Data Submitted (UTC 11): 7/26/2021 11:00:00 AM
First name: Michael
Last name: Garrity
Organization: Alliance For The Wild Rockies
Title: Director
Comments: NOTICE IS HEREBY GIVEN that AWR

objects pursuant to 36 CFR section 218 to the Responsible Official[rsquo]s adoption of the selected Alternative. As discussed below, the Westside Project as proposed violates the Clean Water Act, the National Environmental Policy Act (NEPA), the National Forest Management Act (NFMA), the Endangered Species Act (ESA), the Beaverhead-Deerlodge Forest Plan and the Administrative Procedure Act (APA).

1. Specific Issues Related to the Proposed Projects, including how Objectors believes the Environmental Analysis or Draft Record of Decision specifically violates Law, Regu- lation, or Policy: We included this under number 8 below.

Thank you for the opportunity to object on the Westside Restoration Project. Please ac-cept this objection from me on behalf of the Alliance for the Wild Rockies Paul Sieracki and the Selkirk Conservation Alliance.

1. Suggested Remedies that would Resolve the Objection:

We recommend that the [ldquo]No Action Alterna- tive[rdquo] be selected. We have also made specif- ic recommendations after each problem.

1. Supporting Reasons for the Reviewing Office to Consider:

This landscape has very high wildlife val- ues, including for the threatened grizzly bear, lynx, big game species, and wildlife dependent upon unlogged. The project area will be concentrated within some of the best wildlife habitat in this landscape which is an important travel corridor for wildlife such as lynx, grizzly bears, and bull trout. The agency will also be exacerbating an ongoing problem of displacing elk to adjacent private lands in the hunting season due to a lack of security on public lands. The public interest is not being served by this project.

Suggested Remedies to Resolve the Objec- tion:

We recommend that the [ldquo]No Action Alterna- tive[rdquo] be selected. We have also made specif- ic recommendations after each problem.

Supporting Reasons for the Reviewing Of- fice to Consider

This landscape has very high wildlife val- ues, including for the threatened grizzly bear, bull trout and lynx, big game species, and wildlife dependent upon mature forest habitat. The project area is concentrated within some of the best wildlife habitat in this landscape which is an important travel

corridor for wildlife such as lynx, grizzly bears, and wolverine. The agency will also be exacerbating an ongoing problem of dis- placing elk to adjacent private lands in the hunting season due to a lack of security on public lands. The public interest is not being served by this project.

Thank you for the opportunity to object.

NOTICE IS HEREBY GIVEN that, pur-

suant to 36 CFR Part 218, AWR objects to the Draft Decision Notice (DDN) and Find- ing of No Significant Impact (FONSI) with the legal notice published on June 11, 2021, including the Responsible Official[rsquo]s adop- tion of proposed or selected Alternative.

AWR is objecting to this project on the grounds that implementation of the Selected Alternative is not in accordance with the laws governing management of the national

forests such as the ESA, NEPA, NFMA, the Idaho Panhandle National Forest Forest Plan and the APA, including the implementing regulations of these and other laws, and will result in additional degradation in already degraded watersheds and mountain slopes, further upsetting the wildlife habitat, ecosys- tem and human communities. Our objections are detailed below.

If the project is approved as proposed, indi- viduals and members of the above-men- tioned groups would be directly and signifi- cantly affected by the logging and associated activities. Objectors are conservation orga- nizations and an individual working to en- sure protection of biological diversity and ecosystem integrity in the Wild Rockies bioregion (including the IPNF). The indi- viduals and members use the project area for recreation and other forest related activities.

The selected alternative would also further degrade the water quality, wildlife and fish habitat. These activities, if implemented, would adversely impact and irreparably harm the natural qualities of the Project Area, the surrounding area, and would fur- ther degrade the watersheds and wildlife habitat.

Statements that Demonstrates Connection between Prior Specific Written Comments on the Particular Proposed Project and the Content of the Objection.

In regards to the issues we raised in com- ments, the Forest Service (FS) responded in- adequately. We therefore incorporate by ref-erence our earlier comments into this Objec- tion.

AWR submitted comments during the forest plan revision process, notifying the FS of the legal and ecological shortcomings of the agency[rsquo]s management direction at each step. Following publication of the Forest Plan and its Final EIS, we continued our participation by filing an objection identifying the many ways the Forest Plan and its EIS continued to provide unlawful and ecologically dan- gerous management direction of the Idaho Panhandle National Forest (IPNF). The agency[rsquo]s response to our objection did noth- ing to alleviate our concerns. The Buckskin Saddle Integrated Restoration EA and draft DN provide further evidence of the FS[rsquo]s ill- advised direction.

NFMA requires the FS to [ldquo]not allow signifi- cant or permanent impairment of the produc- tivity of the land.[rdquo] [36 C.F.R. [sect] 219.27(a) (1).] NFMA requires the FS to [ldquo]ensure that timber will be harvested from National For-est System lands only where[mdash]soil, slope, or other watershed conditions will not be irre- versibly damaged.[rdquo] [16 U.S.C. 1604 (g)(3) (E).] AWR notified the agency of the many ways its revised forest plan fails to meet the letter of NMFA and fails to follow its own planning regulations, and how the process of forest plan development failed to comply with NEPA. At this juncture, with the unlaw- ful implementation of the revised forest plan being initiated at the site-specific project level, AWR opposes this unlawful forest plan implementation project. This objection fully incorporates all of AWR[rsquo]s comments and other submissions made during the for- est plan revision process, our Forest Plan Objection, and all the attachments and refer-

ences included with those submissions, within these comments[mdash]on this site-specific project proposal.

On November 28, 2011 the FS issued the Record of Decision for the Revised Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabi- net-Yaak Grizzly Bear Recovery Zones on the Kootenai, Idaho Panhandle and Lolo Na- tional Forests (aka [ldquo]Access Amendments[rdquo]).

AWR fully participated in the public process during the development of the Access Amendments, and incorporates its com- ments and appeal of that Decision within this objection.

AWR participated during the public process as the Northern Rockies Lynx Management Direction (NRLMD) was developed. We be- lieve that the Forest Plan/NRLMD does not consider the best available science. We in- corporate the documentation of AWR[rsquo]s par- ticipation in the NRLMD public process within this objection to the Buckskin Saddle Draft DN.

The lynx issue was also raised in AWR[rsquo]s Forest Plan lion concerning Indicator MON- FLS-01-02 and FW-DC-VEG-04.

As this Objection discusses, multiple aspects of the Westside project raise questions of significant and/or cumulative effects, neces- sitating the preparation of an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA). These environmental impacts would not be [ldquo]in-significant[rdquo] under any definition, nor with- out cumulative effects.

We wrote in our comments,

We are concerned that the EA did not ade- quately address the following issues:

The EA does not including trails that are obviously high use in the Roman Nose and Pack River area as impacting core as re- quired by the access amendment.

This denial of high use trail impacts is also occurring in the BOG Creek road lawsuit.

The Forest Service did do trail monitoring in 2020 according to the BA and are deny- ing its results (the ranger denied it) stating that they are invalid because of increased outdoor activity due to covid.

Core habitat delineation does not buffer around private timber lands, but they do in the Bog Creek EA.The IPNF should be consistent.

For the new Priest BORZ layer, Hanna Flats, they are buffering private lands and USFS lands on the adjacent Colville, as a deduction for "security" habitat, but not in the more important Myrtle GBMU there- fore there is some precedent for buffering private inholdings.

The Forest Service is allowing mountain bikes and constructing new trails in the Myrtle Bear Unit and Pack River BORZ in violation of NFMA, the ESA and the For- est Plan.

The Forest Service is expanding a camp- ground into Roman Nose area, prime griz- zly habitat and where bowhunters were mauled by a female with cubs this past fall. This is a violation of the Forest Plan, NFMA and the ESA.

The Forest Service is proposing to add a winter snowmobile hut at Roman Nose but not implement it until the Winter Rec EIS is completed. This is a violation of NEPA, the APA, the ESA, th Forest Plan and NFMA.

The Forest Service responded:

[ldquo]The Forest Service is currently monitor- ing all trails in the Project area for poten- tial high-use designation.[rdquo]

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

Remedy:

Choose the No Action Alternative or with- draw the Draft DN and write an EIS that ful- ly complies with the law.

The new information is that grizzly bears are in the area when they were not there when the Forest Plan was issued. You must either complete new NEPA analysis for the Travel Plan on this issue or provide that new analy- sis in the NEPA analysis for this Project. Ei- ther way, you must update your open road density calculations to include all roads re- ceiving illegal use. Because of the illegal road use, the elk security standards are not being met. You need to ensure you are meeting these standards.

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

and the ESA because of the reoccuring road closure violations. your assumptions in the Travel Plan that all closures would be effec- tive has proven false. For this reason, you cannot tier to the analysis in the Travel Plan because it is invalid.

In the past several years, grizzly bear distri- bution on the Idaho Panhandle National For- est has significantly changed. Grizzly bears now regularly occupy areas on the IPNF where logging and grazing occur. This is a

significantly changed condition.

In the EA, the agency repeatedly represents to the public that there are no Forest Plan standards to protect grizzly bears in these areas:

* [ldquo]There are no standards for motorized route density inside or outside the Recovery Zone;[rdquo]
* [ldquo]There are no standards in the Conserva- tion Strategy for management of

grizzly bears outside of the [Grizzly Bear Recovery Zone;[rdquo]

* [ldquo]There are no [lsquo]standards[rsquo] for road density for grizzly bear as a listed species.

The conservation strategy standard (adopted as a forest plan amendment but only binding if the bear is delisted) is to maintain secure habitat at or above 1998 baseline levels within the Primary Conservation Area (PCA). The project area is OUTSIDE of the PCA. There are no standards in the conser- vation strategy for habitat outside the PCA.

