) Forest Plan Standard 3 - Thermal Cover,

(3) Forest Plan Standard 4a - Open Road

Density & Hiding Cover,

(4) Habitat Effectiveness,

(5) Hillis Elk Security at Elk Herd Unit level (i.e., including all lands), and

(6) Hillis-derived Elk Security at Elk Analysis Unit level (i.e., lands within National Forest boundary).

MT FWP has informed the Forest Service that total number of elk is not a correct measure of whether or not adequate secure big game habitat is available on Forest Service lands: "This is inappropriate because the correct measures of big game security

are annual bull survival rates and the degree to which big game are retained on public land during the fall hunting season."

Please disclose or address the displacement of elk from public land to private land during hunting season due to inadequate security habitat on National Forests.

FWP recommends that land managers provide enough secure habitat during fall to meet annual bull survival objectives while maintaining general bull harvest opportunity. . . .

In contrast, the number of elk that spend the majority of the year on some nearby private lands has increased dramatically between 1986 and 2013.

Please demonstrate that the project complies with the Eastside assessment for elk.

Are you planning on issuing any amendments to the Forest Plan for this project. If so what?

The Montana Department of Fish, Wildlife and Parks has indicated that there is a serious problem with elk being displaced from insecure National Forest lands onto private land during hunting season. Repeatedly exempting logging and roading projects from the only quantitative limits on logging and roading on this National Forest exacerbates this elk displacement problem and (a) results in a failure to comply with Forest Plan objectives and goals to maintain elk habitat andhunter opportunity, (b) results in a major change to standards and guidelines intended to

maintain elk habitat and hunter opportunity, (c)significantly limits hunter opportunity on this Forest, and (d) affects a large portion of this National Forest that is reasonably available to the public for hunting.

For these reasons, the Forest Service's practice of routinely exempting projects from Standards 3 and 4a amounts to a significant change to the Forest Plan, which requires analysis under 36 C.F.R. §219.10 (f) and 36 C.F.R. §219.12.

Will the Larabee Hatproject log aspen stands? If so, will the project also provide protection for aspen stands from livestock browsing.

The agency is violating the NEPA by promoting fuel reduction projects as protection of the public from fire, when this is actually a very unlikely event; the probability of a given fuel break to actually have a fire in it before the fuels reduction benefits are lost with conifer regeneration are extremely remote; forest drying and increased wind speeds in thinned forests may increase, not reduce, the risk of fire.

The agency is violating the NEPA by providing false reasons for logging to the public by claiming that insects and disease in forest stands are detrimental to the forest by reducing stand vigor (health) and increasing fire risk. There is no cur- rent science that demonstrates that insects and disease are bad for wildlife,

including dwarf mistletoe, or that these increase the risk of fire once red needles have fallen.

The agency is violating the NEPA by claiming that logging public lands will protect resource values (homes) on private land.

The scoping notice states:

Fire and Fuels Resource

• Decrease wildfire impacts on resource values and private land through hazardous fuels reduction activities on public lands.

o Reduce fuels in all layers so that expected wildfire behavior is modified to a lower intensity allowing for safe and effective fire suppression.

o Create, enhance, and maintain fuel breaks where feasible.

Please see the attached paper by Baker et al. 2023. This landmark study found a pattern of "Falsification of the Scientific Record" in government-funded wildfire studies.

This unprecedented study was published in the peer- reviewed journal Fire, exposing a broad pattern of scientific misrepresentations and omissions that have caused a "falsification of the scientific record" in recent forest and wildfire studies funded or authored by the U.S. Forest Service with regard to dry forests of

the western U.S. Forest Service related articles have presented a falsified narrative that historical forests had low tree densities and were dominated by low-severity fires, using this narrative to advocate for its current forest management and wildfire policies.

However, the new study comprehensively documents that a vast body of scientific evidence in peer-reviewed studies that have directly refuted and discredited this narrative were either misrepresented or omitted by agency publications. The corrected scientific record, based on all of the evidence, shows that historical forests were highly variable in tree density, and included "open" forests as well as many dense forests. Further, historical wildfire severity was mixed and naturally included a substantial component of high-severity fire, which creates essential snag forest habitat for diverse native wildlife species, rivaling old- growth forests.

These findings have profound implications for climate mitigation and community safety, as current forest policies that are driven by the distorted narrative result in forest management policies that reduce forest carbon and increase carbon emissions, while diverting scarce federal resources from proven community wildfire safety measures like home hardening, defensible space pruning, and evacuation assistance.

"Forest policy must be informed by sound science but, unfortunately, the public has been receiving a biased and inaccurate presentation of the facts about forest density and wildfires from government agencies," said Dr. William Baker in their press release announcing the publication of their paper.

"The forest management policies being driven by this falsified scientific narrative are often making wildfires spread faster and more intensely toward communities, rather than helping communities become fire-safe," said Dr. Chad Hanson, research ecologist with the John Muir Project in the same press release. “We need thinning of small trees adjacent to homes, not back-country management.”

"The falsified narrative from government studies is leading to inappropriate forest policies that promote removal of mature, fire-resistant trees in older forests, which causes increased carbon emissions and in the long-run contributes to more fires" said, Dr. Dominick A. DellaSala, Chief Scientist, Wild Heritage, a Project of Earth Island Institute concluded in the press release.

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

Please see the following letter from over 200 top U.S. climate and forest scientists asking Congressional leaders to avoid using the pandemic emergency as a means for stripping away forest protections and promoting logging. In a historic and unprecedented letter sent to Congress today, the scientists conclude that, in order to avoid the worst impacts of the climate crisis, moving beyond fossil fuel consumption is not enough, and we must also

increase forest protections and shift away from energy-intensive and greenhouse-gas polluting wood consumption.

The scientists note that annual carbon emissions from logging in U.S. forests are comparable to emissions from the residential and commercial sectors combined. They ask legislators to reject false climate solutions that promote forest bio- mass logging (re- moval and incineration of trees for energy production) under the guise of "climate-friendly" or "carbon neutral" energy or logging for cross-laminated timber (CLT) and other wood products under the guise of carbon storage. Most of the carbon in trees is removed from forests when they are logged and quickly ends up in the atmosphere or in landfills, they caution. The scientists also note that logging, including commercial "thinning," can often in- crease fire intensity in forests, while damaging soils and removing vital nutrients, which un- dermines the carbon sequestration and storage capacity of forests.

“Forests are our only means for removing atmospheric carbon dioxide and storing the carbon long term at the needed scale.

Burning wood in place of coal is accelerating global warming and decreasing the capacity of forests to counter the buildup of heat-trapping carbon dioxide,” said Dr. William Moomaw of Tufts University. Dr. Chad Hanson, a forest ecologist with the John Muir Project, observed, “The dangerous excess CO2 that we’ve put into the atmosphere with fossil fuel consumption and logging will stay there for far too long if we don’t take serious steps to bring it down, and forest protection is our best and most effective way to do that.” Dr. Dominick DellaSala, Chief Scientist with the Geos Institute, added, “The vast majority of scientists warn that in order to avoid catastrophic climate impacts in the decades ahead, including new pandemics potentially linked to deforestation, we need to keep dinosaur-carbon in the ground and store atmospheric carbon in forests.”

Rep. Kathy Castor, Chair, House Select Committee on the Cli- mate Crisis Rep. Frank Pallone, Chair, House Energy and Commerce Committee Rep. Raúl Grijalva, Chair, House Nat- ural Resources Committee

Rep. Collin Peterson, Chair, House Agriculture Committee

Sen. Lisa Murkowski, Chair, Senate Committee on Energy and Natural Resources Sen. John Barrasso, Chair, Senate Com- mittee on Environment and Public Works Scientists concerned about climate and biodiversity impact of logging

13 May 2020
Dear Members of Congress,

As forest and climate change scientists and experts, we are writing to urge you to oppose legislative proposals that would promote logging and wood consumption, ostensibly as a natural climate change solution, based on claims

that these repre- sent an effective carbon storage approach, or claims that bio- mass logging, and incinerating trees for energy, represents re- newable, carbon-neutral energy.

We find no scientific evidence to support increased logging to store more carbon in wood products, such as dimensional

lumber or cross-laminated timber (CLT) for tall buildings, as a natural climate solution. The growing consensus of scientific findings is that, to effectively mitigate the worst impacts of cli- mate change, we must not only move beyond fossil fuel con- sumption but must also substantially increase protection of our native forests in order to absorb more CO2 from the at- mosphere and store more, not less, carbon in our forests (De- pro et al. 2008, Harris et al. 2016, Woodwell 2016, Erb et al. 2018, IPCC 2018, Law et al. 2018, Harmon 2019, Moomaw et al. 2019).

Furthermore, the scientific evidence does not support the burning of wood in place of fossil fuels as a climate solution. Current science finds that burning trees for energy produces even more CO2 than burning coal, for equal electricity pro- duced (Sterman et al. 2018), and the considerable accumulated carbon debt from the delay in growing a replacement forest is not made up by planting trees or wood sub- stitution (noted be- low). We need to increase growing forests to more rapidly close the gap between emissions and removal of CO2 by forests, while we simultaneously lower emis- sions from our energy, in- dustrial and agricul- tural sectors.

In your deliberations on this serious climate change issue, we encourage you to consider the following:

§ The logging and wood products industries suggest that most of the carbon in trees that are logged and removed from forests will sim-

ply be stored in CLT and other wood products for buildings instead of being stored in forest ecosystems. Howev- er, this is clearly incorrect. Up to 40% of the harvested materi-

al does not become forest products and is burned or decompos- es quickly, and a majori- ty of manufacturing waste is burned for heat. One study found that 65% of the carbon from Oregon forests logged over the past 115 years remains in the at- mosphere, and just 19% is stored in long-lived products. The remainder is in landfills (Hudiburg et al. 2019).

§ Logging in U.S. forests emits 617 million tons of CO2 annu- ally (Harris et al. 2016). Further, logging involves transporta- tion of trucks and machinery across long distances between the forest and the mill. For every ton of carbon emitted from logging, an additional 17.2% (106 million tons of CO2) is emitted from fossil fuel consumption to support trans- portation, extraction, and processing of wood

(Ingerson 2007). In fact, annual CO2 emissions from logging in U.S. forests are comparable to yearly U.S. emissions from the residential and com- mercial sectors combined (https://www.epa.gov/ghgemissions/ inventory-us-greenhouse-gas-emissions-and-sinks).

The cumulative climate change impact of logging in the U.S. is even higher, since logging causes substantial reductions in carbon sequestration and storage potential in forests due to soil compaction and nutrient removal, and these combined im- pacts can often reduce forest carbon storage potential by 30% or more (e.g., Elliott et al. 1996, Walmsley et al. 2009).

§ The wood products industry claims that substituting wood for concrete and steel reduces the overall carbon footprint of buildings. However, this claim has been refuted by more recent analyses that reveal forest industries have been using unrealis- tic and erroneous assumptions in their models, overestimating

the long-term mitigation benefits of substitution by 2 to 100- fold (Law et al. 2018, Harmon 2019). The climate impact of wood is even worse if the reduced forest carbon sequestration and storage caused by nutrient loss and soil compaction from logging is included, as discussed above.

In countless public communications, and at numerous Con- gressional hearings, industry representatives have advocated for increased logging in the context of reducing wildland fire and related emissions. While small-tree thinning can reduce fire intensity when coupled with burning of slash debris (e.g., Perry et al. 2004, Strom and Fulé 2007) under very limited conditions, recent evidence shows intensive forest management characterized by young trees and homogenized fuels burn at higher severity (Zald & Dunn 2018). Further, the extremely low probability (less than1%, Schoennagel et al. 2017) of thinned sites encountering

a fire where thinning has occurred limits the effectiveness of such activities to forested areas near homes. Troublingly, to make thinning operations economically attractive to logging companies, commercial logging of larger, more fire-resistant trees often occurs across large areas.

Importantly, mechanical thinning results in a substantial net loss of forest carbon storage, and a net increase in carbon emissions that can substantially exceed those of wildfire emissions (Hudiburg et al. 2013, Campbell et al. 2012). Reduced forest protections and increased logging tend to make wildland fires burn more intensely (Bradley et al. 2016). This can also occur with commercial thinning, where mature trees are re- moved (Cruz et al. 2008, Cruz et al. 2014). As an example, logging in U.S. forests emits 10 times more carbon than fire and

native insects combined (Harris et al. 2016). And, unlike log- ging, fire cycles nutrients and helps increase new forest growth.

We believe having a dialogue now would be productive, and we could help members of your Committees to

Sincerely,
Lead Signatories
** Affiliations listed for identification purposes only*

We are hopeful that a new and more scientifically sound di- rection will be considered by Members that

emphasizes increased forest protections, and a shift away from consumption of wood products and forest

biomass energy, to help mitigate the climate crisis.

be more effective in achieving the

conservation and climate change goals that we share. We look forward to hearing from you and are

available to provide additional scientific sources and serve as a resource for your Committees as you

consider policy proposals on the climate crisis.