Adverse impacts and unpermitted take of grizzly bears are likely occurring in these areas of occupied grizzly bear habitat for which there are no standards and no forest plan consultation.

The agencies must reinitiate and complete consultation on the impact of Idaho Panhan-dle Forest Plan implementation on grizzly bears where they occur today.

The Beaverhead-Deerlodge National Forest and Gallatin National Forest have

already re-initiated consultation on their for- est plans to address contemporary grizzly bear distribution. In 2010, the Kootenai Na- tional Forest was court-ordered to reinitiate consultation on the impacts of its forest plan on contemporary grizzly bear distribution.

Until the agencies reinitiate and complete reconsultation on the Idaho Panahndle For- est Plan, until the Record of Decision is signed.

Alternatively, if the Biological Opinion/In- cidental Take Statement applies to all occu- pied grizzly habitat, then the Forest Service must designate Management Situations for all current grizzly habitat on the Forest and implement the management direction re- quired under the Guidelines. For the Project area, the Forest Service must designate the

area as Management Situation 1 because grizzly use of the area is common, and the agency must demonstrate Project area com- pliance with the road density standard for Management Situation 1, which is 1.0 miles/ square mile open road density.

The Forest Service must also go through a NEPA analysis or ESA analysis for this at- tempt to amend the Idaho Panhandle Forest Plan.

The EIS and best available science Schwartz el al (2010) acknowledge open road density as a key factor that impacts grizzly bears.

The FS should be identifying key habitat components for grizzly bears for prioritizing road density reductions (Proctor, et al., 2020) so populations can recover.

[ldquo]Our analysis shows that grizzly bears have little or no opportunity to select home ranges

with lower road density or higher percent- ages of core... Because grizzly bears could not have selected

Home ranges having more core area and lower road densities, and there has been no growth in the population, there is no basis to conclude the proposed access standards are sufficient to insure the recovery of the Cabi- net-Yaak and Selkirk grizzly bear popula- tions[rdquo] (Merrill 2003).

Great Bear Foundation et al., 2009 discusses in great detail how the Access Amendment Alternative eventually selected leads to a significant deterioration in an already unac- ceptable baseline condition for grizzly bears. The scientific discussions in Great Bear Foundation et al. 2009, as well as AWR comments on the Access Amendment DSEIS refute the FS[rsquo]s claim to be utilizing the best available science for the grizzly bear.

The Forest Plan is not consistent with best available science on road density in grizzly bear habitat outside of Bear Management Units.

There is no Biological Assessment (BA) published on the project website, nor a Bio- logical Opinion (BO), so we are unable to see results of U.S. Fish & Wildlife Service consultation, including terms and conditions to regulate [ldquo]take.[rdquo] The BA and BO must be made available to the public before a draft Decision is published in order for the public to be properly informed at this final step of public involvement[mdash]the objection stage.

The veracity of the FS[rsquo]s inventory of system and nonsystem ([ldquo]undetermined[rdquo] or [ldquo]unau- thorized[rdquo]) roads is at issue here also. This is partly because the FS basically turns a blind eye to the situation with insufficient com- mitment to monitoring, and also because vi- olations are not always remedied in a timely manner.

The project area is not within a BMU or BORZ. But by law if there is documention of 3 or more grizzly bears the area shall be included in a BORZ. The BORZ has not been created therefore the project is in viola- tion of the NFMA, NEPA, the Idaho Pan- handle Forest Plan, the APA and the ESA.

The Buckskin Saddle project would violate the Forest Plan/Access Amendment stan- dards, a violation of NFMA.

The EA does not 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 [ldquo]private infrastructure development[rdquo]) and we[rsquo]re not told of other likely and forseeable reductions.

Since we are awaiting the results of updated ESA consultation on the Forest Plan, the is- suance of the Buckskin Saddle draft DN is premature and subverts NEPA and the ESA.

Furthermore, this population is currently warranted for uplisting to Endangered, in recognition of its biological and legal status.

Part of the problem is the lack of connectivi- ty between the Selkirk and the Cabinet-Yaak Ecosystem (CYE), creating virtual isolation between portions the recovery area.

Also, the FS[rsquo]s population estimates of griz- zly bears in the Selkirk and CYE ([ldquo]im- provements[rdquo]) are not scientifically defensi- ble. The FS therefore assumes increased im- pacts with this timber sale are acceptable.

Also, the EA assumes that abundance of huckleberries are demographically limiting for grizzly bears in this region, and further assumes that Project treatments will substan- tially enhance abundance of huckleberries to an extent sufficient to offset any losses of habitat security.

There is little or no evidence that food abun- dance is a significantly limiting factor for grizzly bears in the Selkirk and Cabinet-Yaak Ecosystems[mdash]especially as manifest in reproduction. On the other hand, there is ample evidence that human-caused mortality had governed and continues to govern the fate of this population, with food effects manifest primarily in the extent to which grizzly bears are exposed to human-related hazards during years when berries are in shorter supply.

The FS should be identifying key habitat components for grizzly bears for prioritizing road density reductions (Proctor, et al., 2020) so populations can recover.

The project area is not within a BMU or BORZ and grizzly bear presence here is a recent occurrence, with documentation by three male grizzly bears over the past 5-7 years

Dr. David Mattson makes the following points.

The assessment of prospective effects of the this project on grizzly bears in the is premised on several critical assumptions.

First, status of the Cabinet-Yaak and Selkirk grizzly bear population is assumed to have improved since 2012. Second, and related, the IPNF assumes that some erosion of secu- rity for grizzly bears is therefore permissi- ble, conditioned on a related assumption that security and road access standards employed by the IPNF are sufficient for recovery of grizzly bears in this ecosystem.

All of these assumptions are unwarranted. Briefly:

* The weight of available evidence does not support concluding that population status has improved. For one, the methods used to estimate trend and current population size are beset with a host of problems. For an-other, the information able to be distilled from demographic data suggests that any improvement has stalled since 2014.
* Variations in population size and trajectory between 1999 and 2010 are more likely at- tributable to variations in abun-dance of nat- ural foods[mdash]berries in particular[mdash]that affect exposure of bears to humans rather

than to any increased mitigations. During years of scant berries, bears likely for-age more widely and more often end up in conflict situa-tions or exposed to malicious killing.
* Malicious and other unjustified killing by humans remains the dominant cause of death for grizzly bears in the Selkirk and Cabinet- Yaak Ecosystem. These kinds of killings are predictably associated with roads. As a re-sult, levels of road access need to be sub- stantially reduced and related levels of habi- tat security substantially increased rather than the opposite, as is being proposed for the Buckskine Saddle Project.
* Road density and habitat security standards used by the IPNF are patently deficient, partly because they are based on research that conflates behavioral phenomena such as avoidance and displacement with demo-graphic phenomena, notably survival. The scale is wrong as well, given that exposure to mortality hazards logically accrues over years as a consequence of cumulative annual movements of bears vis-[agrave]-vis hazardous en- virons. As a corollary, the fact that standards on the IPNF are more lax than standards on the Flathead NF is self evidently non-sensi- cal given that grizzly bears in the Selkirk Ecosystem remain in a much more precari- ous status compared to grizzly bears in the Northern Continental Divide Ecosystem.
* There is little or no evidence that food abundance is a significantly limiting factor for grizzly bears in the Selkirk Ecosystem[mdash] especially as manifest in reproduction.

On the other hand, there is ample evidence that human-caused mortality had governed and continues to govern the fate of this pop- ulation, with food effects manifest primarily in the extent to which grizzly bears are ex- posed to human-related hazards during years when berries are in shorter supply.

* Compounding prospective problems with the project, pro-posed activities are concen- trated in an area that is vital for facilitating movement of grizzly bears between core habitats. Project activities will diminish rather than enhance security needed not only to facilitate transit of bears, but also increase the Westside project promises to harm griz- zly bears in the Selkirk Ecosystem.

Please see the attached report of Road Clo- sure Violations, titled [ldquo]D6 Pack River BORZ Motorized Use Breaches.[rdquo]

Paul Seracki wrote in his scoping comments, which I also attached so his pictures are shown:

1-4-2021

Comments for the Westside Restoration dEA.

I am forwarding my comments from the scoping notice for the following reasons.

1. Comments from the Scoping Notice have not been addressed to my satisfaction or at all.
2. I have not received the response from a FOIA that I sent in just a few days after the dEA was issued, which impairs my ability to make substantive comments on the dEA.

I reserve the right to bring up additional is- sues during the objection process because required

information was not received from the FOIA in a timely manner.

Additional comments.

Perhaps the best option is to relocate the Myrtle Creek water supply for Bonners Ferry and take

water out of the Kootenai River. This way the Commissioners would not have to wor- ry about

fire in the watershed impacting drinking water quality. Extreme weather will still cause large

fires in that drainage, regardless of the logging done. Flows will also diminish in the future.

The cumulative effects analysis for the Myrtle GBMU is flawed. This will be ad- dressed in the

objection when I receive the FOIA infor- mation for the GBMU.

Logging on BLM adjacent to the KNWR and USFS lands is unacceptable.

Paul Sieracki

1-29-2020

Scoping Notice Comments: Westside [ldquo]Restoration[rdquo], Bonners Ferry Ranger Dis- trict,

Idaho Panhandle National Forests. District Ranger Kevin Knauth,

I am dismayed at this project because it has been developed through collaboration.

The collaborators do not represent the di- versity of opinions that the public has.

They represent a small pro logging cabal trying to take control of our National Forests. This must stop. I am also dismayed that the Scoping Notice did not even mention abrupt climate change and the biodiversity crisis the earth is in. Logging and roadbuilding do not constitute restora- tion, please rename and reconsider the objectives for this project. This project violates the ESA , NFMA and NEPA.