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The federal district court of Montana recently ruled against the Kootenai National Forest on the same boiler plate analysis, writ- ing: Ultimately, greenhouse gas reduction must happen quickly, and removing carbon from forests in the form of logging, even if trees are going to grow back, will take decades to centuries to re-sequester. Put more simply, logging causes immediate carbon losses, while re-sequestration happens slowly over time, time that the planet may not have.

Please find the court's order attached.

Please follow NEPA and take a hard look at the impact of the project on climate change.

Please find attached a paper by W.R. Moomaw et al. 2019 titled, “Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good.”

The found:

Climate change and loss of biodiversity are widely recognized as the foremost environmental challenges of our time. Forests annually sequester large quantities of atmospheric carbon dioxide (CO_2), and store carbon above and below ground for long periods of time. Intact forests—largely free from human intervention except primarily for trails and hazard removals— are the most carbon-dense and biodiverse terrestrial ecosys- tems, with additional benefits to society and the economy. In- ternationally, focus has been on preventing loss of tropical forests, yet U.S. temperate and boreal forests remove sufficient atmospheric CO_2 to

reduce national annual net emissions by 11%. U.S. forests have the potential for much more rapid at- mospheric CO_2 removal rates and biological carbon sequestra- tion by intact and/or older forests. The recent 1.5 Degree Warming Report by the Intergovernmental Panel on Climate Change identifies reforestation and afforestation as important strategies to increase negative emissions, but they face signifi- cant challenges: afforestation requires an enormous amount of additional land, and neither strategy can remove sufficient carbon by growing young trees during the critical next decade(s). In contrast, growing existing forests intact to their ecological potential—termed proforestation—is a more effec- tive, immediate, and low-cost approach that could be mobilized across suitable forests of all types. Proforestation serves the greatest public good by maximizing co-benefits such as nature- based biological carbon sequestration and unparalleled ecosys- tem services such as biodiversity

enhancement, water and air quality, flood and erosion control, public health benefits, low impact recreation, and scenic beauty.

This is the best available science. Why is the project not following it?

Page 8 of the Preliminary Carbon Effects Report states:

6.0 Direct, Indirect and Cumulative Effects of the Proposed Action

The proposed Larabee Hat Project includes intermediate harvests, regeneration harvests, aspen restoration, precommercial thinning, fuels treatments, prescribed burning, watershed improvements and road construction / reconditioning on approximately 17,809 acres of the Helena-Lewis and Clark National Forest. This scope and degree of change would affect a maximum of 0.7 percent of the 2,406,759 acres of forested land in the Helena-Lewis and Clark National Forest.

The effect of the proposed action focuses on the aboveground living carbon pool, which comprises about 32 percent of the total ecosystem carbon stocks of the Helena portion of the Helena-Lewis and Clark National Forest (USDA, 2021a).

Council on Environmental Quality ("CEQ") guidance addressing climate change recognizes that logging and prescribed burning can impact carbon stores, and urges land management agen-

cies to "include a comparison of estimated net GHG emissions and carbon stock changes that are projected to occur with and without implementation of proposed land or resource management actions." CEQ, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (Aug. 1, 2016) at 25-26, available at https://ceq.doe.gov/docs/ceq-regulations-and- guidance/nepa_final_ghg_guidance.pdf

Numerous studies, including those by the Forest Service, have concluded that logging mature forests releases significant amounts of carbon stored in the trees by preventing such forests from continuing to sequester carbon in trees and roots. FS17007. When forest stands are cut down, the vast majority of the stored carbon in the forest is released over time as CO_2, thereby converting forests from a sink to a "source" or "emitter." See FS7888 (study reporting "[i]ncreased harvest through proposed thinning practices in [Oregon] has been shown to elevate emissions for decades to centuries regardless of product end use").

Both the CEQ and recent caselaw from this Court recognize that agencies must take a hard look at climate related impacts under NEPA. Center for Biological Diversity v. United States Forest Serv., 2023 WL 5310633, *8 (D. Mont. 2023) ("Black Ram").

As stated by CEQ, "[c]limate change is a fundamental environmental issue, and its effects fall squarely within NEPA's purview." FS39311. Similarly, the Ninth Circuit has held that "[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct." Center for Biological Diversity v.

Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008). The Forest Service's analysis here does not satisfy NEPA's requirements.

In Black Ram, the Forest Service asserted that a logging project would "affect only a tiny percentage of the forest carbon stocks of the Kootenai National Forest, and an infinitesimal amount of the total forest carbon stocks of the United States." Id., *10. This Court held that "merely discussing carbon impacts and concluding that they will be minor does not equate to a 'hard look.'" Id., *8. "Under this logic, the USFS could always skirt the 'hard look' analysis when doing a carbon impacts review by breaking up a project into small pieces and comparing them to huge carbon stocks such as those contained within the over two million acres of land in the Kootenai National Forest." Id., *10. The Forest Service must instead provide to the public "an accurate picture of what impacts a project may have, no matter how 'infinitesimal' they believe they may be." Id.

Here, exactly like Black Ram, the Forest Service relies almost entirely on a cookie-cutter analysis to conclude that "short term release of carbon due to project activities is likely to be offset by improvements to forest conditions." Compare FS38618 and 2023 WL 5310633, *10. Just like Black Ram, the Forest Service failed to quantify the Project's greenhouse gas emissions, and failed to explain why it could not do so. Rather, it concluded that "the amount of carbon that might be removed through management is small relative to the approximately carbon stored in the forest ecosystem of the HLCNF."

This provides no useful information, and fails to comply with NEPA. As recognized by CEQ, a statement that emissions from

a proposed action "represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA." FS39320.

The Forest Service states that it relied on CEQ's 2016 guidance for considering climate impacts. FS4372. CEQ directs agencies to consider the potential effects of a proposed action on climate change by assessing greenhouse gas emissions and carbon sequestration. FS39313. Further, CEQ recommends that agencies quantify a proposed action's projected greenhouse gas emissions (id.), noting that "[q]uantification tools are widely available" and "already in broad use." FS39321. And where anticipated emissions are not quantified, agencies are to "explain the basis for determining that quantification is not reasonably available." FS39313, 39321-22.

In addition to disclosing that the carbon emissions would be small relative to national and global scales, the Forest Service presents additional, qualitative statements that are equally unhelpful, and again similar to those the Court rejected in Black Ram. For instance, for both Larabee Hat and Black Ram, the Forest Service argued that in the long-term, the logging projects would actually help carbon storage and reduce emissions by moving towards more resilient forest conditions. FS4371-72; Black Ram, 2023 WL5310633, *9. However, this was expressly rejected by this Court. "[E]ven though the [Forest Service] posited that the short-term loss of carbon from logging would be outweighed by the net increase in carbon sequestration resulting from a healthier forest, this assertion is not backed up by a sci-

entific explanation." Id., *10. Additionally, the authorized logging would result in immediate carbon losses, "while re-sequestration happens slowly over time, time that the planet may not have." Id., *11.

In 350 Montana, the Ninth Circuit rejected a similar qualitative assessment in which the Department of Interior summarized that the amount of carbon emissions from a coal mine expansion would be small compared to global scales. The Ninth Circuit criticized the Department's "conclusory determination" that the project's emissions would be "relatively 'minor,'" because, as the court explained, "comparing the emissions from this point source against total global emissions predestined that the emissions would appear relatively minor." 50 F.4th 1254, 1289 (9th Cir. 2021). As explained, by simply telling the reader that the project "will add more fuel to the fire," but that its contribution will be smaller than the worldwide total of emissions, the reader is left to guess how or why the emissions from the project represent an insignificant contribution to the environmental consequences of the climate crisis. Id. at 1266. Relying on "an opaque comparison to total global emissions" fails to satisfy the "high quality" and "accurate scientific analysis" required by NEPA. Id. at 1270.

In sum, the Forest Service's assessment of climate and carbon impacts for the Project is similar to the Agency's assessment for a comparable project that was recently rejected in Black Ram, and therefore did not take a hard look and is in violation of NEPA.

Please see the following article:

Montana researchers urge towns to focus on wildfire preparation

https://missoulacurrent.com/research-wildfire-preparation/

Laura Lundquist

(Missoula Current) For more than a decade, a small group of scientists have been trying to convince people that fireproofing their homes is far more effective than logging the forest when it comes to surviving wildfire. But few people are listening.

In mid-December, six researchers published a paper in the Proceedings of the National Academy of Sciences journal warning that communities across the nation, but particularly those in the West, aren't prepared to survive an urban conflagration such as the one that devastated Lahaina, Hawaii, in August.

The paper, titled "Wildland-urban fire disasters aren't actually a wildfire problem," points out that, since 2016, communities from Lahaina to Gatlinburg, Tenn., that have lost hundred of homes to fires have certain things in common: the fires occurred under extreme weather conditions - high winds and persistent drought - and most of the structures weren't fire-resistant.

"These problem fires were defined as an issue of wildfires that involved houses. In reality, they are urban fires initiated by

wildfires. That's an important distinction - and one that has big repercussions for how we prepare ourselves for future fires," the authors wrote.

The authors included three researchers from the Forest Science and Fire Sciences laboratories of the U.S. Forest Service Rocky Mountain Research Station in Missoula and one from Headwaters Economics in Bozeman.

In a 2014 paper in the Proceedings of the National Academy of Science, some of the same authors developed a community risk assessment that put the focus on improving the security of individual homes in a community, not the forest around them.

The emphasis is placed on modifying the house and the home ignition zone, a region within 100 feet of a house where debris and vegetation should be eliminated or minimized to reduce the chance of fire getting close to the house.

The reason that urban conflagrations begin and spread is because wind pushes embers and heat from one unprotected building to another, overwhelming fire departments that normally train to fight fire in just one building. Conditions are made worse when buildings are close together, because radiant heat becomes a bigger factor, spreading fire quicker.

"Reducing the likelihood that a home will ignite interrupts the disaster sequence by enabling effective structure protection. New construction siting, design, construction materials, and landscaping requirements should take wildfire potential into account," the authors wrote in the December paper.

One of the paper's authors, Jack Cohen, is a fire-behavior analyst and heat transfer engineer who has spent 40 years investigating wildfires, particularly those that are linked to incidents where hundreds of homes burned. He has spent at least the past decade writing papers and giving talks about the need to focus on making homes less susceptible to wildfires, which are a natural process, especially in the arid West.

When asked why the researchers decided to submit the recent article that seeks to drum home points they already promoted a decade ago, Cohen said cities and agencies have done very little during that time period to put their recommendations into place.

"What prompted us this time was the Lahaina urban conflagration that was associated with a grassfire. It may be a repeated message on our part, but it's not being received very well. Not much has changed," Cohen said. "The federal and state agencies still don't get it - they're still defining the problem as a wildfire control problem."

Since the 2014 paper, Cohen and other researchers have had to just watch as town after town has burned terribly but predictably, as if no one has read their research. In Gatlinburg and Pigeon Forge, Tenn., 2,460 buildings burned in a 2016 fire; in 2018, the Camp Fire led to the loss of almost 19,000 buildings in Paradise, Calif.; in December 2021, 1,084 buildings burned in Superior and Louisville, Colo. from a grass fire; and in November 2021, a grassfire sparked fires in 23 homes in Denton, Mont.

Each wildfire had very little connection to most of the burning buildings, Cohen said. A wildfire is the source of initial ignition, but from that point on, it's a series of structure fires that lead to more structure fires. For example, with the Four Mile Canyon Fire in Boulder, Colo., the state of Colorado and the Forest Service had completed a number of fuel treatments nearby that they touted as protective. But high winds carried fire brands to ignite the houses far from the fire. Cohen found that while 168 houses burned, a lot of vegetation around the houses didn't, "so the wildfire didn't sweep through town."

"In the past five years, a number of incidents with more than 100 houses burning have been initiated by grass fires, which burn quickly. The grass fires pass through and are gone while the community continued to burn," Cohen said. "What I've found, particularly over the past five or six years, is that extreme wildfire is not dependent on closed-canopy conifers that produce big flames. The only time these urban disasters occur is under extreme conditions. That typically means it's very windy."

Nothing about the Lahaina Fire surprised Cohen. Not even the overblown claims that a wildfire "roared through and destroyed the town." Again, the wildfire was over before the town really started to burn. The fire started as a grassfire fanned by high winds, and had Lahaina not been there, the fire would have burned through the buffel grass and guinea grass within a matter of minutes before it died out on the beach.

But Lahaina was there, a high-density community with several blocks of multi-story, largely-connected wooden structures.

That configuration caused buildings to catch fire either due to burning embers flying from other buildings or from catching fire due to the overwhelming heat from nearby buildings.

"The ignition initiated where the grassfire came down, and that was it - it was a conflagration," Cohen said. "You don't want to be in a high-density community when you can't control the fire. Thirteen of the 26 fatalities in the 1991 Oakland Hills Fire occurred in the street when two-story buildings were burning on both sides of the street and the road became blocked. The heat was untenable."

One house in Lahaina stood untouched and was dubbed "the miracle house." But Cohen said it was just a good example of the points he and his fellow authors have been trying to communicate about defensible space and being fire-adapted. The owners had recently renovated the house with a nonflammable roof. It had wood walls, but the nearest building was about 30 feet away - far enough to prevent radiant heat from starting a fire - and there was little debris on the grounds or the house to actively spread the fire.

"The home ignition zone works," Cohen said. "The home ignition zone came out of the modeling I did and then the crown fire experiments I did with wood walls to show the distance, the proximity required to produce an ignition was realistic. At the same time, California was cutting 300-foot clearances around communities, which means nothing to (airborne) burning embers, but it's way over (what's required) for radiant heat exposure."

Cohen and his colleagues hope their latest paper prompts more action from local governments. Cohen is hoping Missoula County can do a better job when it updates its Wildfire Protection Plan in the near future.

But more than likely, Cohen said, they'll be writing a similar paper in another few years, trying to make politicians and the public understand. It doesn't help that they're fighting some in their own agency, the Forest Service, who insist that logging, not home modification, will save communities.

"Fire is inevitable. But nobody's figuring it out," Cohen said. "We're starting from the presumption that it's wildfire that spreads through a community that lays it to waste. We even have the agencies responding in that fashion by being obsessed with this notion of wildfire control. So they do fuel treatments to have safe firefighting. That's not only counter ecologically, it doesn't work."

Contact reporter Laura Lundquist at lundquist@missoulacurrent.com.

Please find, "Wildland-urban fire disasters aren't actually a wildfire problem," by Calkin et al. 2023 attached.

The project area should be within 100 feet of homes not on Forest Service and BL:M lands unless a home is within 100 feet of Forest Service and BL:M lands. The purpose and need are not based on the best available science and is in violation of NEPA, NFMA and the APA.

Habitat type

Please do not dismiss the importance of the following information relating to Pfister, et al. (1977).

The preliminary analysis on page 3 states one of the purposes of the project is to:

- ***Ponderosa pine, aspen, lodgepole pine and limber pine are outside of desired conditions, as well as small, large and very large size classes.***

-

What is the habitat type of the project area? Do claim that the tree species are outside the desired conditions you must show the habitat type.

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 char-

acteristics, 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. (attached) 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. Emphasis added.
….end of project/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.

Roadless rule says: "... maintain or restore the characteristics of ecosystem composition and structure..."

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 Larabee Hat project as "tree farmers" not scientists studying natural forest succession/evolution in violation of NEPA, NFMA, the APA, the Clearwater Act and the ESA.

Please develop an alternative that follow the recommendations of Calkin et al. 2023.

The agency is violating the NEPA by using vague, unmeasureable terms to rationalize the proposed logging to the public. How can the public measure “resiliency?” What are the specific criteria used to define resiliency, and what are the ratings for each proposed logging unit before and after treatment? How is the risk of fire as affected by the project being measured so that the public can understand whether or not this will be effective? How is forest health to be measured so that the public can see that this is a valid management strategy? What specifically constitutes a diversity of age classes, how is this to be measured, and how are proposed changes measured as per diversity? How are diversity measures related to wildlife (why is diversity needed for what species)? If the reasons for logging cannot be clearly identified and measured for the public, the agency is not meeting the NEPA requirements for transparency.

The agency will violate the Forest Plan by logging riparian areas; almost all wildlife species will be harmed by this treatment.

The agency is violating the NEPA by promoting fuel reduction projects as protection of the public from fire, when this is actually a very unlikely event; the probability of a given fuel break to actually have a fire in it before the fuels reduction benefits are lost with conifer regeneration are extremely remote; forest dry-

ing and increased wind speeds in thinned forests may increase, not reduce, the risk of fire.

The agency is violating the NEPA by providing false reasons for logging to the public by claiming that insects and disease in forest stands are detrimental to the forest by reducing stand vigor (health) and increasing fire risk. There is no cur- rent science that demonstrates that insects and disease are bad for wildlife, including dwarf mistletoe, or that these increase the risk of fire once red needles have fallen.

The agency is violating the NEPA by claiming that logging is needed to create a diversity of stand structures and age classes; this is just agency rhetoric to conceal the real purpose of logging to the public.

The agency is violating the NEPA by using vague, unmeasureable terms to rationalize the proposed logging to the public.

How can the public measure “resiliency?” Please demonstrate

that fuel breaks work.

a. When ladder fuels are removed (by thinning), ground-level wind speed and turbulent mixing both increase, leading to faster fire spread and greater oxygen- transport efficiency; this, in turn, results in increased fire intensity.

b. In many cases this aerodynamic effect is more important than the fire-dampening effects of the fuels reduction being evaluated.

c. Two recent studies demonstrate just how consequential neglecting canopy wind-drag effects can be, leading to potentially disastrous results if aggressive ladder-fuel removal is applied. See Atchley et al. 2021 (attached), and Banerjee et al. 2020 (attached).

d. Both papers demonstrate that the removal of ladder fuels reduces the sub-canopy wind drag, ultimately leading to increased fire spread.

e. In other words, they both show how fuels-reduction treatments can increase fire spread, which is the opposite of what currently-used operational model studies predict.

f. Furthermore, the Banerjee et al. 2020 paper goes further and also shows that aggressive ladder fuel removal increases the likelihood of overstory crown fires compared to more modest

ladder fuel reductions, which is again opposite to operational model-run predictions.

g. Other recent studies also confirm these findings. Cohen et al. 2018 (attached) demonstrate that drought and fuel load were secondary effects compared to fire-induced atmospheric motions, which operational fire-behavior models neglect.

h. Bradley et al. (2016) (attached) analyzed satellite data for 1500 fires from 1984 to 2014, affecting 23.5 million acres of forestland. Their results show that the more heavily forestland is managed, the more severely it burns, and the least-managed land (i.e., our National Parks and Wilderness Areas) are the most firesafe.

i. By omitting atmospheric dynamics and wind-drag effects associated with vegetation treatments, fuels reductions designed to reduce fire intensity and fire spread are undoubtedly producing the opposite effect.

Please find A More Effective Approach for Preventing Wildland-Urban Fire Disasters Jack Cohen attached.

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decade ago, Cohen said cities and agencies have done very little during that time period to put their recommendations into place.

"What prompted us this time was the Lahaina urban conflagration that was associated with a grassfire. It may be a repeated message on our part, but it's not being received very well. Not much has changed," Cohen said. "The federal and state agencies still don't get it - they're still defining the problem as a wildfire control problem."

Since the 2014 paper, Cohen and other researchers have had to just watch as town after town has burned terribly but predictably, as if no one has read their research. In Gatlinburg and Pigeon Forge, Tenn., 2,460 buildings burned in a 2016 fire; in 2018, the Camp Fire led to the loss of almost 19,000 buildings in Paradise, Calif.; in December 2021, 1,084 buildings burned in Superior and Louisville, Colo. from a grass fire; and in November 2021, a grassfire sparked fires in 23 homes in Denton, Mont.

Each wildfire had very little connection to most of the burning buildings, Cohen said. A wildfire is the source of initial ignition, but from that point on, it's a series of structure fires that lead to more structure fires. For example, with the Four Mile Canyon Fire in Boulder, Colo., the state of Colorado and the Forest Service had completed a number of fuel treatments nearby that they touted as protective. But high winds carried fire brands to ignite the houses far from the fire. Cohen found that while 168 houses burned, a lot of vegetation around the houses didn't, "so the wildfire didn't sweep through town."

"In the past five years, a number of incidents with more than 100 houses burning have been initiated by grass fires, which burn quickly. The grass fires pass through and are gone while the community continued to burn," Cohen said. "What I've found, particularly over the past five or six years, is that extreme wildfire is not dependent on closed-canopy conifers that produce big flames. The only time these urban disasters occur is under extreme conditions. That typically means it's very windy."

Nothing about the Lahaina Fire surprised Cohen. Not even the overblown claims that a wildfire "roared through and destroyed the town." Again, the wildfire was over before the town really started to burn. The fire started as a grassfire fanned by high winds, and had Lahaina not been there, the fire would have burned through the buffel grass and guinea grass within a matter of minutes before it died out on the beach.

But Lahaina was there, a high-density community with several blocks of multi-story, largely-connected wooden structures. That configuration caused buildings to catch fire either due to burning embers flying from other buildings or from catching fire due to the overwhelming heat from nearby buildings.

"The ignition initiated where the grassfire came down, and that was it - it was a conflagration," Cohen said. "You don't want to be in a high-density community when you can't control the fire. Thirteen of the 26 fatalities in the 1991 Oakland Hills Fire occurred in the street when two-story buildings were burning on both sides of the street and the road became blocked. The heat was untenable."

One house in Lahaina stood untouched and was dubbed "the miracle house." But Cohen said it was just a good example of the points he and his fellow authors have been trying to communicate about defensible space and being fire-adapted. The owners had recently renovated the house with a nonflammable roof. It had wood walls, but the nearest building was about 30 feet away - far enough to prevent radiant heat from starting a fire - and there was little debris on the grounds or the house to actively spread the fire.

"The home ignition zone works," Cohen said. "The home ignition zone came out of the modeling I did and then the crown fire experiments I did with wood walls to show the distance, the proximity required to produce an ignition was realistic. At the same time, California was cutting 300-foot clearances around communities, which means nothing to (airborne) burning embers, but it's way over (what's required) for radiant heat exposure."

Cohen and his colleagues hope their latest paper prompts more action from local governments. Cohen is hoping Missoula County can do a better job when it updates its Wildfire Protection Plan in the near future.

But more than likely, Cohen said, they'll be writing a similar paper in another few years, trying to make politicians and the public understand. It doesn't help that they're fighting some in their own agency, the Forest Service, who insist that logging, not home modification, will save communities.

"Fire is inevitable. But nobody's figuring it out," Cohen said. "We're starting from the presumption that it's wildfire that spreads through a community that lays it to waste. We even have the agencies responding in that fashion by being obsessed with this notion of wildfire control. So they do fuel treatments to have safe firefighting. That's not only counter ecologically, it doesn't work."

Contact reporter Laura Lundquist at lundquist@missoulacurrent.com.

Please find the paper Cohen co-authored that is mention in the article above, Calkin et al. 2024 attached.

Based on Calkin's paper, the project is not an emergency and not following the best available science.

What are the specific criteria used to define resiliency, and what are the ratings for each proposed logging unit before and after treatment? How is the risk of fire as affected by the project being measured so that the public can understand whether or not this will be effective? How is forest health to be measured so that the public can see that this is a valid management strategy? What specifically constitutes a diversity of age classes, how is this to be measured, and how are proposed changes measured as

per diversity? How are diversity measures related to wildlife (why is diversity needed for what species)? If the reasons for logging cannot be clearly identified and measured for the public, the agency is not meeting the NEPA requirements for transparency.

The agency will violate the NFMA by failing to ensure that old growth forests are well-distributed across the landscape with a Forest Plan amendment; although not provided in the scoping document for public comment, the agency is amending the Forest Plan to allow logging of old growth rather than preserving it.

We asked in our scoping comments: ***Please include an easily understandable accounting of all costs for the various types of treatments, including burning. For commercial logging, fuels reduction, and prescribed burning, we would like to know what the estimated cost is "per acre" for that particular treatment. We would also like to know the costs for construction of new temporary roads, reconstruction of existing roads, and road obliteration and/or decommissioning per mile of road.***

The Economic Specialist Report does not show how much this project will cost the public. It is a violation of NEPA to not answer the public's questions.

THE AGENCIES MUST REINITIATE CONSULTATION ON THE NORTHERN ROCKIES LYNX MANAGEMENT DIRECTION.

The Northern Rockies Lynx Management Direction is inadequate to ensure conservation and recovery of lynx. The amendments fail to use the best available science on necessary lynx habitat elements, including but not limited to, failing to include standards that protect key winter habitat.

The Endangered Species Act requires the FS to insure that the GRLA project is not likely to result in the destruction or adverse modification of critical habitat. 16 U.S.C. §1536(a) (2). Activities that may destroy or adversely modify critical habitat are

those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for lynx. 74 Fed. Reg. 8644. The Northern Rockies Lynx Management Direction (NRLMD) as applied in the project violates the ESA by failing to use the best available science to insure no adverse

modification of critical habitat. The NRLMD carves out exemptions from Veg Standards

S1, S2, S5, and S6. In particular, fuel treatment projects may occur in the WUI even though they will not meet standards Veg S1, S2, S5, or S6, provided they do not occur on more than 6% of lynx habitat on each Nation- al Forest. Allowing the agency to destroy or adversely modify any lynx critical habitat has the potential to appreciably reduce the conservation value of such habitat. The agency cannot simply set a cap at 6% forest-wide without looking at the individual characteristics of each LAU to determine whether the project has the potential to appreciably

reduce the conservation value. The ESA requires the use of the best available science at the site-specific level. It does not allow the agencies to make a gross determination that al- lowing lynx critical habitat to be destroyed forest-wide while not appreciably reduce the conservation value.