This planet is in a climate change emer- gency and is in a period called the 6th great

extinction, because of this complete em- phasis must be placed on restoring healthy and resilient populations of wildlife in the context of combating climate change and biodiversity loss. Eleven thousand scientists in 153 countries includ- ing myself, have declared a climate emer- gency. The USFS needs to do such and act on it. Logging should be eliminated from National Forests as it causes a carbon deficit.

Dr. Rees, professor of human ecology and ecological economics states that [ldquo]Humans are Blind to Imminent Environmental Collapse[rdquo] and that governments are dismissing scientists warning to humanity.

[ldquo]Bottom line? The world seems in denial of looming disaster; the [ldquo]C[rdquo] word remains unvoiced. Governments every- where dismissed the 1992 scientists[rsquo] Warning to Humanity that [ldquo]...a great change in our stewardship of the Earth and the life on it is required, if vast human mis- ery is to be avoided[rdquo] and will similarly ignore the scientists[rsquo] [ldquo]second notice.[rdquo] (Published on Nov. 13, this warn- ing states that most negative trends identified 25 years earlier [ldquo]are getting far worse.[rdquo])[rdquo]

Edward O. Wilson is a professor emeritus at Harvard University and a two-time Pulitzer Prize winner supports the half earth con- cept, expanding the existing system of bio- logical reserves.

[ldquo]Only by committing half of the planet's surface to nature can we hope to save the immensity of

life-forms that compose it. Unless humani- ty learns a great deal more about global biodiversity and moves

quickly to protect it, we will soon lose most of the species composing life on Earth. The Half-Earth proposal offers a first, emer- gency solution commensurate with the magnitude of the problem: By setting aside half the planet in reserve, we can save the living part of the environment and achieve the stabilization required for our own survival.

Why one-half? Why not one-quarter or one-third? Because large plots, whether they already stand or can be created from corridors connect- ing smaller plots, harbor many more ecosystems and the species composing them at a sustainable level. As reserves grow in size, the diversity of life surviving within them also grows. As re- serves are reduced in area, the diversity within them declines to a mathematically predictable degree swiftly[mdash]often immediately and, for a large fraction, forever.[rdquo] E. O. Wilson

Federal Lands are an important compo- nent providing large landscapes for biodi- versity maintenance and carbon storage. This sale is not ecosystem restoration as touted, but an ecological disaster in the making. Conser- vation legislation like NOREPA help con- serve biodiversity. Conserving biodiversity and carbon must be the first and foremost mis- sion of the USFS. Please rewild at least half of this project area.

Issue: This project is not carbon neutral or carbon negative.

Please include the large distances logging trucks have to travel to the mills in

carbon budget calculations. Only allow electric logging trucks and equipment to work in

the area during true restoration activity. Depro et al (2008) found that a no harvest

(logging) scenario on public lands retained the greatest carbon sequestration potential.

Requested action (in relation to the pro- posed alternative):

* Please develop a max carbon sequestation alternative for the project areas. Please

actually do the science and provide an on- the-ground alternative, not just put it in the

[ldquo]alternatives considered but not analyzed[rdquo] category.

Issue: Grizzly Bear, BORZ Violations.

There are three segments of BORZ viola- tions that show up as trails open to motor- ized

use in the Pack River Drainage and are supposed to be closed according to the BorzAll

Geospatial dataset.

Requested action (in relation to the pro- posed alternative):

* Close these motorized use trails, which are really old roads, to comply with the Ac- cess

Amendment, Attachment 1.

Issue: Grizzly Bear, BORZ, Pack River Bridge proposal on Road 222.

The USFS is proposing a motorized access bridge across Pack River, a proposed Wild

and Scenic River, Bull Trout Critical Habi- tat and with sensitive Westslope Cutthroat Trout. This will result in increased illegal access to trail (road 222) which is supposed to be closed according to the Access Amendment. Loca- tions of the transgressions are mapped in Appendix

#1.

Requested action:

* Change the trail to hiking only and build a crossing for non motorized use only.
* Immediately close the crossing to motor- ized traffic as there may be impacts to sed- iment and taking of bull trout redds/eggs and fry. (also of westslope cutthroat trout).
* If a hiking bridge is built, please include a predator safe nesting sites (structures) for the American Dipper, a species that is project- ed to decline with ongoing abrupt climate

change.

Issue: Grizzly Bear, early exiting grizzly bears may be harassed by snowmobilers, on

purpose or inadvertently. Requested action:

* Change the termination date for snow- mobile use in grizzly habitat from April 1 to March

15 to account for earlier den exiting from global heating and to protect taking of males

which tend to exit before females in dens. Tim Layser, retired USFS biologist, Priest

Lake RD, supports an earlier termination date for snomobilers.

Issue: Grizzly Bear, Helicopter Logging.

Helicopter Logging can displace grizzly bears out of their habitat.

Requested action:

* Please use at least a 1[frasl]2 mile buffer around the unit(s) and flight path for the helicopter

logging unit in the Myrtle Creek drainage.

Issue: Grizzly Bear, Trail westward of Bur- ton Peak in grizzly habitat.

This project will result in an increase of recreation, logging and roadbuilding activ- ities in grizzly habitat. Does every ridge need a trail? People can have a natural experience and just walk the ridge. The addition of even more trails may be a violation of the ESA. The subtle yet significant increase in activity is how griz- zlies and other species get displaced with- out noticing the change. Requested action:

* Defer to the needs of endangered wildlife and do not construct this trail.

Issue: Grizzly Bear, Two Mouth trail reroute.

The proposed location, shown during a KVRI Forestry Committee meeting last fall, showed the trail rerouted dangerously close to a snowchute grizzly bear foraging area.

This new trail would increase the risk of human [ndash] grizzly conflict. Requested action:

* Reroute the trail as far away as possible from the snowchute, greater than 500 me- ters if possible.

Issue: Snowmobile Damage to Subalpine Larch, Whitebark Pine (USFS sensitive and

USFWS candidate), Subalpine Fir and Engleman Spruce in the Roman Nose area.

I cannot emphasize how much damage is occurring to the above listed tree species

in just the Roman Nose area. Attachment #2 shows pages of impacts to saplings in the Roman

Nose area from videos posted by off trail snowmobilers. Please review these videos.

There are many bent over saplings that are either damaged by snowload or impacted by snowmobiles.

Damaging trees is illegal and totally unac- ceptable in a very stressed subalpine habi- tat due to

abrupt climate change. Low resolution videos make tree species identification dif- ficult however the photo below is probably a subalpine larch that has been impacted (there are subalpine larches in the background).

Requested Actions:

* Close off the three Roman Nose Lakes to off-trail snowmobiling because of resource

damage. The boundary to be determined by field investigations. The boundary should

include the southerly aspects of Roman Nose in Whitebark Pine Habitat. This area is

also grizzly denning habitat and wolverine denning and foraging habitat.

* Conduct field investigations to determine the extent of damage to whitebark pine,

subapline larch, spruce and fir as the videos show extensive damage to saplings.

* Do not use a minimum snow depth as a guideline for allowing snowmobiling in whitebark pine habitat as tops of larger trees could be buried just under the snow and impacted, and there is a significant percentage of off trail snowmobilers who just do not care about damaging trees.

Issue: Sublapine Larch could be extirpated from the US Selkirks.

There are two populations of Subalpine Larch in the US Selkirks, at Roman Nose and a

much smaller population at Parker Lake. The Idaho State record subapline larch is supposedly

in the Roman Nose Lake area. The size re- ported needs to be confirmed.

[ldquo]Curiously, the list of Idaho Big Trees also mentions the state's biggest Subalpine

Larch, 13 feet around and 157 feet high, as being located near Upper Roman

Nose Lake in what the official list says is "Bonner County," even though Roman

Nose Mountain and all the Roman Nose Lakes are located well within Boundary

County. We are going to assume what they really meant was Boundary County.

That tree was declared the Idaho champion Subalpine Larch 45 years ago in

1970. [ldquo] source http://www.newsbf.com/ news/201511/24bigtreesprn.html. I have

not seen this tree and it seems exaggerated.

With only two small populations, the risk of extirpation is fairly high from natural events

and continual impacting of saplings in the Roman Nose grove by snowmobiles.

Requested actions:

* While not a sensitive species, the USFS could show at least a minimal ecological ethic and protect these locally rare trees with a snowmobile exclusion zone as stated above.
* Establish new populations in the project area in suitable habitat. For example in the proposed burn on the ridge along Burton Peak and the proposed burn on the ridge north of Lost Creek..
* Please do not impact the forested portion of the ridgeline on the trail to Burton Peak by controlled burning.
* Please evaluate the proposed fire on the high elevation ridge by lost creek as this is mountain caribou late winter habitat and would be a violation of the ESA and per- haps some other method could be used to restore both whitebark pine and subapline larch to

that ridgeline.

Issue: Hut and access must be deferred to the Winter Rec EIS.

With an ongoing Winter Rec EIS, of which Paul Sieracki attended the 4 [ldquo]collabora- tion[rdquo] meetings it seems illogical and at worst an attempt to circumvent the Winter Recre- ation EIS process through this proposed project. Requested actions:

* The hut and access must be deferred to the Winter Rec EIS process.

Issue: Grizzly and ungulates and declining [ldquo]forage[rdquo]

The project scoping document claims with- out quantitative data that [ldquo]forage[rdquo] of some

unidentified combination of species is de- clining. This is a grand excuse to justify logging and

roadbuilding.. Requested actions:

* Please map and quantify [ldquo]forage[rdquo] by species for the existing condition and project

change from logging activities (logging is not restoration).