The FS violated NEPA by applying the above-mentioned exception without analyzing the impacts to lynx in the individual LAUs. The Project violates the NFMA by failing to insure the viability of lynx. Ac- cording to the 1982 NFMA regulations, fish and wildlife must be managed to maintain vi- able populations of Canada lynx in the planning area. 36 C.F.R. 219.19. The FS has not shown that lynx will be well distributed in the planning area. The FS has not addressed how the project's adverse modification of 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 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.

We asked in our scoping comments: ***Has the HLCNF removed any lynx analysis units (LAUs) without going through NEPA? If so please disclose where these LAUs were and why you violated NEPA by removing the LAUs without taking public comment?***

The Forest Service did not answer our question in violation of NEPA. Please answer our question as you are required by NEPA.

Page 17 of the Wildlife Report states:

Potentially Affected Environment

Lynx Habitat in the Project Area and Lynx Analysis Unit

The project occurs within lynx analysis unit LAU DI-03 in the Divide geographic area which is considered occupied. The results of the most recent predictive species distribution model (Olson et al.2021) indicate that the project vicinity has a low probability of providing suitable habitat for lynx, including the lynx analysis area. Table 8 shows the acres of lynx habitat within lynx analysis unit DI-03.

There are also 10,102.8 acres of mature habitat in LAU DI-03 as defined by Holbrook and others (Holbrook et al. 2017a). Some of these acres overlap with multi-story habitat.

The FS cannot insure species viability here without addressing the impacts to the already low amount of suitable habitat. By cutting in denning and foraging habitat, the agency will not be "maintaining or enhancing the quality of the habitat."

Page 25 of the Prelimiary Assessment states:

Approximately 80% of the unit would be thinned and 20% of the total stand would retain uncut seedlings/saplings. Uncut portions would approximate a half acre in size.

This would mean that the entire Lynx Analysis Unit (LAU) would be destroyed as for as lynx habitat is concerned in violation of NEPA, the ESA, NFMA and the APA.

The best available science is now Koaterman and Holbrook.

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. Please find Kosterman and Holbrook 2019 attached. 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:

This project is in Canada lynx habitat. In order to meet the requirements of the FS/USFWS Conservation Agreement, the FS agreed to insure that all project activities are consistent with the Lynx Conservation Assessment and Strategy (LCAS) and the requirements of protecting lynx critical habitat. The FS did not do so with its project analysis. This project will adversely affect lynx habitat in violation of the Endangered Species Act. The BA/BE needs to be rewritten to reflect this information to determine if this project will adversely modify proposed critical habitat for lynx and if so conference with USFWS.

The HLCNF is home to the Canada lynx, listed as a Threatened species under the Endangered Species Act (ESA). In December 1999, the Forest Service and Bureau of Land Management com-

pleted their “Biological Assessment Of The Effects Of National Forest Land And Resource Management Plans And Bureau Of Land Management Land Use Plans On Canada Lynx” (Programmatic Lynx BA). The Programmatic Lynx BA concluded that the cur- rent programmatic land management plans “may affect, and are likely to adversely affect, the subject population of Canada lynx.”

The Lynx BA team recommended amending or revising Forest Plans to incorporate conservation measures that would reduce or eliminate the identified adverse effects on lynx. The Programmatic Lynx BA’s determination means that Forest Plan implementation is a “taking” of lynx, and makes Section 7 formal consultation on the HLCNF Forest Plan mandatory, before actions such as the proposed project are approved.

Continued implementation of the Forest Plan constitutes a “taking” of the lynx. Such taking can only be authorized with an incidental take statement, issued as part of a Biological Opinion

(B.O.) during of Section 7 consultation. The HLCNF must incorporate terms and conditions from a programmatic B.O. into a Forest Plan amendment or revision before projects affecting lynx habitat, such as this one, can be authorized.

The Programmatic Lynx BA's "likely to adversely affect" conclusion was based upon the following rationale. Plans within the Northern Rockies:

• Generally direct an aggressive fire suppression strategy within developmental land allocations. ...this strategy may be contributing to a risk of adversely affecting the lynx by limiting the availability of foraging habitat within these areas.

• Allow levels of human access via forest roads that may present a risk of incidental trapping or shooting of lynx or access by other competing carnivores. The risk of road-related adverse effects is primarily a winter season issue.

• Are weak in providing guidance for new or existing recreation developments. There- fore, these activities may contribute to a risk of adverse effects to lynx.

• Allow both mechanized and non-mechanized recreation that may contribute to a risk of adverse effects to lynx. The potential effects occur by allowing compacted snow trails and plowed roads which may facilitate the movements of lynx competitors and predators.

• Provide weak direction for maintaining habitat connectivity within naturally or artificially fragmented landscapes. Plans within all geographic areas lack direction for coordinating con- struction of highways and other movement barriers with other responsible agencies. These factors may be contributing to a risk of adverse effects to lynx.

• Are weak in providing direction for coordinating management activities with adjacent landowners and other agencies to assure

consistent management of lynx habitat across the landscape. This may contribute to a risk of adverse effects to lynx.

• Fail to provide direction for monitoring of lynx, snowshoe hares, and their habitats. While failure to monitor does not directly result in adverse effects, it makes the detection and assessment of adverse effects from other management activities difficult or impossible to attain.

• Forest management has resulted in a reduction of the area in which natural ecological processes were historically allowed to operate, thereby increasing the area potentially affected by known risk factors to lynx. The Plans have continued this trend. The Plans have also continued the process of fragmenting habitat and reducing its quality and quantity. Consequently, plans may risk adversely affect- ing lynx by potentially contributing to a reduction in the geographic range of the species.

• The BA team recommends amending or revising the Plans to incorporate conservation measures that would reduce or elimi- nate the identified adverse effects to lynx. The programmatic conservation measures listed in the Canada Lynx Con- servation Assessment and Strategy (LCAS) should be considered in this regard, once finalized. (Programmatic Lynx BA, at 4.)

The Programmatic Lynx BA notes that the LCAS identifies the following risk fac-tors to lynx in this geographic area:

- Timber harvest and pre-commercial thinning that reduce denning or foraging habitat or converts habitat to less de- sirable tree species

- Fire exclusion that changes the vegetation mosaic main- tained by natural disturbance processes

- Grazing by domestic livestock that reduces forage for lynx prey

How many road closure violations have been found in the Helena Ranger Districtin the last 5 years?

It is fair to assume that there are many more violations that regularly occur and are not witnessed and reported. It is also fair to assume that you have made no effort to request this available information from your own law enforcement officers, much less incorporate it into your analysis. Considering your own admissions that road density is the primary factor that degrades elk and grizzly habitat, this is a material and significant omission from your analysis– all of your ORD and HE calculations are wrong without this information.

The veracity of the FS's inventory of system and nonsystem ("undetermined" or "unauthorized") roads is at issue here also. This is partly because the FS basically turns a blind eye to the situation with insufficient commitment to monitoring, and also because violations are not always remedied in a timely manner.

The Larabee Hat project would violate the Forest Plan/Access standards, a violation of NFMA because of road closure violations.

Please disclose how many years the existing core ares have provided the habitat benefits assumed under the Forest Plan. As pointed out, some has been lost (due to "private infrastructure development") and we're not told of other likely and forseeable reductions.

Please take a hard look as road closure violations.

By law, the logging roads and illegal user-created roads on National Forests are supposed to be securely and effectively closed. Unfortunately, the Forest Service has interpreted this requirement to allow it to put a pile of dirt in front of the road and call it good. We showed the court that this strategy is failing. Road use on closed roads and illegal user-created roads is a pervasive and chronic problem and it is keeping these endangered grizzly bears on the brink of extinction.

This represents a major departure from prior management requirements and threatens to significantly degrade grizzly bear habitat security. The Forest Plan also abandons limits on human uses of roads and trails in secure bear habitat.

In conducting its review of the amendment to the Forest Plan under the ESA, FWS did not rationally grapple with the impacts of this new management direction, as the law requires, before

concluding in a Biological Opinion that the revised amendment will not jeopardize grizzly bears in the Helena-Lewis and Clark National Forest. The Forest Plan and Biological Opinion therefore violate section 7 of the ESA. 16 U.S.C. § 1536.

FWS and the Forest Service violated the ESA by arbitrarily dismissing the threat to grizzly bears and lynx posed by roadbuilding and the proliferation of human use of roads and trails permitted under the final Record of Decision for the Forest Plan and Amendments.

Road closure violations also mean that the Elk habitat effectiveness calculations are also invalid.

The Interagency Grizzly Bear Committee ("IGBC") has found that secure habitat (or "core areas"), which are areas free of motorized access, are an important component of grizzly bear survival and recovery. The IGBC states that secure habitat must be in place and undisturbed for at least 10 years, which is based on the generation time for a female grizzly bear to replace herself in the population.

Agencies and courts have found that grizzly bear movement and connectivity between the various recovery zones in the lower 48 states, which is needed for long-term recovery, has yet to be restored. Grizzly bears in the Greater Yellowstone Ecosystem remain an isolated population.

By law, the logging roads and illegal user-created roads on National Forests are supposed to be securely and effectively closed. Unfortunately, the Forest Service has interpreted this requirement to allow it to put a pile of dirt in front of the road and call it good. We showed the court that this strategy is failing. Road use on closed roads and illegal user-created roads is a pervasive and chronic problem and it is keeping these endangered grizzly bears on the brink of extinction.

This represents a major departure from prior management requirements and threatens to significantly degrade grizzly bear habitat security. The revised Plan also abandons limits on human uses of roads and trails in secure bear habitat.

In conducting its review of the amendment to the Forest Plan under the ESA, FWS did not rationally grapple with the impacts of this new management direction, as the law requires, before concluding in a Biological Opinion that the revised amendment will not jeopardize grizzly bears in the Helena-Lewis and Clark National Forest. The revised Plan and Biological Opinion therefore violate section 7 of the ESA. 16 U.S.C. § 1536. The Revised Forest Plan weakened bull trout habitat and grizzly bear habitat protections by allowing new roadbuilding throughout the Helena-Lewis and Clark National Forest without meaningful reclamation of existing roads to compensate for the new road construction. FWS and the Forest Service violated the ESA by arbitrarily dismissing the threat to grizzly bears and bull trout posed by roadbuilding and the proliferation of human use of roads and trails permitted under the final Record of Decision for the Forest Plan Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Manage-

ment Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population.

The Forest Service must reconsult with the USFWS on the impact of the 2020 Forest Plan and the Grizzly Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population on grizzly bears and bull trout and give the public a chance to comment on this consultation. It is a violation of NEPA, NFMA, the APA, and the ESA to not do so.

The Remedy is to reissue the ROD and FEIS after the public has a chance to see and comment on the Forest Service's reconsultation with the USFWS on this impacts of this project and the Forest Plan Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population.

Additionally, your emphasis on elk populations across entire hunting districts is disingenuous and has little relevance to whether you are meeting your Forest Plan obligations to maintain sufficient elk habitat onNational

Forest lands. As you note, the Forest Plan estimated that 70% of elk were taken on National Forest lands in 1986. What percentage of elk are currently taken on National Forest lands?

Have you asked Montana Department of Fish, Wildlife and Parks for this information? Any honest biologist would admit that high elk population numbers do not indicate that you are appropriately managing National Forest elk habitat; to the contrary, high elk numbers indicate that you are so poorly managing elk habitat on National Forest lands that elk are being displaced to private lands where hunting is limited or prohibited. Your own Forest Service guidance document, Christensen et al 1993 states: "Reducing habitat effectiveness should never be considered as a means of controlling elk populations."

What is the existing condition of linear motorized route density on National Forest System lands in the action area and what would it increase to during implementation.

Page 10 of the Wildlife Report for the Larabee Hat EA states:

Unauthorized Motorized Use in the Divide Geographic Area and Grizzly Bear Analysis Units

General Effects of Unauthorized Motorized Use on Grizzly Bears

Unauthorized motorized use occurs when Forest users do not comply with the Forest's Motorized Vehicle Use Map (MVUM) which identifies motorized routes available for public use. A private entity's non-compliance with the Forest's motorized access management as designated on the Motorized Vehicle Use

Map is an illegal, unauthorized activity. Unauthorized motorized access can occur via unauthorized motorized use of gated roads; unauthorized motorized use of bermed, barriered, decommissioned, or impassable routes that are not authorized for motorized use; or unauthorized motorized use of land that is not authorized for any motorized use (such as user-created routes).

Unauthorized motorized use is a fluctuating stressor. The exact time and location where unauthorized motorized use could occur are not predictable because there are no known areas of regularly occurring illegal use. While unauthorized use of the Forest via motorized access in areas unauthorized for such use

may occur, such unauthorized use is not considered a Forest action. These and any other unauthorized activities are not the result of a federal action and therefore not analyzed under effects of the action, but their effects and influence are considered for describing the current conditions.

Do your open road density calculations include the "non-system" i.e. illegal roads in the Project area?

Do your open road density calculations include all of the recurring illegal road use documented in your own law enforcement incident reports? It appears, based on what was written above on page 10 of the Wildlife Report that our open road density calculations include all of the recurring illegal road use documented in your own law enforcement incident reports in violation of NFMA, NEPA, the Clean Water Act and the APA. At a minimum, the HLCNF should assume a certain amount of illegal road use based on past law enforcement reports and include this in the open road calculations.

Has the HLCNF closed or obliterated all roads that were promised to be closed or obliterated in the your Travel Plans in the Helena Ranger District? Or, are you still waiting for funds to close or obliterate those roads? This distinction matters because you cannot honestly claim that you are meeting road density

standards promised by the Travel Plan if you have not yet completed the road closures/obliterations promised by the Travel Plan. Furthermore, as noted above, you have a major problem with recurring, chronic violations of the road closures created by the Travel Plan, which means that your assumptions in the Travel Plan that all closures would be effective has proven false. For this reason, you cannot tier to the analysis in the Travel Plan because it is invalid. You must either complete new NEPA analysis for the Travel Plan on this issue or provide that new analysis in the NEPA analysis for this Project. Either way, you must update your open road density calculations to include all roads receiving illegal use. The Larabee Hat project NEPA documents to not demonstrate that the project is complying with the Forest Plan.

Christensen et al (1993) states: "Any motorized vehicle use on roads will reduce habitat effectiveness. Recognize and deal with all forms of motorized vehicles and all uses, including administrative use." Please disclose this to the public and stop representing that roads closed to thepublic should not be included in habitat effectiveness calculations. The facts that (a) you are constructing or reconstructing over 40 miles of road for this project, (b) you have problems with recurring illegal use, and (c) youalready admit that you found another 25 miles of illegal roads in

the project area that you have not committed to obliterating, means that your conclusion that this Project will have no effect on open road density or habitat effectiveness is implausible to the point of being disingenuous. You cannot exclude these roads simply because you say they are closed to the public. Every road receiving motorized use must be included in the HE calculation. You must consider all of this road use in order to take a hard look that is fully and fairly informed regarding habitat effectiveness. In thevery least you must add in all "non-system" roads, i.e. illegal roads, as well as recurring illegal road use (violations) in your ORD calculations. Also, as a side note, your calculations in

Christensen et al 1993 finds: "Areas where habitat effectiveness is retained at lower than 50 percent must be recognized as making only minor contributions to elk management goals. If habitat effectiveness is notimportant, don't fake it. Just admit up front that elk are not a consideration."

Will the project comply with Forest Plan Management Area C Goal states: "Maintain or enhance existing elk habitat by maximizing habitat effectiveness as a primary management objective. Emphasis will also be directed toward management of indigenous wildlife species. Commodity resource management will be

practiced where it is compatible with these wildlife management objectives." Also – MA C Standard: "Habitat effectiveness will be positively managed through road management and other necessary controls on resource activities." Also – "Elk habitat effectiveness will be maintained." Please demonstrate that the project will comply with all of these provisions for all of the above-stated reasons.

Do the action alternatives comply with PACFISH-INFISH?

Are you meeting the INFISH Riparian Management Objectives for temperature, pool frequency, and sediment?

The best available science shows that roads are detrimental to aquatic habitat and logging in riparian areas is not restoration.

Fish evolved with fire, they did not evolve with roads and logging.

Please completely analyze the impacts to bull trout and their habitat and westslope cutthroat trout habitat. What is the standard for sediment in the Forest Plan? Sediment is one of the key factors impacting water quality and fish habitat. [See USFWS 2010]

Page 12 of the Fisheries and Hydrology Report states:

The Little Blackfoot River is within the United States Fish and Wildlife Services upper Clark Fork recovery unit. However, the Little Blackfoot River is not listed as a designated population, or as designated critical habitat (USFWS 2015). United States Forest Service eDNA monitoring in 2015 detected bull trout in 13 of 30 sampling locations within the Little Blackfoot River, as well as some positive detections in Connors Gulch, and Ontario Creek (Appendix A). However, in both 2022 and 2023, eDNA sampling efforts had no positive detections of bull trout in the Little Blackfoot, Ontario Creek, Monarch Creek, Larabee Gulch, Connors Gulch, No Grass Creek, or Bison Creek (Appendix B, Appendix C).

Page 12 goes on to state:

Montana Department of Environmental Quality impaired streams in the project area:

• The project area includes three streams considered impaired by the Montana Department of Environmental Quality (MT DEQ, 2022). These streams are not currently fully supporting one or more of their beneficial uses due to erosion, sedimentation, and siltation, alteration of bankside vegetative cover, and heavy metal pollution. Montana Department of Environmental Quality cites sources of these impairments that include channelization, crop production, runoff from roadways and bridges, livestock grazing or feeding operations, grazing in riparian zones, silvicultural harvest, impacts from abandoned mines and clearing of land for development.

Montana Department of Environmental Quality impaired (303(d) listed) watersheds within the project extent:

- ***The Little Blackfoot River from its headwaters to the confluence with Dog Creek is impaired for alteration in stream side or vegetative cover, heavy metals (Arsenic, Cadmium, Copper, and Lead), Cyanide, and sedimentation/siltation. Sources for the streams impaired function include channelization, crop production, non-construction runoff from roadways and bridges, abandoned mines, and livestock grazing or feeding operations.***

- ***Elliston Creek is considered impaired from its headwaters to the confluence with the Little Blackfoot River due to alteration in stream-side or vegetative cover, and sedimentation/siltation. Sources of impairment include channelization, grazing in riparian or shoreline zones, silvicultural harvesting, and site clearance for land development.***
  o TroutCreek'sentirelengthfromtheheadwaterstotheLittle-Blackfootisconsidered impaired due to sedimentation as a result of grazing in riparian or shoreline zones, impacts from abandoned mine lands, and silvicultural harvesting.

Why are you proposing more logging and roadbuilding when MT DEQ wrote that that is what caused the problems for native fish in the first place?

The Forest Plan and the Larabee Hat project weakens bull trout habitat protections by allowing new roadbuilding throughout the bull trout habitat without meaningful reclamation of existing

roads to compensate for the new road construction. It also doesn't analyze why there were bull trout in the Little Blackfoot watershed in 2015 but not in 2022 or 2023. Did the Telegraph logging project cause the extinction of bull trout in the Little Blackfoot watershed?

Page 23 of the Fisheries and Hydrology Report states:

Westslope Cutthroat Trout, Western Pearlshell Mussels and Bull Trout may be impacted by short-term sediment originating from project activities.

It doesn't appear that bull trout can take any more so called short term sediment in the Little Blackfoot watershed.

New roadbuilding and logging in proposed in the Larabee Hat project threatens stream sedimentation that will degrade bull trout habitat in violation of the ESA, NEPA, NFMA and the APA.

Surface runoff on roads, including roads unused by motorized vehicles, threatens to cause sediment discharge to nearby waterbodies, including bull trout streams. Culverts inevitably clog and fail, causing the affected stream to run over the roadbed with associated erosion and sedimentation. Such sedimentation threatens to degrade stream conditions and harm bull trout, which require very cold and clean water to survive and reproduce.

The proposed action will spread weeds due to existing weed infestations, potential soil disturbance, roads, private lands, activity timing, logging, and moving equipment through infested areas. Please find attached comments by Chris Frissell on what needs to be done to recover bull trout.

The EA or EIS must fully and completely analyze the impacts to bull trout critical habitat and westslope cutthroat trout habitat. What is the standard for sediment in the Forest Plan? Sediment is one of the key factors impacting water quality and fish habitat. [See USFWS 2010]

The introduction of sediment in excess of natural amounts can have multiple adverse effects on bull trout and their habitat (Rhodes et al. 1994, pp. 16-21; Berry, Rubinstein, Melzian, and Hill 2003, p. 7). The effect of sediment beyond natural background conditions can be fatal at high levels. Embryo survival and subsequent fry emergence
success have been highly correlated to percentage of fine material within the stream-bed (Shepard et al. 1984, pp. 146, 152). Low levels of sediment may result in sublethal and behavioral effects such as increased activity, stress, and emigration rates; loss or reduction of foraging capability; reduced growth and resistance to disease; physical abrasion; clogging of gills; and interference with orientation in homing and migration (McLeay et al. 1987a, p. 671; Newcombe and MacDonald 1991, pp. 72, 76, 77; Barrett, Grossman, and Rosenfeld 1992, p. 437; Lake and Hinch 1999, p. 865; Bash et al. 2001n, p. 9; Watts et al. 2003, p. 551; Vondracek et al. 2003, p. 1005; Berry, Rubinstein, Melzian, and Hill 2003, p. 33). The effects of increased suspended sediments can cause changes in the abundance and/or type of food organisms, alterations in fish habitat, and long-term impacts to fish populations (Anderson et al. 1996, pp. 1, 9, 12, 14, 15; Reid and Anderson 1999, pp. 1, 7-15). No threshold has been determined in which fine sediment addition to a stream is harmless

(Suttle et al. 2004, p. 973). Even at low concentrations, fine-sediment deposition can decrease growth and survival of juvenile salmonids.

Aquatic systems are complex interactive systems, and isolating the effects of sediment to fish is difficult (Castro and Reckendorf 1995d, pp. 2-3). The effects of sediment on receiving water ecosystems are complex and multi-dimensional, and further compounded
by the fact that sediment flux is a natural and vital process for aquatic systems (Berry, Rubinstein, Melzian, and Hill 2003, p. 4). Environmental factors that affect the magnitude of sediment impacts on salmonids include duration of exposure, frequency of exposure, toxicity, temperature, life stage of fish, angularity and size of particle, severity/magnitude of pulse, time of occurrence, general condition of biota, and availability of and access to refugia (Bash et al. 2001m, p. 11). Potential impacts caused by excessive suspended sediments are varied and complex and are often masked by other concurrent activities (Newcombe 2003, p. 530). The difficulty in determining which environmental variables act as limiting factors has made it difficult to establish the specific effects of sediment impacts on fish (Chapman 1988, p. 2). For example, excess fines in spawning gravels may not lead to smaller populations of adults if the amount of juvenile winter habitat limits the number of juveniles that reach adulthood. Often there are multiple independent variables with complex interrelationships that can influence population size.

The ecological dominance of a given species is often determined by environmental variables. A chronic input of sediment could tip the ecological balance in favor of one species in mixed salmonid populations or in species communities composed of salmonids and nonsalmonids (Everest et al. 1987, p. 120). Bull trout have more spatially restrictive biological requirements at the individual and population levels than other salmonids (USFWS (U.S. Fish and Wildlife Service) 1998, p. 5). Therefore, they are especially vulnerable to environmental changes such as sediment deposition.

Aquatic Impacts

• Classify and analyze the level of impacts to bull trout and westslope cutthroat trout in streams, rivers and lakes from sediment and other habitat alterations:

Lethal: Direct mortality to any life stage, reduction in egg-to-fry survival, and loss of spawning or rearing habitat. These effects damage the capacity of the bull trout to produce fish and sustain populations.

Sublethal: Reduction in feeding and growth rates, decrease in habitat quality, reduced tolerance to disease and toxicants, respiratory impairment, and physiological stress. While not leading to immediate death, may produce mortalities and population decline over time.

Behavioral: Avoidance and distribution, homing and migration, and foraging and predation. Behavioral effects change the activity patterns or alter the kinds of activity usually associated with an unperturbed environment. Behavior effects may lead to immediate death or population decline or mortality over time.

Direct effects:
Gill Trauma - High levels of suspended sediment and turbidity can result in direct mortality of fish by damaging and clogging gills (Curry and MacNeill 2004, p. 140).

Spawning, redds, eggs - The effects of suspended sediment, deposited in a redd and potentially reducing water flow and smothering eggs or alevins or impeding fry emergence, are related to sediment particle sizes of the spawning habitat (Bjornn and Reiser 1991, p. 98).

Indirect effects:
Macroinvertebrates - Sedimentation can have an effect on bull trout and fish populations through impacts or alterations to the macroinvertebrate communities or populations (Anderson, Taylor, and Balch 1996, pp. 14-15).

Feeding behavior - Increased turbidity and suspended sediment can affect a number of factors related to feeding for salmonids, including feeding rates, reaction distance, prey selection, and prey abundance (Barrett, Grossman, and Rosenfeld 1992, pp. 437, 440; Henley, Patterson, Neves, and Lemly 2000, p. 133; Bash et al. 2001d, p. 21).

Habitat effects - All life history stages are associated with complex forms of cover including large woody debris, undercut banks, boulders, and pools. Other habitat characteristic impor-

tant to bull trout include channel and hydrologic stability, substrate composition,
temperature, and the presence of migration corridors (Rieman and McIntyre 1993, p. 5).

Physiological effects - Sublethal levels of suspended sediment may cause undue physiological stress on fish, which may reduce the ability of the fish to perform vital functions (Cederholm and Reid 1987, p. 388, 390).