* Please map huckleberry locations and quantify huckleberry production and changes

from the logging activity in relation to the grizzly bear.

Issue: Grizzly Bear (and other predators). The use of lead bullets can cause lead

poisoning in carnivores feeding on ungu- late gut piles.

Requested actions:

* Require non lead non toxic bullets on Federal Lands to prevent resource damage.
* Also implement an area closure on all trapping.

Issue: Previously mapped old growth is be- ing left, recruitment stands are being logged by this proposal and stands that have re- cently aged to old growth have not been identified.

Conserving old growth forests was not mentioned in the Scoping Notice, docu- menting the lack of environmental ethics of the USFS. It appears that the USFS is not proposing to log in old growth that was mapped in the 1080's and early 1990's (determined by us- ing GIS).

However the District is proposing to log previously identified recruitment old growth stands.

They were assigned in the old Forest Plan to allow an intact forest to follow natural succession

processes to make up for areas lacking in sufficient old growth. To my knowledge no

quantitative assessment of recruitment stands and stands that have now achieved old growth

status has occurred. Requested actions:

* Do not enter old growth and recruitment old growth stands in the project area as

identified in the old forest plan. Recruit- ment old growth is being proposed for log- ging.

* Complete old growth stand exams in properly stratified forest stands to deter- mine which

stands have followed natural succession and entered the old growth state.

* Do not enter moist site stands that area mature, recruitment old growth or close to

becoming old growth.

* For the Snow Creek watershed, which is deficient in old growth, please assign old

growth recruitment stands to at least the 30% level and do not log any mature stands.

This is needed to because some areas will be lost to disturbances.

* Conduct the gentlest restoration activities on dry site old growth.. hand thinning and underburning for example.
* If the USFS needs a pattern to assign old growth recruitment stands, use Long Canyon

as an example for location.

Issue: USFS Sensitive animals and plants locations and habitats are not disclosed in the

Scoping Notice, handicapping honest at- tempts at substantive commenting.

Requested actions:

* Complete a biodiversity survey for the project area, possibly using a bioblitz and

iNaturalist.

* Map all sensitive species habitats, provide for the landscape and micro dynamics to

allow these species to increase in number.

* Do not lump species into guilds, please discuss each species life history and effects in detail.
* Follow the guidance on rare plants and animals in attachment #3 which was devel- oped for Buckskin-Saddle and applied to this proposed sale.
* Re-Scope the project with sufficient in- formation for substantive commenting.

Issue: Logging is proposed in subalpine fir habitat types.

Subalpine habitat and their wildlife are at risk from abrupt climate change that we are witnessing. Actions such as logging, road- building and snowmobiling are ecological- ly damaging in stressed habitats.

Requested action:

No logging in subalpine habitats.

Issue: Develop and implement a pro- forestery alternative.

The current alternative did not take into account the desires of the entire popula- tion,

just a limited few that support logging and roadbuilding. The "Max logging and road- building"

alternative proposed by the Hootenanny Tribe, USFS and KVRI is unacceptable.

Requested action:

* Develop a ecological and biodiversity conservation alternative using proforestry

practices to preserve intact forests.

* Toss the existing destructive alternative and replace it with the new one.

Issue: Roadless Areas are proposed for roading and logging.

Despite the Idaho Roadless Rule, logging in roadless areas destroys their roadless quality, these areas are important for wildlife, areas where natural processes can occur and genetic resistance to disturbance events may occur.

Requested action:

* Do not log or road existing roadless ar- eas.
* A controlled burn is acceptable in some instances.

Issue: NREPA [ndash] Northern Rockies Ecosys- tem Protection Act needs to prevail.

The project area overlaps areas that should be rewilded based on the science in

NREPA. This includes NREPA new wilderness, NREPA Biological Corridors and NREPA

Recovery Areas. Requested action:

* A pro-forestation alternative incorporat- ing NREPA areas should be presented, not this logging and roadbuilding project that the USFS and the logging collaborative want.

Please include an alternative modeling NREPA that is NOT under the [ldquo]considered but not analyzed[rdquo] category. (https://alliance- forthewildrockies.org/nrepa/#map).

Issue: Pre commercial thinning units will impact prey species for the sensitive fisher and other mustelids, other carnivores, and for- est raptors.

Precommercial thinning will impact snow- shoe hare habitat, a primary food source for

the sensitive fisher and endangered Cana- da lynx.

Requested action:

* For fisher: provide for sufficient snow- shoe hare populations at lower elevations.

Please map and quantify the existing condition and proposed action (also applies to other predators).

* Please discuss what sufficient prey popu- lation levels are in the project area.
* Also do not fragment mature forest as it is detrimental to fisher.
* For Canada lynx: follow lynx manage- ment guidelines for snowshoe hare habitat.

Issue: Forest Songbird composition will be impacted at a landscape level and under- story nesting forest bird populations will be dev- astated.

Western Forest bird populations have de- clined about 30% since 1970. There are

many factors involved including commer- cial thinning. Commercial thinning of forested habitats

will negatively impact the vertical and hori- zontal structure of the stand being thinned.

This is a 13,000 plus acre project. Impacts by this project will produce significant changes to species

composition and numbers, especially to understory nesting birds; varied thrush, hermit thrush, swainson's thrush etc.

Requested action:

* Quantitatively analyze the existing condi- tion of songbirds that inhabit forest under- story and all avian species that occur in the area.
* Quantitatively illustrate the changes from existing condition for the proposed and the requested proforestry and rewilding alter- native.

Issue: Fisher habitat requirements will not not be met.

The fisher population is declining rapidly in the US Selkirks. The specie may be

extirpated. The USFS unprofessionally ig- nores current science in its analysis of ef- fects to fisher

habitat.. Recent openings greater than 5% in a fisher home range may cause aban- donment.

From Sauder & Rachlow 2014:

[ldquo]Landscapes that had >50% mature forest arranged in connected, complex

shapes with few isolated patches, and open areas comprising <5% of the

landscape characterized a forest pattern se- lected by fishers in our study.[rdquo]

Rather than managing for a persistent fisher population, the USFS calls areas they want to log [ldquo]travel habitat[rdquo] and dismisses the need to keep a significant number of mature and

old growth trees on the landscape (eg Jasper Mountain CE). This is true for this project and the upcoming Buckskin-Saddle EA. The USFS BE's invariably state that [ldquo]this project may impact individuals but not the population. This is done for hundreds of square miles of fisher habitat

making fisher habitat unsuitable at a large landscape scale. Just where will fisher habitat be

maintained? Requested action:

* Incorporate current science on fisher habitat into all alternatives.
* Have the Kootenai and Kalispel Tribes work on augmenting fisher to the diminish- ing or extirpated Selkirk population.

* Conduct monitoring for fishers in the project area.

Issue: Objections to the IPNF Forest Plan by AWR, FOC, SCA, myself and others have not been satisfied.

Requested action:

* Please incorporate the issues and science from that Forest Plan Objection into this

document. It will be uploaded separately

(IPNFForestPlan_ObjectionLetter_stel- prdb5442224.pdf)

Respectfully Submitted, Paul Sieracki, MS.

Geospatial Analyst and Wildlife Biologist. Attachment #1

Attachment #2

Screenshots of videos of people snowmobil- ing and causing resource damage at Ro- man Nose Lakes.

3 or 4 subalpine fir impacted, the snowmo- biler later runs over the two saplings on the right that

have been impacted.

From: Roman nose snowmobiling

The Forest Service responded:

The geospatial data referred to only includ- ed roads (and not motorized trails) to com- ply with the letter of the direction from the Access Amendment (no increases in per- manent linear miles of open road, and no net permanent increases in linear miles of total roads).

However, the 2020 Biological Opinion and ITS for continued implementation of the IPNF Revised Forest Plan clarified this di- rection to include all motorized routes, re- set the environmental baseline for miles of open and total motorized routes, and added secure habitat as a measure of the effects of motorized access on grizzly bears in BORZ areas. All three of these motorized trails have been legal routes since prior to 2011, and the total and open miles of all motorized routes has not increased (and has, in fact, decreased) since

the Motorized Access Amendment was adopted. The Pack River BORZ area cur- rently complies with Access Amendment direction and would continue to under the Westside proposed action.

We disagree that the Pack River BORZ cur- rently complies with Access Amendment di- rection and would continue to under the Westside proposed action.

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

Remedy: Choose the No Action Alternative or write an EIS that fully complies with the law.

The Westside project would violate the For- est Plan/Access Amendment standards, a vi- olation of NFMA.

The EA does not 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 [ldquo]private infrastructure development[rdquo]) and we[rsquo]re not told of other likely and forseeable reductions.

Since we are awaiting the results of updated ESA consultation on the Forest Plan, the is- suance of the Westside draft DN is prema- ture and subverts NEPA and the ESA.

Furthermore, this population is currently warranted for uplisting to Endangered, in recognition of its biological and legal status.

Part of the problem is the lack of connectivi- ty between the Selkirk, Cabinet and Yaak portions of the Selkirk and Cabinet-Yaak Ecosystem, creating virtual isolation be- tween portions the recovery area.

Also, the FS[rsquo]s population estimates of griz- zly bears in the CYE ([ldquo]improvements[rdquo]) are not scientifically defensible. The FS there- fore assumes increased impacts with this timber sale are acceptable.

Also, the EA assumes that abundance of huckleberries are demographically limiting for grizzly bears in this region, and further assumes that Project treatments will substan- tially enhance abundance of huckleberries to an extent sufficient to offset any losses of habitat security.

There is little or no evidence that food abun- dance is a significantly limiting factor for grizzly bears in the Selkirk Ecosystem[mdash]es- pecially as manifest in reproduction. On the other hand, there is ample evidence that hu- man-caused mortality had governed and continues to govern the fate of this popula- tion, with food effects manifest primarily in the extent to which grizzly bears are ex- posed to human-related hazards during years when berries are in shorter supply.

The FS should be identifying key habitat components for grizzly bears for prioritizing road density reductions (Proctor, et al., 2020) so populations can recover.

Dr. David Mattson makes the following points.

The assessment of prospective effects of the this project on grizzly bears in the is premised on several critical assumptions.

First, status of the Selkirk grizzly bear popu- lation is assumed to have improved since 2012. Second, and related, the IPNF as- sumes that some erosion of security for griz- zly bears is therefore permissible, condi- tioned on a related assumption that security and road access standards employed by the Idaho Panhandle National Forest (NF) are sufficient for recovery of grizzly bears in this ecosystem.

All of these assumptions are unwarranted. Briefly:

* The weight of available evidence does not support concluding that population status has improved. For one, the methods used to estimate trend and current population size are beset with a host of problems. For an- other, the information able to be distilled from demographic data suggests that

any improvement has stalled since 2014.

* Variations in population size and trajectory between 1999 and 2010 are more likely at- tributable to variations in abundance of nat- ural foods[mdash]berries in particular[mdash]that affect exposure of bears to humans rather than to any increased mitigations. During years of scant berries, bears likely forage more wide-ly and more often end up in conflict situa- tions or exposed to malicious killing.
* Malicious and other unjustified killing by humans remains the dominant cause of death for grizzly bears in theSelkirk Ecosystem. These kinds of killings are predictably asso- ciated with roads. As a result, levels of road access need to be substantially reduced and related levels of habitat security substantial- ly increased rather than the opposite, as is being proposed for the Westside Project.
* Road density and habitat security standards used by the IPNF are patently deficient, partly because they are based on research that conflates behavioral phenomena such as avoidance and displacement with demo- graphic phenomena, notably survival. The scale is wrong as well, given that exposure to mortality hazards logically accrues over years as a consequence of cumulative annual movements of bears vis-[agrave]-vis haz- ardous environs. As a corollary, the fact that standards on the IPNF are more lax

than standards on the Flathead NF is self- evidently non-sensical given that grizzly bears in the Selkirk Ecosystem remain in a much more precarious status compared to grizzly bears in the Northern Continental Divide Ecosystem.

* There is little or no evidence that food abundance is a significantly limiting factor for grizzly bears in the Selkirk Ecosystem[mdash] especially as manifest in reproduction.

On the other hand, there is ample evidence that human-caused mortality had governed and continues to govern the fate of this pop- ulation, with food effects manifest primarily

in the extent to which grizzly bears are ex- posed to human-related hazards during years when berries are in shorter supply.

* Compounding prospective problems with the project, proposed activities are concen- trated in an area that is vital for facilitating movement of grizzly bears between core habitats. Project activities will diminish rather than enhance security needed not only to facilitate transit of bears, but also increase odds that exposed bears will survive.

In short, the Westside project promises to harm grizzly bears in the Selkirk Ecosystem.

As a practical upshot, all of the population growth rates calculated to date have uncer- tainty intervals (e.g., 95% confidence in-

tervals) that not only substantially overlap zero (i.e., no growth) but also, over time, each other. More specifically, despite pur- porting to show trend in cumulative growth rate over time, the confidence intervals all overlap[mdash]\\most almost completely (see also Figure 2A herein). Because of this, there is little or no basis for concluding that growth rate has varied with time. Likewise, taking a precautionary approach, there is little or no justifiable basis for concluding that growth rate is currently positive, despite statements in Kasworm el al. such as [ldquo]The probability that the population was stable or increasing was 73%[rdquo] (ibid: 36), especially in light of the fact that the point estimate of 2.1% per annum is a cumulative rate spanning

1983-2016 with little or no known relation-

ship to current rate of population increase or decline.

The implications of uncertainty are thrown into relief by examining the specifics of pro- jecting population size forward in time from 1983 to 2017 using the 1.021 (95% CI = 0.949-1.087) growth rate, noting up front that uncertainty in annual growth rate mag- nifies exponentially over time when mani- fest in population size. For example, after back-casting to obtain a plausible 1983 pop- ulation starting point, deterministic projec- tions of population size using the upper and lower confidence intervals of growth allow for a current population (2017) of anywhere between 3 and 256. Stochastic projections, e.g., using the software RISKMAN, gener- ate a similar and not particularly useful range of 4 to 154 individuals.

The point here is that the raw cumulative uncertainty is huge,especially when dealing with a time period as long as 1983-2017. It is also important to note that this exercise takes the 1.021 estimate of lambda at face value, which, as per my previous points, is unwarranted.

Related to this last point, the current basis for modeling population growth rate using Booter (ibid: 10- 11) is egregiously sim-plistic given the self-evident structural com- plexity of grizzly bear population demogra- phy in the Selkirk Ecosystem.

Conclusion

The upshot of all this is that there is no legit- imate basis for estimating current population size by applying a biased 1983-2017 growth rate[mdash]based on high-graded data represent- ing only a fraction of the population[mdash]to a point population estimate made during 2012.

Moreover, even taken at face value, the cur- rent cumulative population growth rate shows stalled improvement in population status and a population still substantially less than peak numbers reached during 1998.

Status of the Selkirk Population Remains Highly Precarious

The current vulnerability of the Selkirk pop- ulation can be illustrated through a simple exercise, even without accounting for spatial structure of the Cabinet and Yaak subpopu- lations. I input vital rates into a commonly- used risk management program named RISKMAN (currently being proposed for management of grizzly bear mortality in the NCDE). Using the stochastic function, I was able to reconstruct the c. 2.1% growth

rate reported by Kasworm et al (2018) for 1983-2017. More specifically, the cumula- tive geometric mean growth rate (lambda) varied from a maximum of 1.035 to a mini- mum of 1.008.

Accounting for variation in vital rates, the median ending population size at year 34 was 43, although the upper and lower 95% percentiles of simulated trajectories pro- duced ending populations as small as 4 and as large as 154. I then simulated what would have happened if just one additional female died each year. In this scenario, the geo- metric cumulative mean growth rate dropped from 0.952 (already much less than 1) to an astounding 0.202 at year 34 of the simulation. Median total population size had reached 0 by year 23, with an upper 95th percentile of only 11 animals at the end of simulations. Results were not much improved when an additional 1 female was lost only once every 2 or 3 years. This isnot presented as any definitive modeling result, but rather illustrative of how little the mar- gin of error is, and how vulnerable this pop- ulation is to even the smallest increased in- crements of mortality (e.g., Kendall et al.

2016). This point is especially germane given that one adult female was killed by humans during 2018 and 2019. And this does not account for adult females that died and were not documented.

Weight of Available Evidence Emphasizes the Continued Importance of Malicious Killing

The extent to which poaching, malicious killing, or other suspect circumstances are associated with human-caused deaths is also

instructive regarding the overall effective- ness of conflict mitigation efforts during 1999-2017 to offset the problematic effects of road-access and poaching. By its nature, malicious killing/poaching is a criminal act undertaken by criminals. Such behavior is rooted in attitudes and outlooks that are no- toriously unresponsive to education and [lsquo]outreach[rsquo]. The phenomenon is about willful malfeasance. As such, limitations on road access coupled with improved law enforce- ment and successful prosecutions are logi- cally the most appropriate redress[mdash]not, for example, conflict mitigation by a specialist who is not tasked primarily with law en-forcement.

Before pursuing this any farther, some clari- fication of obfuscations in the dead bear

database is needed. During 1999-2017 a number of deaths were ascribed to [lsquo]Unde- termined[rsquo] human causes, [lsquo]Poaching[rsquo] or listed as [lsquo]Under investigation[rsquo]. The first andlast categories are not explicit, but nonetheless strongly suggestive. Certainly, [lsquo]Under inves- tigation[rsquo] suggests that the death occurred under suspicious circumstances warranting investigation[mdash]with a strong likelihood of either poaching or other unwarranted lethal action by the involved people. Such suspi-

cions are rarely definitively resolved. [lsquo]Unde- termined[rsquo] is also more suggestive of malfea- sance rather than innocence on the part of the involved people. Given the alternatives, such deaths are more defensibly allocated to causes more resistant than notto mitigation.

With all of this as context, there were a total of 7 known-probable deaths during

1999-2006 attributed to either poaching or un-determined causes, representing 58% of total human-caused deaths. During 2007-2018 there were a total of 13 deaths ei- ther under investigation or ascribed to poaching, representing a nearly identical 59% of the total known-probable human- caused deaths. These are major fractions in their own right, but leave estimated numbers of unreported deaths unaccounted for. As Kasworm et al make clear (ibid: 33), their estimate of [lsquo]unreported[rsquo] deaths did not apply to bears that were radio-collared or removed by managers, which leaves this unreported estimate levied almost entirely against mali-

cious or otherwise suspect causes. When these unreported estimates are added to the- known-probable toll taken by poaching, un- known causes, or suspicious circumstances, the percentage increases to around 70% dur- ing 1999-2006 and approximately 77% dur-ing 2007-2016.

Taken together, these figures support con- cluding that (1) malicious or otherwise sus-

pect causes account for a large portion[mdash]if not the majority[mdash]of grizzly bear deaths in the Selkirk Ecosystem; (2) the fraction and even total numbers of deaths attributable to such causes did not decrease from

1999-2006 to 2007-2018; and (3) that ag- gressive limitations to road access by the USFS are needed, especially in areas with concentrations of productive habitat (Proctor et al. 2015, 2017).