Behavioral effects - These behavioral changes include avoidance of habitat, reduction in feeding, increased activity, redistribution and migration to other habitats and locations, disruption of territoriality, and altered homing (Anderson, Taylor, and Balch 1996, p. 6; Bash et
al. 2001t, pp. 19-25; Suttle, Power, Levine, and McNeely 2004, p. 971).

• How will this project affect native fish? What is the current condition in the riparian areas?
How will this project protect rather than adversely impact fish habitat and water quality? No logging or road building should be done in riparian areas. There should not be any stream crossings. Roads should be decommissioned and removed, not upgraded and rebuilt.
• Hauer, et al. (1999) found that bull trout streams in wilderness habitats had consistent ratios of large to small and attached to unattached large woody debris. However, bull trout streams in

watersheds with logging activity had substantial variation in these ratios. They identified logging as creating the most substantive change in stream habitats.

"The implications of this study for forest managers are twofold: (i) with riparian logging comes increased unpredictability in the frequency of size, attachment, and stability of the LWD and (ii) maintaining the appropriate ratios of size frequency, orientation, and bank
attachment, as well as rate of delivery, storage, and transport of LWD to streams, is essential to maintaining historic LWD characteristics and dynamics. Our data suggest that exclusion of logging from riparian zones may be necessary to maintain natural stream
morphology and habitat features. Likewise, careful upland management is also necessary to prevent cumulative effects that result in altered water flow regimes and sediment delivery
regimes. While not specifically evaluated in this study, in general, it appears that
patterns of upland logging space and time may have cumulative effects that could additionally alter the balance of LWD delivery, storage, and transport in fluvial systems.

These issues will be critical for forest managers attempting to prevent future detrimental environmental change or setting restoration goals for degraded bull trout spawning streams."

Muhlfeld, et al. (2009) evaluated the association of local habitat features (width, gradient, and elevation), watershed characteris-

tics (mean and maximum summer water temperatures, the number of road crossings, and road density), and biotic factors (the distance to the source of hybridization and trout density) with the spread of hybridization between native westslope cutthroat trout Oncorhynchus clarkii lewisi and introduced rainbow trout in the upper Flathead River system in Montana and British Columbia.

They found that hybridization was positively associated with mean summer water temperature and the number of upstream road crossings and negatively associated with the distance to the main source of hybridization. Their results suggest that hybridization is more likely to occur and spread in streams with warm water temperatures, increased land use disturbance, and proximity to the main source of hybridization.

The following article from the 9/25/15 Missoulian disagrees with the Forest Service and says it is habitat destruction causing bull trout declines.

http://missoulian.com/news/local/montana-fwp-biologist- despite-successes-bull-trout-populations-still-in/ article_2798e4c6-0658-522f-be4c-4274f903129e.html

Montana FWP biologist: Despite successes, bull trout populations still in peril
Ladd Knotek is disturbed by the lack of attention being paid to the many western Montana streams where bull trout populations are struggling to survive.

The fisheries biologist with Montana Fish, Wildlife and Parks knows people love to latch on to the success stories from streams like Fish Creek and several Blackfoot tributaries, where bull trout populations are viable.

"But what nobody talks about is all these other populations that, 50 years ago, these were all viable populations,"

he said Tuesday as part of a presentation on bull trout in Rattlesnake Creek. "You know, Gold Creek, Belmont Creek, Trout Creek, there's a whole list of them. There's a whole bunch of them that are just basically on the verge of disappearing. And what we like to talk about are the ones that are doing OK. But in places like Lolo Creek and some Bitterroot tributaries, bull trout there are just barely hanging on."

Bull trout have faced a long, slow decline over the past century, to the point where they are now listed as a threatened species under the Endangered Species Act. Success is a relative term even in the places where they are doing well.

"They're nowhere near what they were historically," Knotek said of the tributaries where the populations are relatively healthy. "But they have a fair number of adult spawners coming in. People see them in the fishery. But we need to start looking at all these other tributaries that used to be bull trout spawning tributaries and recognize what's going on in the bigger picture. We're just looking at a very thin slice instead of looking at the whole thing. A lot of this stuff is just symptoms of what's going on at the larger scale. Bull trout are the canary. They're very susceptible to environ-

mental change, whether it's temperature, whether it's physical, whether it's sediment. There's something going on in these drainages and the symptoms we're seeing are the bull trout distri-

bution is shrinking, we're losing populations and we're seeing ex- pansion of nonnatives."

Bull trout – which are native to the Columbia River Basin and are only found west of the Continental Divide in Montana – need clear, cold mountain waters to spawn and require clean gravel beds, deep pools, complex cover, good in-stream flows in the fall and large systems of interconnected waterways for their migrations. Rising temperatures and falling water levels trigger their migration to

spawning tributaries in June, and they hang out until they spawn in the fall. They are much more susceptible to warming temperatures and habitat change than nonnative species such as brown and rainbow trout.

Knotek was the featured presenter Friday for a discussion on restoration efforts and the importance of Rattlesnake Creek as a bull trout habitat. The event was organized by the Clark Fork Coalition, a nonprofit in Missoula that aims to protect water quality for the 22,000-square-mile Clark Fork River Basin.

Knotek explained that because Rattlesnake Creek is south- facing and doesn't have much groundwater recharging, it has much less of a buffer against a warming climate than other streams.

"The water temperatures are significantly higher than they

were 10 years ago," he said. "The types of temperatures we're seeing in late summer and early fall, we never saw those 10 to 15 years ago. Water temperature is driving a lot of what we're talking about. It's definitely stressful on fish. It doesn't spell good news for bull trout."

Knotek said it's a common misconception that brown trout and rainbows are driving out bull trout, and he explained that those nonnative species are simply moving in because the native species is dying off.

"It's replacement rather than displacement," he said.

In Rattlesnake Creek, biologists have conducted redd counts of the migratory population in the lower reaches since 1999. There is a healthy resident population in the upper reaches, but researchers are more interested in the fish that actually migrate to the Clark Fork River.

The results have been disturbing.

They found a high of 36 in 2006 and 24 in 2008, before Milltown Dam was removed. There was an expected drop to just four redds – spawning beds – after the dam was removed in 2009, because of the massive disturbance. However, the number of redds has not bounced back since, and researchers found just six last year.

"That tells us that it wasn't just the dam removal that

caused it, because they should be recovering by now," Knotek said. "And there are lots of populations like this stream that

are not doing well but need more attention. We've got a problem here, but it's not inconsistent with other tributaries. There's something bigger going on."

Knotek said that Rattlesnake Creek was historically braided before the area was developed, and that eliminated a lot of the back channels the juvenile fish need to grow.

"You need complexity," he said. "When you have a straight ditch in a system that used to be braided, it ain't good."

He's also seen much more algae growth in the upper sections, something that is obviously related to higher temperatures and added nutrients.

"We have browns and rainbows progressing upstream, and we attribute that to water temperature," he said. "That's consistent with other streams, too. It's very obvious something is going on here."

Knotek believes that a "ramping up" of current conservation work is the only thing that can save bull trout populations. Fish screens, the removal of dams, awareness of anglers and water conservation – especially by people us-

ing stream irrigation to water their lawns – is crucial.

"Bull trout are the canary," he said. "But there are a lot of other species that we could be looking at as indicators as well. A lot of research needs to be done. There's a lot of species being affected."

As Knoteck pointed out, bull trout need clear, cold mountain waters to spawn and require clean gravel beds, deep pools, com-

plex cover, good in-stream flows in the fall and large systems of interconnected waterways for their migrations.

How many bull trout will be killed during the implementation of the project?

How will the Larabee Hat project make the waters clearer in the short term?

How will the Larabee Hat project make the waters colder in the short term?

How will the Larabee Hat project make the gravel beds of the streams int he project area cleaner in the short and long term?

How will the Larabee Hat project make the affect deep pools in streams in the project area in the short and long term?

How will the Larabee Hat project make the affect complex cover over the streams in the project area in the short and long term?

How will the Larabee Hat project make the affect the in-stream flows in the fall in the short and long term?

How will the Larabee Hat project make the affect large systems of interconnected waterways for bull trout migrations?

Critical habitat receives protection under section 7 of the Endangered Species Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. There is no exception for the short run? How long is the project scheduled to last?

Will this project adversely modify bull trout critical habitat in the short run?

How will the Larabee Hat project affect the temperature of the streams in the project area including bull trout critical habitat?

Will all of the proposed logging increase the temperature of the streams in the project area?

Will all of the proposed road building and road use by log truck, clearcutting, and other logging put more sediment into streams in the project area?

How will this affect bull trout and bull trout critical habitat? When was the last time the project area was surveyed for bull trout? What was the results of these surveys?

The EA does not characterize or evaluate the project area watersheds based on the Watershed Condition Framework or the baseline condition developed for bull trout. We do not know what the current condition of streams are in the project area, i.e., are they functioning ac- ceptably, at risk or at unacceptable risk? And for what ecosystem pa- rameters? How will this project affect stream function, i.e., degrade, maintain, restore?

- The project relies on BMPs to protect water quality and fish habitat. First, there is no evidence that application of BMPs actually protects fish habitat and water quality.

- Second, BMPs are only maintained on a small percentage of roads or when there is a logging project.
  BMPs fail to protect and improve water quality because of

the al- lowance for “naturally occurring degradation.” In Montana, “natural- ly-occurring degradation” is defined in ARM 16.20.603(11)
as that which occurs after application of “all reasonable land, soil and water conservation practices have been applied.” In other words, damage caused directly by sediment (and other pollution) is accept-

able as long as BMPs are applied. The result is a never-ending, downward spiral for water quality and native fish.
Here’s how it works:
• Timber sale #1 generates sediment damage to a bull trout stream, which is “acceptable” as long as BMPs are applied to project activi- ties.

• “Natural” is then redefined as the stream condition after sediment damage caused by Timber Sale #1.
• Timber sale #2 – in the same watershed – sediment damage would be acceptable if BMPs are

applied again – same as was done before.
• “Natural” is again redefined as the stream condition after sediment damage caused by Timber
Sale#2.

The downward spiral continues with disastrous cumulative effects on bull trout, westslope cutthroat trout and most aquatic life. BMPs are not “reasonable.” Clearly, beneficial uses are not being protected. In Montana, state water quality policy is not being followed. § 75-5-101 et seq. and ARM 16.20.701 et seq.

• The EA does not include an analysis of climate change and how that will impact the project.
• The Purpose and Need for this project is for “Managing the density and composition of young stands is critical to establishing long- term ecological integrity and stand resilience.” Please demonstrate that the project will meet the purpose and need.

The U.S. Fish and Wildlife Service found that bull trout are exceptionally sensitive to the direct, indirect, and cumulative effects of roads. Dunham and Rieman demonstrated that disturbance from roads was associated with reduced bull trout occurrence. They concluded that conservation of bull trout should involve protection of larger, less fragmented, and less disturbed (lower road density) habitats to maintain important strongholds and sources for naturally re- colonizing areas where populations have been lost. (USFS 2000, page 3-82.

Hitt and Frissell showed that over 65% of waters that were rated as having high aquatic biological integrity were found within wilderness-containing subwatersheds.

Trombulak and Frissell concluded that the presence of roads in an area is associated with negative effects for both terrestrial and aquat- ic ecosystems including changes in species composition and popula- tion size. (USFS 2000, pages 3-80-81).

"High integrity [forests] contain the greatest proportion of high for- est, aquatic, and hydrologic integrity of all are dominated by wilder- ness and roadless areas [and] are the least altered by management. Low integrity [forests have] likely been altered by past management are extensively roaded and have little wilderness." (USFS 1996a,

pages 108, 115 and 116).

"Much of this [overly dense forest] condition occurs in areas of high road density where the large, shade-intolerant, insect-, disease- and fire-resistant species have been harvested over the past 20 to 30 years. Fires in unroaded areas are not as severe as in the roaded areas because of less surface fuel, and after fires at least some of the large trees survive to produce seed that regenerates the area. Many of the fires in the unroaded areas produce a forest structure that is consis- tent with the fire regime, while the fires in the roaded areas com- monly produce a forest structure that is not in sync with the fire regime. In general, the effects of wildfires in these areas are much lower and do not result in the chronic sediment delivery hazards ex- hibited in areas that have been roaded." (USFS 1997a, pages 281-282).

"Increasing road density is correlated with declining aquatic habitat conditions and aquatic integrity An intensive review of the literature concludes that increases in sedimentation [of streams] are unavoid- able even using the most cautious roading methods." (USFS 1996b, page 105).

"This study suggests the general trend for the entire Columbia River basin is toward a loss in pool habitat on managed lands and stable or improving conditions on unmanaged lands." (McIntosh et al 1994).

"The data suggest that unmanaged systems may be more structurally intact (i.e., coarse woody debris, habitat diversity, riparian vegeta- tion), allowing a positive interaction with the stream processes (i.e., peak flows, sediment routing) that shape and

maintain high-quality fish habitat over time." (McIntosh et al 1994).