Access Management is Critical to Limiting Malicious & Other Unjustified Killing

The consensus of relevant research is unam- biguous about the link between road access and grizzly bear mortality. The more access, the more dead bears there are, with dispro- portionate concentrations near roads (Bran- non et al. 1988; Benn & Herrero

2002; Nielsen et al. 2004; Wakkinen & Kasworm 2004;

Boulanger & Stenhouse 2014; McLellan 2015; Proctor et al. 2017, 2018). Dead bears tend to be concen- trated within 100 to 500 m of roads, averag- ing around 300 m ([plusmn] 195 m) among studies where distance was noted.

Unfortunately, there is a common conflation of the extent to which radio-marked grizzly bears spatially avoid roads with the geospa- tial configuration of mortality risk and, even more important, decrements in survival and population growth. These para-meters are not synonymous. Even though a bear might underuse habitats within a certain distance of roads, this does not translate into a 1:1 correlation with exposure to risk of human- related mortality during a bear[rsquo]s lifetime.

Conflation of avoidance with mortality risk

has led to the unstated assumption that the former can be used to set standards for the latter. Such is the case for road density and habitat security standards set by the Koote- nai National Forest based on the results of Wakkinen & Kasworm (1997).

Taking 300 m as a ballpark figure, road den- sities of roughly 0.6 km/km2 translate into areas remote from where human-causedmor- tality is concentrated that amount to only 84 ha (208 acres), which is trivially small for a grizzly bear. This sort of geospatial buffer still means that grizzly bears are frequently exposed to hazards of human-caused death to the predictable extent that they must and willmove from one presumably secure area to another[mdash]even assuming that these bears exhibit [ldquo]average[rdquo] avoidance of human fea- tures such as roads. In other words, the level of buffering from human-caused mortality offered by road density and related security standards invoked in the Westside Project is guaranteed to be inadequate.

The inadequacy and inappropriateness of road density and security standards used by the Kootenai National Forest in application to the Westside Project are highlighted in contrast to standards applied in the Northern Continental Divide Ecosystem (NCDE), as well as in contrast to trajectories of popula- tions in the NCDE and Greater Yellowstone Ecosystem. The populations of already rela- tively numerous grizzly bears in the NCDE and

GYE have increased substantially since the early 1990s to 2000s, in contrast to in the Selkirk where precariously few bears have fared poorly (see my Points A-D, herein).

Tellingly, Wilderness Areas and Inventoried Roadless Areas where road access is not al- lowed comprise around 56% of the NCDE and GYE. In the Selkirk Ecosystem this fig- ure is less than half as much, nearer 21%.

This difference alone can explain much of the corresponding difference in fates of griz- zly bear populations.

Despite these telling differences in fates and trajectories of grizzly bear populations, the road density and habitat security standards applied by the Idaho Panhandle National Forest are more lax, not less, than those ap- plied on the Flathead National Forest. If anything, bears range more widely in the Selkirk and Cabinet-Yaak Ecosystems com- pared to the NCDE (Kasworm et al. 2018).

As a bottom line, existing and proposed ac- cess management in the Westside Project Areas has jeopardized and will continue to jeopardize grizzly bears.

More Grizzly Bear Deaths Are Occurring On USFS Jurisdictions Now Compared to During 1999-2006

The argument for more aggressive manage- ment to prevent human-caused grizzly bear mortality on USFS jurisdictions is given greater weight by differences in locations of bear deaths between 1999-2006 and

2007-2018. Data from Kasworm et al.

(2018) and Kasworm (2018)show an in- crease in the proportion of grizzly bear deaths on USFS lands from 25% (95% CI

=0.5-49.5%) during 1999-2006 to 56.5%

(36.3-76.8%) during 2007-2018. Although sample sizes are small, confidence intervals large, and overlap of the intervals non-trivial (17%), these results do not support conclud- ing that hazards for grizzly bears have re- mained constant or declined on USFS lands. Rather, by weight of evidence, the better supported conclusion is that hazards have increased and, because of that, imperatives to control mortality on public lands have likewise increased, including on lands part of the proposed Westside Project. As per my point, above, the most efficacious means available to the USFS for addressing this imperative is through providing increased rather than diminished habitat security, ax- iomatically through reducing road access in the Project area.

Activities of the Westside Project Are Prob- lematic in a Larger Geospatial Context

Please examine the cumulative effects of this project.

Please evaluate the impacts of proposed ac- tivities on grizzly bears in a larger geospatial context. Mattson & Merrill (2004) and Proc- tor et al. (2015) are perhaps most relevant to such an evaluation. The former research mapped existing core habitat as well as higher-probability source habitats in the Selkirk

Moreover, with the Selkirk Recovery Area as a logical unit of analysis, any assessment of cumulative effects

needs to account for other on- going and planned human activi- ties associated with forest treatments and harvest in this Ecosystem, as well as fore- seeable impacts associated with the pro- posed Rock Creek and Montanore Mines; as well as on-going and foreseeable impacts as- sociated with the human transportation in- frastructure (e.g., railways and associated highways that already fragment grizzly bear distribution in this Ecosystem, Mattson etal. [2019b]), all with the potential to amplify impacts arising from the Westside Project.

The Selkirl grizzly bear population is small- er than the smallest census population size ever posited as being viable. Such isolation is well-known to magnify risk. The degree of this risk is evident in the fact that fates of populations as small of that of the Selkirk grizzlies can be dictated solely by chance variation in birth and death rates, known as demographic variation. Yet demographic variation is a relatively minor stressor com- pared to environmental variation, catastro- phes, negative deterministic trends, and loss

of genetic diversity[mdash]all of which are docu- mented or potential factors in the Selkirk.

The contemporary consensus of researchers is that populations of large mammals such as grizzly bears need to consist of thousands of animals to withstand all of these stochastic and deterministic threats over meaningful periods of time.

The Selkirk grizzly bear populations remain acutely vulnerable to even small changes in levels of mortality. Under such circum- stances, a precautionary approach to manag- ing spatial hazards and habitat security is not only advisable, but mandatory. Unfortunate- ly, there is no evidence of caution or even meaningful recognition of threats to the Selkirk population.

Variation in Population Trajectory Has Like- ly Been Driven by Exposure to Humans

As a hypothetical, it is worth taking claims regarding an improvement in status of the Selkirk grizzly bear population between 1999-2006 and 2007-2018 at face value.

Again, the emphasis here is on the hypothet- ical given all of the compromising or even fatal flaws in analyses and conclusions re- ported in Kasworm et al. More specifically, if an improvement did occur, what was (were) the likely driver(s)?

Causation is notoriously hard to establish with any reliability or confidence. None- theless, even taking comments in Kasworm et al (again) at face value, one can establish how these authors ascribed causation based on the balance of their comments. The relevant quotes include:

[ldquo]The increase in total known mortality be- ginning in 1999 may be linked to poor food production during 1998-2004 (Fig. 9).

Huckleberry production during these years was about half the long term average...Poor nutrition may not allow females to produce cubs in the following year and cause females to travel further for food, exposing young to greater risk of mortality from conflicts with humans, predators, or accidental deaths.[rdquo] (emphasized in Figure 10; ibid: 32; see Fig. 6, herein).

[ldquo]Some of this decrease [in survival] in the 1999-2006 period could be attributed to an increase in natural mortality probablyrelated to poor berry production during 1998-2004. Mortalities on private lands within the U.S. increased during this period, suggesting that bears were searching more widely for foods to replace the low berry crop.[rdquo] (ibid: 34).

Conclusion

Reiterating the conclusion in the Introduc- tion to these comments, the Westside Project promises to harm grizzly bears in the Selkirk Ecosystem. The Forest Service could un- equivocally benefit grizzly bears in this area by the closure and retirement of roads.

Benn, B., & Herrero, S. (2002). Grizzly bear mortality and hu-

man access in Banff and Yoho National Parks, 1971-98. Ursus,

13, 213-221.

Boulanger, J., & Stenhouse, G. B. (2014).

The impact of roads

on the demography of grizzly bears in Al- berta. PloS One, 9(12),

e115535.

Brannon, R. D., Mace, R. D., & Dood, A. R. (1988). Grizzly

bear mortality in the northern Continental Divide ecosystem,

Montana. Wildlife Society Bulletin, 16(3), 262-269.

Eberhardt, L. L., Blanchard, B. M., & Knight, R. R. (1994).

Population trend of the Yellowstone grizzly bear as estimated

from reproductive and survival rates. Cana- dian Journal of Zool-

ogy, 72(2), 360-363.

Garshelis, D. L., Gibeau, M. L., & Herrero,

S. (2005). Grizzly

bear demographics in and around Banff Na- tional Park and Kananaskis country, Alberta. The Journal of Wildlife Manage-

ment, 69(1), 277-297.

Harris, R. B., Schwartz, C. C., Haroldson,

M. A., & White, G. C.

(2006). Trajectory of the Yellowstone griz- zly bear population

under alternative survival rates. Wildlife Monographs, (161), 44-

55.

Hovey, F. W., & McLellan, B. N. (1996). Es- timating population

growth of grizzly bears from the Flathead River drainage using

computer simulations of reproduction and survival rates. Cana-dian Journal of Zoology, 74(8), 1409-1416.

Kasworm , W. F., Radant, T. G., Tesiberg, J. E., Welander, A.,

Proctor, M., & Cooley, H. (2018). Cabinet- Yaak Recovery Area

2017 research and monitoring progress re- port. US Fish &

Wildlife Service, Missoula, Montana.

Kasworm, W. (2018). Selkirk/Cabinet-Yaak IGBC Subcommit-

tee, meeting notes: 2018 research/monitor- ing update. http://igb-

conline.org/wp- content/uploads/ 2018/11/181108_SCYE_Mtg_-

Summary.pdf

Kendall, K. C., Macleod, A. C., Boyd, K. L., Boulanger, J., Royle, J. A., Kasworm, W. F., ... & Graves, T. A. (2016). Densi-

ty, distribution, and genetic structure of griz- zly bears in the Cab-

inet-Yaak Ecosystem. The Journal of Wildlife Management,

80(2), 314-331.

Ladle, A., Avgar, T., Wheatley, M., Sten- house, G. B., Nielsen, S.

E., & Boyce, M. S. (2018). Grizzly bear re- sponse to spatio-tem-
poral variability in human recreational activ- ity. Journal of Ap-
plied Ecology.

Mace, R. D., Carney, D. W., Chilton- Radandt, T., Courville, S.
A., Haroldson, M. A., Harris, R. B., ... & Schwartz, C. C.
(2012). Grizzly bear population vital rates and trend in the
Northern Continental Divide Ecosystem,
Montana. The Journal
of Wildlife Management, 76(1), 119-128.

Mattson, D. J. (2019a). Effects of pedestri- ans on grizzly bears:
An evaluation of the effects of hikers, hunters, photographers,
campers, and watchers with reference to the proposed Pacific
Northwest Trail. Grizzly Bear Recovery Project, Report GBRP-
2019-3.
Mattson, D. J. (2019b). Effects of trains and railways on grizzly
bears: An evaluation of the effects of in- creased train traffic on
the Burlington Northern Santa Fe and Mon- tana Rail-Link Rail-ways, Montana- Idaho. Grizzly Bear Recov- ery Project, Report
GBRP-2019-1.
Mattson, D. J., & Merrill, T. (2004). A mod- el-based appraisal of
habitat conditions for grizzly bears in the Cabinet[ndash]Yaak region
of Montana and Idaho. Ursus, 15(1), 76-90.
McCall, B. S., Mitchell, M. S., Schwartz, M. K., Hayden, J.,

Cushman, S. A., Zager, P., & Kasworm, W.

F. (2013). Combined use of mark-recapture and genetic analyses reveals response of a black bear population to changes in food productivity. The Jour-nal of Wildlife Management, 77(8), 1572-1582.

McLellan, B. N., & Hovey, F. W. (2001).

Habitats selected by

grizzly bears in a multiple use landscape. The Journal of

Wildlife Management, 65(1), 92-99.

McLellan, B. N. (2015). Some mechanisms underlying variation

in vital rates of grizzly bears on a multiple use landscape. The

Journal of Wildlife Management, 79(5), 749-765.

Proctor, M. F., Paetkau, D., Mclellan, B. N., Stenhouse, G. B.,

Kendall, K. C., Mace, R. D., ... & Wakkinen, W. L. (2012). Pop-

ulation fragmentation and inter-ecosystem movements of grizzly

bears in western Canada and the northern United States. Wildlife

Monographs, 180(1), 1-46.

Proctor, M. F., Nielsen, S. E., Kasworm, W. F., Servheen, C.,

Radandt, T. G., Machutchon, A. G., & Boyce, M. S. (2015).

Grizzly bear connectivity mapping in the Canada[ndash]United States

trans-border region. The Journal of Wildlife Management, 79(4),

544-558.

Proctor, M. F., Lamb, C. T., & MacHutchon,

A. G. (2017). The

grizzly dance between berries and bullets: relationships among

bottom-up food resources and top-down mortality risk on grizzly

bear populations in southeast British Co- lumbia. Trans-border

Grizzly Bear Project, Kaslo, British Co- lumbia, Canada, http://

transbordergrizzlybearproject.ca/research/ publications.html.

Proctor, M. F., McLellan, B. N., Stenhouse,

G. B., Mowat, G.,

Lamb, C. T., & Boyce, M. S. (2018). Re-

sources roads and griz-zly be4ars in British Columbia and Alberta, Canada. Trans-bor-

der Grizzly Bear Project, Kaslo, British Co- lumbia, Canada,

Wakkinen, W. L., & Kasworm, W. (1997).

Grizzly bear and road

density relationships in the Selkirk and Cab- inet-Yaak recovery

zones. US Fish and Wildlife Service, Kalispell, Montana.

Wakkinen, W. L., & Kasworm, W. F. (2004).

Demographics and

population trends of grizzly bears in the Cabinet[ndash]Yaak and

Selkirk Ecosystems of British Columbia, Idaho, Montana, and

Washington. Ursus, 15(1), 65-76.

Waller, J. S., & Mace, R. D. (1997). Grizzly bear habitat selection in the Swan Moun- tains, Montana. The Journal of Wildlife

Management, 61(4), 1032-1039.The FS manages most of the habitat in the CYE, but instead of exercising its discretion to in- crease habitat security via substantial road reductions and minimizing industrial and motorized disturbance, the agency prefers to log, mine, and otherwise manipulate and dis- rupt the grizzly[rsquo]s habitat to the limits al- lowed by its already inadequate regulatory mechanisms. Since 2010, the FS:

* Declined the opportunity to select an Access Amendment alternative that would have provided a higher level of habitat protections for grizzly bears and for a whole host of other wildlife species;
* Continued to neglect its duty to identify the forestwide minimum road system under the Travel Management Rule Sub- part A;
* Recommended a minimum of the inven- toried roadless areas in the CYE Recov- ery Zone (RZ) for Wilderness

in the RFP; and

We wrote in our comments:

Snowmobiles are also running over white- bark pine which is under consideration for ESA protection.
Please formally consult with the FWS.

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 distur- bance, 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 habi- tat manipulation are proposed for the Project, including intentionally cutting and burning Whitebark pine trees. No discus- sion on the success rate of natural regeneration under these conditions is pro- vided. No discussion of the success rate of planting seedlings in clearcuts is provided.

The Forest Service admits that whitebark pine is known to be present in the area and that the Project [ldquo]may impact individuals. . .

.[rdquo] The Forest Service further admits: [ldquo]some adverse impacts are possible.[rdquo] The Forest Service further admits that [ldquo]imple- mentation of the project may cause incidental loss of whitebark pine seedlings and saplings..... [rdquo]

Crucially, the Forest Service does not dis- close or address the results of its only long- term study on the effects of tree cutting and burning on whitebark pine. This study, named [ldquo]Restoring Whitebark Pine Ecosys- tems,[rdquo] included prescribed fire, thinning, selection cuttings, and fuel enhancement cuttings on multiple different sites. The re- sults were that [ldquo][a]s with all the other study results, there was very little whitebark pine regeneration observed on these plots.[rdquo] See

U.S. Forest Service, General Technical Report RMRS- GTR-232 (January 2010). More specifical- ly: [ldquo]the whitebark pine regeneration that was expected to result from this [seed] caching [in new openings] has not yet ma- terialized. Nearly all sites contain very few or no whitebark pine seedlings.[rdquo] Thus, even ten years after cutting and burning, regeneration was [ldquo]marginal.[rdquo] Moreover, as the Forest Service notes on its website: [ldquo]All burn treatments resulted in high mortality in both whitebark pine and subalpine fir (over 40%).[rdquo] Accordingly, the only proven method of restoration of whitebark pine is planting: [ldquo]Manual planting of whitebark pine seedlings is required to adequately restore these sites.[rdquo]

Please find attached [ldquo]Restoring Whitebark Pine Ecosystems in the Face of Climate Change

Robert E. Keane, Lisa M. Holsinger, Mary

F. Mahalovich, and Diana F. Tomback[rdquo] and [ldquo]Restoring Whitebark Pine Forests of the Northern Rocky Mountains, USA Robert E. Keane and Russell a. Parsons.[rdquo]

The Forest Service responded:

Actually, much of this statement is incor- rect; no whitebark pine trees will be cut as part of this project. Further, design fea- tures incorporated into the project will be implemented with the intention to provide point protection to known cone-producing mature whitebark pine trees and those trees genetically tested for blister rust resis- tance. Most of the areas selected for high elevation prescribed burning have little whitebark pine establishment, despite providing some suitable habitat. Although it is possible that proposed prescribed burn- ing could inadvertently injure or kill

some whitebark pine trees, that would be

unintentional, and prescribed burning would likely enhance future regeneration success of whitebark pine in the long-term within those areas treated. Where feasible and as funding allows, future whitebark pine planting may be considered for these areas. Rangewide Restoration Strategy for whitebark pine (U.S. Forest Service, Gen- eral Technical Report RMRS-GTR-279) recommends prescribed burning to en- hance whitebark pine regeneration success in habitats similar to those suitable white- bark pine habitats within the Westside Restoration project area.

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

Remedy: Choose the No Action alternative or pull the draft decision and write an EIS that follow all laws and requirements in the Forest Plan. Since Whitebark pine are now proposed to be listed under the ESA, you must formally reconsult 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 en- tire project area for whitebark pine and con- sider planting whitebark pine as the best available science by Keene et al. states is the only way to get new whitebark pine to grow.

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 Westside Project area represents a major source within the larger geographic area.

Hundreds of acres of clearcutting and burn- ing around individual whitebark pine trees are proposed for the Project,

The Forest Service fails to disclose the in- credibly high failure rate of these practices as a technique for natural regeneration of whitebark pine under these conditions. The Forest Service states they are not protecting whitebark pine trees under 3[rdquo] dbh.

The Forest Service fails to provide any dis- cussion of the high failure rate of planting seedlings in clearcuts.