"Although precise, quantifiable relationships between long-term trends in fish abundance and land-use practices are difficult to obtain (Bisson et al. 1992), the body of literature concludes that land-use practices cause the simplification of fish habitat." (McIntosh et al 1994).

"Land management activities that contributed to the forest health problem (i.e., selective harvest and fire suppression) have had an equal or greater effect on aquatic ecosystems.

If we are to restore and maintain high quality fish habitat, then pro- tecting and restoring aquatic and terrestrial ecosystems is essential." (McIntosh et al 1994).

"Native fishes are most typically extirpated from waters that have been heavily modified by human activity, where native fish assem- blages have already been depleted, disrupted, or stressed []." (Moyle et al 1996).

"Restoration should be focused where minimal investment can main- tain the greatest area of high-quality habitat and diverse aquatic bio- ta. Few completely roadless, large watersheds re- main in the Pacific Northwest, but those that continue relatively undisturbed are critical in sustaining sensitive native species and important ecosystem pro- cesses (Sedell, et. al 1990; Moyle and Sato 1991; Williams 1991; McIntosh et al. 1994;

Frissell and Bayles 1996) (Please find attached). With few ex- ceptions, even the least disturbed basins have a road network and history of logging or other human disturbance that greatly

magnifies the risk of deteriorating riverine habitats in the watershed." (Frissell undated).

"[A]llocate all unroaded areas greater than 1,000 acres as Strong- holds for the production of clean water, aquatic and riparian-depen- dent species. Many unroaded areas are isolated, relatively small, and most are not protected from road construction and subsequent timber harvest, even in steep areas. Thus, immediate protection through al- location of the unroaded areas to the production of clean water, aquatic and riparian-dependent resources is necessary to prevent degradation of this high quality habitat and should not be postponed." (USFWS et al 1995).

"Because of fire suppression, timber harvest, roads, and white pine blister rust, the moist forest PVG has experienced great changes

since settlement of the project area by Euroamericans. Vast amounts of old forest have converted to mid seral stages."(USFS/BLM 2000, page 4-58).

"Old forests have declined substantially in the dry forest PVG []. In general, forests showing the most change are those that have been roaded and harvested. Large trees, snags, and coarse woody debris are all below historical levels in these areas."

(USFS/BLM 2000, page 4-65).

"High road densities and their locations within watersheds are typi- cally correlated with areas of higher watershed sensitivity to erosion and sediment transport to streams. Road density also is correlated with the distribution and spread of exotic annual grasses, noxious weeds, and other exotic plants. Furthermore,

high road densities are correlated with areas that have few large snags and few large trees that are resistant to both fire and infestation of insects and disease. Lastly, high road densities are correlated with areas that have rela- tively high risk of fire occurrence (from human caused fires), high hazard ground fuels, and high tree mortality." (USFS 1996b, page 85, parenthesis in original).

In simpler terms, the Forest Service has found that there is no way to build an environmentally benign road and that roads and logging have caused greater damage to forest ecosystems than has the suppression of wildfire alone. These findings indicate that roadless areas in general will take adequate care of themselves if left alone and unmanaged, and that concerted reductions in road densities in al- ready roaded areas are absolutely necessary.

Indeed, other studies conducted by the Forest Service indicate that efforts to “manage" our way out of the problem are likely to make things worse. By "expanding our efforts in timber harvests to mini- mize the risks of large fire, we risk expanding what are well estab- lished negative effects on streams and native salmonids. The perpet- uation or expansion of existing road networks and other activities might well erode the ability of [fish] populations to respond to the effects of large scale storms and other disturbances that we clearly cannot change." (Reiman et al 1997).

The following quotes demonstrate that trying to restore lower severi- ty fire regimes and forests through logging and other management activities may make the situation worse, compared to allowing na- ture to reestablish its own equilibrium. These

statements are found in “An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins, Volume 3 (ICBEMP):

“Since past timber harvest activities have contributed to degradation in aquatic ecosystems, emphasis on timber harvest and thinning to

restore more natural forests and fire regimes represent risks of extending the problems of the past.” (ICBEMP page 1340).

“Proposed efforts to reduce fuel loads and stand densities often involve mechanical treatment and the use of prescribed fire. Such activities are not without their own drawbacks -- long-term negative effects of timber harvest activities on aquatic ecosystems are well documented (see this chapter; Henjum and others 1994; Meehan 1991; Salo and Cundy 1987).” (ICBEMP page 1340).

“Species like bull trout that are associated with cold, high elevation forests have probably persisted in landscapes that were strongly in- fluenced by low frequency, high severity fire regimes. In an evolu- tionary sense, many native fishes are likely well acquainted with large, stand-replacing fires.” (ICBEMP page 1341).

“Attempts to minimize the risk of large fires by expanding timber harvest risks expanding the well-established negative effects on aquatic systems as well. The perpetuation or expansion of existing road networks and other activities might well erode the ability of populations to respond to the effects of fire and large storms and other disturbances that we cannot predict or control (National Re- search Council 1996). (ICBEMP page 1342).

“Watersheds that support healthy populations may be at greater risk through disruption of watershed processes and degradation of habi-

tats caused by intensive management than through the effects of fire.” (ICBMP page 1342).

"Timber harvest, through its effects on forest structure, local mi- cro- climate, and fuels accumulation, has increased fire severity more than any other recent human activity. If not accompanied by ade- quate reduction of fuels, logging (including salvage of dead and dy- ing trees) increases fire hazard by increasing sur- face dead fuels and changing the local microclimate. Fire inten- sity and expected fire spread rates thus increase locally and in areas adjacent to harvest". (USFS 1996c, pages 4-61-72).

"Logged areas generally showed a strong association with in- creased rate of spread and flame length, thereby suggesting that tree harvest- ing could affect the potential fire behavior within landscapes...As a by-product of clearcutting, thinning, and other tree-removal activi- ties, activity fuels create both short- and long-term fire hazards to ecosystems. Even though these hazards diminish over time, their in- fluence on fire behavior can linger for up to 30 years in dry forest ecosystems of eastern Oregon and Washington". (Huff et al 1995).

The answer, therefore, is not to try managing our way out of this sit- uation with more roads and timber harvest/management. In summa- ry:

• Roads have adverse effects on aquatic ecosystems. They facili- tate timber sales which can reduce riparian cover, increase water temperatures, decrease recruitment of coarse woody debris, and

disrupt the hydrologic regime of watersheds by changing the timing and quantity of runoff. Roads themselves disrupt hydrologic processes by intercepting and diverting flow and contributing fine sediment into the stream channels which clogs spawning gravels. High water tempera- tures and fine sediment degrade native fish spawning habitat.

According to the U.S. Forest Service 82% of all populations and stream segments range-wide are threatened by degraded habitat conditions. Roads and forest management are a major factor in the decline of native fish species on public lands in the Northern Rockies and Pacific Northwest.

• An open road density (ORD) of one mile per square mile of land reduces elk habitat effectiveness to only 60% of potential. When ORD increases to six miles per square mile, habitat effectiveness for elk decreases to less than 20%. (Lyon 1984).

Weeds are already prolific in the project area, washing equipment doesn't work when the equipment then moves through infestations and spreads across the project area because of soil disturbed by roads and logging. Are the design features adequate to ensure the project doesn't spread weeds?

With all the existing weed infestations and the high risk of weed proliferation there is no analysis or even discussion of how this

impacts wildlife forage. Weeds are displacing native vegetation that wildlife need for food.

Connectivity for wildlife is fragmented in the project area and this project will exacerbate that situation with oversized clearcuts and more roads. This is already impacting small mammals that are prey for larger animals and birds yet there is no analysis of how this impacts wildlife foraging.

The project logs and builds roads through old growth forest habitat yet analysis of the impacts to wildlife is nil, a mere two paragraphs for goshawk.

It is time to give this area a rest. If landowners are concerned about fire then the best thing they can do is thin and manage their own property.

A new study by Dominick A. DellaSala et al. found that re-

viewed 1500 wildfires between 1984 and 2014 found that

actively managed forests had the highest level of fire severi-

ty. Please find DellaSala et al. attached. While those forests

in protected areas burned, on average, had the lowest level

of fire severity. In other words, the best way to reduce se-

vere fires is to protect homes from the Home out in the

Home Ignition Zone, not log forests outside the home igni-

tion zone, therefore the purpose and need of the Larabee Hat is not valid.

The best available science shows that Commercial Logging does not reduce the threat of Forest Fires. What best available science supports the action alternatives?

Please find Schoennagel et al (2004) attached. Schoennagel states: “we are concerned that the model of historical fire effects and 20th-century fire suppression in dry ponderosa pine forests is being applied incorrectly across all Rocky Mountain forests, including where it is inappropriate.

Schoennagel et al (2004) states: “High-elevation subalpine forests in the Rocky Mountains typify ecosystems that experience infrequent, high-severity crown fires []. . . The most extensive subalpine forest types are composed of Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), and lodgepole pine (Pinus contorta), all thin-

barked trees ea- sily killed by fire. Extensive stand-replacing fires occurred historically at long intervals (i.e., one to many centuries) in subalpine forests, typically in association with infrequent high-pressure blocking systems that promote extremely dry regional climate patterns."

Schoennagel et al (2004) states: "it is unlikely that the short period of fire exclusion has significantly altered the long fire intervals in subalpine forests. Furthermore, large, intense fires burning under dry conditions are very difficult, if not impossible, to suppress, and such fires account for the majority of area burned in subalpine forests.

Schoennagel et al (2004) states: "Moreover, there is no consistent relationship between time elapsed since the last fire and fuel abundance in subalpine forests, further undermining the idea that years of fire suppression have caused unnatural fuel buildup in this forest zone."

Schoennagel et al (2004) states: “No evidence suggests that spruce–fir or lodgepole pine forests have experienced substantial shifts in stand structure over recent decades as a result of fire suppression. Overall, variation in climate rather than in fuels appears to exert the largest influence on the size, timing, and severity of fires in subalpine forests []. We conclude that large, infrequent stand replacing fires are ‘business as usual’ in this forest type, not an artifact of fire suppression.”.

Schoennagel et al (2004) states: “Contrary to popular opinion, previous fire suppression, which was consistently effective from about 1950 through 1972, had only a minimal effect on the large fire event in 1988 []. Reconstruction of historical fires indicates that similar large, high-severity fires also occurred in the early 1700s []. Given the historical range of variability of fire regimes in high-elevation sub-

alpine fo- rests, fire behavior in Yellow- stone during 1988, although se- vere, was nei- ther unusual nor surprising."

Schoennagel et al (2004)(emphasis added) states: "Mechan- ical fuel reduction in sub- alpine forests would not represent a restoration treatment but rather a departure from the natur- al range of variability in stand structure."

Schoennagel et al (2004) states: "Given the behavior of fire in Yellowstone in 1988, fuel reduction projects probably will not substantially reduce the frequency, size, or severity of wildfires under extreme weather conditions."

Schoennagel et al (2004) states: "The Yellowstone fires in 1988 revealed that variation in fuel conditions, as measured

by stand age and density, had only minimal influence on fire behavior. Therefore, we expect fuel- reduction treatments in high-elevation forests to be generally unsuccessful in reduc- ing fire frequency, severity, and size, given the overriding

importance of extreme climate in controlling fire regimes in this zone. Logging also will not restore subalpine forests, because they were dense historically and have not changed significantly in response to fire suppression. Thus, fuel- reduction efforts in most Rocky Mountain sub- alpine forests probably would not effectively mitigate the fire hazard, and these efforts may create new ecological problems by moving the forest structure outside the historic range of variability."

Likewise, Brown et al (2004) states: "At higher elevations, forests of subalpine fir, Engelmann spruce, mountain hemlock, and lodgepole or whitebark pine predominate. These forests also have long fire return intervals and contain a high proportion of fire sensitive trees. At periods averaging a few hundred years, extreme drought conditions would prime these forests for large, severe fires that would tend to set the forest back to an early successional stage, with a large carry-

over of dead trees as a legacy of snags and logs in the re-generating forest . . . . natural ecological dynamics are large-ly preserved be- cause fire suppression has been effective for less than one natural fire cycle. Thinning for restoration does not appear to be appropriate in these forests. Efforts to manipulate stand structures to reduce fire hazard will not only be of limited effectiveness but may also move systems away from pre-1850 conditions to the detriment of wildlife and water- sheds." "Fuel levels may suggest a high fire 'hazard' under conventional assessments, but wildfire risk is typically low in these settings."

Likewise, Graham et al (2004) states: "Most important, the fire behavior characteristics are strikingly different for cold (for example, lodgepole pine, Engelmann

spruce, subalpine fir), moist (for example, western hemlock, western redcedar, western white pine), and dry forests. Cold and moist forests tend to have long fire- return intervals, but

fires that do occur tend to be high- intensity, stand-replacing fires. Dry forests historically had short intervals between fires, but most important, the fires had low to moderate severity."

According to Graham et al (2004), thinning may also increase the likelihood of wildfire ignition in the type of forests in this Project area: "The probability of ignition is strongly rela- ted to fine fuel moisture content, air temperature, the amount of shading of surface fuels, and the occurrence of an ignition source (human or lightning caused) . . . . There is generally a warmer, dryer microcli- mate in more open stands (fig. 9) compared to denser stands. Dense stands (canopy cover) tend to provide more shading of fuels, keeping relative humidity higher and air and fuel temperature lower than in more open stands. Thus, dense stands tend to maintain higher surface fuel moisture contents com- pared to more open stands. More open stands also tend to allow

higher wind speeds that tend to dry fuels compared to dense stands. These factors may in-crease probability of ignition in some open canopy stands com- pared to dense canopy stands."

The Forest Plan weakened grizzly bear habitat protections by allowing new roadbuilding throughout the HLCNF, without meaningful and permanent reclamation of other roads elsewhere in the Forest to compensate for the new road construction. This new management direction is a significant departure from former Forest Plan Amendment 19, which required the Forest Service to reclaim roads according to stringent requirements such that a reclaimed road would "no longer function as a road or trail." Amendment 19 EA, app. D at 2.

New roadbuilding in the Forest without meaningful reclamation to ensure no net increase in the road system presents a significant threat to grizzly bears, because motor vehicle users and other recreationists can trespass on the supposedly "impassable" roads and thus encroach on grizzly bear habitat. Further, even unused roads cause detrimental impacts to grizzly bear survival and reproduction, because grizzly bears are displaced from roaded habitat, regardless of whether the roads receive public or administrative use. However, in concluding that the Forest Plan will not jeopardize the species, FWS's Biological Opinion failed to adequately examine adverse impacts to grizzly bears from

unauthorized motorized use on roads closed according to the Forest Plan's weaker closure standards; failed to consider the displacement impacts caused by roads even when they do not receive motorized use; and failed to account for increased road-building enabled by the Forest Service's abandonment of stringent road-reclamation requirements.

Please find attached the paper titled, "The importance of natural forest stewardship in adaptation planning in the United States" by Faison et al 2023 which found that protecting more forests with natural stewardship is a cost effective way to harness the inherent adaptation and mitigation powers in forests and ensure that they are at their most functional to regulate planetary processes. Which is the opposite of the purpose and need of this project.

Page 17 of the Preliminary Wildlife Report states:

As a result of the impacts to grizzly bears implementation of the project "may affect and is likely to adversely affect" grizzly bears. This is largely due to the level of anticipated aircraft use.

The effects of the project are not considered to be National Environmental Policy Act significant to grizzly bears because the effects would be restricted and relative in both scope and scale to the species' biological needs. The average home range for grizzly bears that may occur in the Divide geographic area ranges from 32,000 acres to 88,000 acres for females (based on data for the Greater Yellowstone Ecosystem and the Northern Continental Divide Ecosystem, respectively) and 117,120 acres to 337,280 for males (also based on the Greater Yellowstone

Ecosystem and Northern Continental Divide Ecosystem, respectively) (U.S. Department of the Interior 2021).

In summary:

• The project proposes no additional open public motorized access, or changes to the decision of the 2016 Travel Plan.

• The amount of road use needed to implement the project would result in temporary reductions of secure habitat.

• The anticipated amount of helicopter use needed to implement prescribed fire operations could result in adverse effects to grizzly bear, based on the "2009 Grizzly Bear Helicopter Effects Guidance".

- *Implementation of the Food Storage Order would reduce the risk of human-bear conflict due to attractants.*

This contradicts what page 3 of the Wildlife Report states:

Grizzly bears have been verified in the analysis area and project area due to the recent expansion of the species across central Montana (U.S. Department of Agriculture 2021c).

The project area occurs in Zone 2 where the management objective is to maintain existing resource management and recreation activities while maintaining the opportunity for grizzly bears to move between the Northern Continental Divide Ecosystem and other ecosystems to the south and southwest. (U.S. Department of Agriculture 2021c), (page 335).

Please see the attached page 18 of Appendix A, Greenhorn project on the BDNF wildlife report states:

Helicopter Displacement

Helicopters may be used for implementation of prescribed burns during the time grizzly bears are in their dens and during den emergence (March-May), and also during the fall when this area is heavily used by hunters. It is known that low-flying aircraft have the potential to affect grizzly bears, ranging from basic observation of the aircraft to temporary movement out of an area. After den emergence, females with cubs of the year often hang around their den site until the cubs are large enough to move through the neighboring snowpack.

Helicopter activity would be targeted to a potential burn window and the preferred timing is spring (when there is enough snowpack in the forested stands to act as a fuel break into these forested habitats). The length of time could be up to 5 days of daylong helicopter activity; displacement is likely. To implement a given burn unit, there would generally be 3 or 4 days of burn activity with continuous helicopter activity.

There would be minimal ground support for aerial operations. The prescribed fire area would be useable to grizzly bears immediately after 1-5 days of implementation per unit. It is likely 1-2 prescribed fire units would get burned during each season. There are 13 burn units proposed with this project.

Because of the potential of direct impacts to grizzly bears during the spring, prior to ignition operations, the unit proposed

for treatment will be flown over a minimum of 3 complete times to survey for grizzly bear dens or any grizzly bears in the unit with a qualified wildlife biologist (or designated qualified observer). If grizzly bears are observed within the unit, ignition would not occur at elevations below the individuals, and would occur in a pattern that would allow the bear or bears to be able to leave the prescribed fire unit. Bears without cubs are expected to be able to move out of the prescribed fire unit more easily into other neighboring areas that are not burned. Because all of the burn units will not be implemented simultaneously, there are adjacent areas within the analysis area that yearlings to adult bears can be displaced to and are free from disturbance (insignificant effects).

After den emergence, females with cubs of the year often hang around their den site until the cubs are large enough to move through the neighboring snowpack. Because females with cubs are restricted during this time, there is a potential that cubs would not be able to move out of the flight path or be able to follow their mother closely during disturbance and displacement from the helicopter.

Scientific research documents that grizzly bears flee in terror from low-level helicopter flights and may abandon their habitat, but the draft decision authorizes low-level helicopter flights to drop fire starters in areas occupied by grizzly sow/cub groups – a blatant violation of the Endangered Species Act.

Please find attached: ***Guide to Effects Analysis of Helicopter Use in Grizzly Bear Habitat*** found that repeated low level

flights as proposed in the Larabee Hat project is a take of grizzly bears in violation of the ESA.

The Forest Service's and the Fish and Wildlife Service's duty is to recover listed species by protecting their habitat especially in important travel corridors connecting the grizzly bear population in the Northern Continental Divide Ecosystem with grizzly bears in the Greater Yellowstone Ecosystem.

The Forest Service is essentially dismissing this duty by saying that grizzly bears' home range is huge. This ignores that the Larabee Hat project could severally restrict grizzly bears ability to roam and as noted in the BDNF's Greenhorn project it could result in taking grizzly bears:

After den emergence, females with cubs of the year often hang around their den site until the cubs are large enough to move through the neighboring snowpack. Because females with cubs are restricted during this time, there is a potential that cubs would not be able to move out of the flight path or be able to follow their mother closely during disturbance and displacement from the helicopter.

Roadless areas

The Roadless Rule mandates:

Prohibition on timber cutting, sale, or removal in inventoried roadless areas.

(a) Timber may not be cut, sold, or removed in inventoried roadless areas of the National Forest System, except as provided in paragraph (b) of this section.

(b) Notwithstanding the prohibition in paragraph (a) of this section, timber may be cut, sold, or removed in inventoried roadless areas if the Responsible Official determines that one of the following circumstances exists. The cutting, sale, or removal of timber in these areas is expected to be infrequent.

(1) The cutting, sale, or removal of generally small diameter timber is needed for one of the following purposes and will maintain or improve one or more of the roadless area characteristics as defined in § 294.11.

(i) To improve threatened, endangered, proposed, or sensitive species habitat; or

(ii) To maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period;

(2) The cutting, sale, or removal of timber is incidental to the implementation of a management activity not otherwise prohibited by this subpart;

36 C.F.R. §294.13 (2005)(emphases added).

The Roadless Rule further explains the meaning of the phrase "incidental to" in subsection (b)(2) above as follows:

Paragraph (b)(2) allows timber cutting, sale, or removal in inventoried roadless areas when incidental to implementation of a management activity not otherwise prohibited by this rule. Examples of these activities include, but are not limited to trail construction or maintenance; removal of hazard trees adjacent to classified road for public health and safety reasons; fire line construction for wildland fire suppression or control of prescribed fire; survey and maintenance of property boundaries; other authorized activities such as ski runs and utility corridors; or for road construction and reconstruction where allowed by this rule.

66 Fed. Reg. 3258.
In this case, the western portion of the Project area is located within the Electric Peak Roadless Area which would be designated as wilderness under the Northern Rockies Ecosystem Protection Act, S. 1531. Please find S. 1531 attached.

Please analysis how this project will affect the wilderness characteristics of the roadless area.

The Project allows tree-cutting in this Inventoried Roadless Area across 7070 acres as follows:
• Private land buffers (178 acres in the Electric Peak Inventoried Roadless Area) will be applied using mechanical treatments, where possible.

Project activities would include thinning of small diameter trees (under 9.9 inches diameter at breast height), fuel re-arrangement, fire line construction,

and prescribed burning. These activities would be accomplished using chainsaws, hand tools, and mechanical equipment to maintain or improve the inventoried roadless area characteristics.

•

It is unclear whether the Forest Service will be reconstructing old roads, using illegal user-created roads, or using roads already closed by the Travel Plan in the Inventoried Roadless Area in order to conduct these activities; the Project EA only states that "no new roads will be constructed in [Inventoried Roadless Area]."

Will the Forest Service will be reconstructing old roads, using illegal user-created roads, or using roads already closed by the Travel Plan in the Inventoried Roadless Area in order to conduct these activities?

One exception to the ban on tree-cutting in a Roadless Area is the allowance for tree cutting when it "is needed . . . [t]o maintain or restore the characteristics of ecosystem composition and structure . . . within the range of variability that would be expected to occur under natural disturbance regimes. . . ." 36 C.F.R. §294.13 (b)(1)(ii). Thus, in order to variability" exception applies, it is necessary to compare the existing condition to the historic range.

The Forest Service's Roadless Report does not demonstrate that the Electric Peak Roadless area is outside the normal range of variability. Therefore, tree-cutting is not "needed" to bring this area into the historic range, as required by law, because it is already within historic range. 36 C.F.R. §294.13 (b)(1)(ii). Accordingly, the Roadless Rule (b)(1)(ii) exemption does not apply and therefore does not exempt 7,070 acres of tree-cutting from the Roadless Rule ban on tree-cutting.

In the the Preliminary Roadless Report for the project, the Forest Service argues: The action alternatives would treat within the Inventoried Roadless Area and the cutting of generally small diameter timber is incidental to the implementation of the proposed prescribed fire.

To the contrary, tree-cutting is not "incidental to" another management activity; it is the management activity. The Forest Service fails to acknowledge that the Roadless Rule provides a narrow definition of the phrase "incidental to" in the (b)(2) exemption:

Every one of these examples shows that the management activity itself is not any form of vegetation management, i.e. tree-cutting – instead the management activities are things like trail management, road management, firefighting, land surveys, ski runs, utility corridors, or lawful road construction. In contrast, here the management activity itself is vegetation management, i.e. tree-cutting.

The Forest Service's interpretation of exemption (b)(2) is contrary to the explanation of "incidental to" in the Roadless

Rule, and if adopted, would swallow the rule. The Forest Service could simply avoid the tree-cutting ban by labeling every tree-cutting activity in a Roadless Area as something other than tree-cutting – such as "restoration" – and thereby circumvent the ban with euphemisms. This is clearly not the intent of the Roadless Rule. 66 Fed. Reg. 3258. Accordingly, the (b)(2) exemption does not apply here.

Finally, the record in this case is unclear how the Forest Service will access the Project units in the Roadless Area. Although the Forest Service states that it will not build new roads in the Roadless Area, B2c:0005510, the transportation map does not show that Project units could be accessed by existing roads in the Roadless Area, and the Forest Service has avoided answering the question of how it will access those units, B2c:0005513. This Court recently addressed a similar issue. Hunters v. Marten, 470 F.Supp.3d 1151, 1167-1169 (D. Mont. 2020). This Court held: "It is simply not true that the Forest Service had no duty to communicate its transportation plan to the public. NEPA imposes upon the agency the duty to take a 'hard look' when it plans its actions and 'to provide for broad dissemination of relevant environmental information.'" Id. The Court further held:

The Project violates the Roadless Rule and/or the Project EA fails to take hard look and provide accurate information and analysis to the public regarding Roadless Rule compliance, in violation of the APA and NEPA.

Thank you for your time and consideration of our comments.

Sincerely yours,
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