The Forest Service does not disclose or ad- dress the results of its only long- term study on the effects of tree cutting and burning on whitebark pine. This study, named "Restor- ing Whitebark Pine Ecosystems," included prescribed fire, [ldquo]thinning[rdquo], [ldquo]selection cut- tings,[rdquo] and [ldquo]fuel enhancement cuttings[rdquo] on multiple different sites. The results were that [ldquo][a]s with all the other study re- sults, there was very little whitebark pine regeneration observed on these plots.[rdquo] See

U.S. Forest Service, General Technical Re- port RMRS-GTR-232 (January 2010). These results directly undermine the repre- sentations the Forest Service makes in the Project EIS. More specifically, the Forest Service[rsquo]s own research at RMRS-GTR-232 finds: [ldquo]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.[rdquo] Thus, even ten years after cutting and burning, re- generation was [ldquo]marginal.[rdquo]

Moreover, as the Forest Service notes on its website: [ldquo]All burn treatments resulted in high mortality in both whitebark pine and subalpine fir (over 40%).[rdquo]

Accordingly, the only proven method of restoration of whitebark pine is planting: [ldquo]Manual planting of whitebark pine seedlings is required to adequately restore these sites.[rdquo]

Lynx

We wrote in our comments:

AWR participated during the public process as the Northern Rockies Lynx Management Direction (NRLMD) was

developed. We be- lieve that the Forest Plan/NRLMD does not consider the best available science. We in- corporate the documentation of AWR[rsquo]s par- ticipation in the NRLMD public process within these comments.

The lynx issue was also raised in AWR[rsquo]s Forest Plan lion concerning Indicator MON-FLS-01-02 and FW-DC-VEG-04.

The EA states the project is in lynx habitat. Is there lynx critical habitat in the project area?

Summary of Portions of the Species Status Assessment

for the Canada Lynx, FWS October 2017.

Lynx in Garnets: page 141 says lynx are gone from the Garnets; past logging

may be why they are gone (page 143).

Unit 3, Montana/Idaho: is 84% federal land (page 207).

Fires in Seeley Lake: burned 267 square miles in 2017 (page 230).

Fires in Unit 4, Washington: recent fires have driven likely declines of lynx in this Unit (page 4, 8, 51, 78, 149, 151).

Limited Data on Population Trends: page 3, 18, 21, and 107; lynx are gone from the Garnets (141, 143) and are declining in the Seeley Lake area (147).

Monitoring of the NRLMD: limited data on effectiveness of habitat management efforts at 3; several sources of uncertainty had to be accounted for in our analysis, including the paucity of empirical data on several factors including the effectiveness of habi- tat management efforts at 21; consistent methods to monitor hare and lynx habitats and populations have not been implemented throughout most of the range at 21; we assume that the conservation measures and habitat management guid- ance adopted by the

USFS and BLM have a positive influence on DPS lynx populations and will continue to provide benefits as long as the measure and guidance are implemented at page 22; formal effectiveness monitoring on the NRLMD has not been completed yet claims has been effectives, is clear results in avoidance/minimization of impacts to lynx at 57; implementation of the

NRLMA is likely benefiting lynx; although effectiveness has not been quantitatively evaluated, and despite potential extirpation in the Garnets, lynx remain well distributed in most of Unit 3 at page 143.

Effect of NRLMD: the NRLMD has sub- stantially addressed the lack of inadequate regulatory mechanisms at page 4; FS lands are being actively managed for lynx at 205; the NRLMD avoids or minimizes potential impactsof vegetation management, such as timber harvest, salvage, thinning and other silvicultural treatments at page 207; the regulatory mechanisms (of the NRLMF) will likely continue to support the conser- vation and restoration of lynx habitats and improve the likelihood that the landscape will continue to support lynx in the future at 208; regulatory mechanisms will contin- ue to focus on maintaining and restoring lynx habitat due to standards and guidance that is based on the best available science at 210; it will limit detrimental impacts of logging, thinning and fuels management and use to restore, improve or create high quality hare and lynx habitat at 210; fire management will benefit lynx at 210; the conservation direction in the NRLMD sug- gests broad-scale habitat loss or fragmenta- tion from logging are unlikely at 211; they expect continued management to avoid or minimize

potential impacts of vegetation management and fire management

(prescribed fire at page 219; may use fire to restore ecological processes and maintain or improve lynx habitat, and anticipate that the standards and guidelines in the NRLMD will conserve or restore lynx and their habitat, and as well will improve the likelihood to support lynx in the future at page 219; the NRLMD has likely benefited lynx at page 155, 158; although effective- ness has not quantitatively been evaluated, the NRLMD direction has almost certainly reduced significantly the potential for ad- verse management-related impacts to lynx at page 158; management as per the

NRLMD will benefit lynx at page 175; al- though uncertainty remains about the effi- cacy of the improved regulatory frame- work, federal lands are now being man- aged to protect and restore lynx habitat at page 231; management will limit detrimen- tal effects of timber and other manage-ment, and encourage the use to restore, improve or create high quality lynx and hare habitat at 221; the lack of regulatory mechanisms has largely been addressed at 213; federal lands are managed in accor- dance with lynx conservation principles at 235;

Problems with Vegetation Management: there are a few references to this issue, for example, at pages 99, 100, 102, 105, 111, 135, including that even small reductions in good habitat could impact populations (111, 135, 140) since good habitat in Unit 3 is very patchy (page 134). However, there is no mention of timber harvest on impacts to lynx in as Table 5 at 178.

Fire: the SSA states that the NRLMD in- cludes limits on fire, but these limitations are not actually clear in the standards, where prescribed fire may or may not be considered a project; fire will affect lynx habitat in Unit 3 at 210;

Climate Change: is expected to reduce habitat as per amount, distribution and quality at 169, 175. Report has extensive discussions on climate change.

Home Ranges: past fires in WA have re- sulted in lynx increases in their home range at 108; if lynx need to expand their home range, they will have increased expo- sure to predation and will need more ener- gy for a greater foraging effort at 34; fe- males with kittens have the smallest home ranges at 34; the size of home ranges for Unit 3 at page 34 are much higher than re- ported by current research, with a median size female home range of 55 square km, not the 43-90 square km shown in the SSA; Minimum Viable Population: requires 25 adults, one per 50 square km, for 483 square miles; need to have [ldquo]sufficient[rdquo] hare densities; need multiple home ranges at 37; low hare densities reduce the likeli- hood of recruitment of lynx at 38; stable hare densities likely provide stability among lynx population on the periphery of their range at 38.

If you have not done NEPA on the WUI or consulted with he FWS on the WUI please do so.

Please see the attached paper titled: "Man- agement of forests and forest carnivores:

Relating landscape mosaics to

habitat quality of Canada lynx at their range periphery[rdquo] by

Holbrook et al. 2019. It states that all lynx habitat has to be monitored for lynx.

Please monitored for entire project area for lynx. To not is a violation of NEPA, NFMA, the APA and the ESA.

There is not an adequate regulatory mech- anism to protect lynx and lynx critical habitat if there is no restriction

on burning lynx critical habitat. The project is there- fore in violation of NEPA, NFMA, the APA and the ESA. The draft decision is arbi- trary.

The Forest Service[rsquo]s misrepresentations to the public, failure to use the Forest Plan Lynx Amendment definition of wildland urban interface, and failure to establish compliance with Lynx Amendment stan- dards VEGS2 and VEGS5, violates NEPA, NFMA, and the APA.

We believe because of the size of the project and the cumulative effects of past current and future logging by the Forest Service and private logging in the area the Forest Service must complete a full environmental impact statement (EIS) for this Project.

The scope of the Project will likely have a significant individual and cumulative im- pact on the environment. Alliance has re- viewed the statutory and regulatory re- quirements governing National Forest Management projects, as well as the rele- vant case law, and compiled a check-list of issues that must be included in the EIS for the Project in order for the Forest Service[rsquo]s analysis to comply with the law. Following the list of necessary elements, Alliance has also included a general narrative discus- sion on possible impacts of the Project, with accompanying citations to the relevant scientific literature. These references should be disclosed and discussed in the EIS for the Project.

The Forest Service responded:

Holbrook et al (2019) has been considered in the analysis for Canada lynx. The paper evaluated and characterized habitat mo- saics that contribute to reproduction suc- cess of female lynx in northwestern Mon- tana. The findings in Holbrook et al. 2019 describing habitat quantities and arrange- ments that best support reproduction suc-

cess are consistent with the findings in Holbrook et al. 2017 and Kosterman et al. 2018 (discussed in the Wildlife Report pp. 59-60) relative to the amount of well-con- nected mature forest structure

and advanced regeneration forest structure that provides high-quality habitat for fe- male lynx. Thus, the same vegetation man- agement consideration recommendations discussed in both papers also apply to find- ings in Holbrook et al. 2019. Holbrook et al (2019) does not state that [ldquo]all lynx habitat has to be monitored for lynx[rdquo] or

anything similar. Instead, the study pro- vides a predictive model for productive lynx home ranges that can inform forest man- agement based on arrangement and con- nectivity of mature

forest and advanced regenerating forest. The IPNF is considered an [ldquo]occupied[rdquo] Forest, and habitat within designated LAUs is managed according to standards in the NRLMD regardless of presence or absence of lynx. There are no legal requirements to monitor the entire project area for lynx (although much of it has been surveyed in the past), and failure to do so does not violate any of the numerous laws cited. There is no Canada lynx critical habitat in the Westside Project area.

The Project is involution of NEPA, NFMA, the APA and the ESA.

While the BC portion of the South Selkirks is included in the recovery areas for griz and caribou, it was not for lynx and allowed them not to designate the SS as critical habi- tat. This needs to be corrected.

Lynx habitat is being affected in violation of the ESA.

While the BC portion of the South Selkirks is included in the recovery areas for griz and caribou, it was not for lynx and allowed them not to designate the SS as critical habi- tat. This needs to be corrected.

Why is The EA is ignoring the Kosterman threshold for clearcutting (no more than 15% per LAU) and the mature forest con- servation requirement (conserve it all in- cluding at least 50% per LAU)?

Kosterman finds that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts,

i.e. trees under 4 inched dbh. This contra- dicts the agency[rsquo]s assumption in the Lynx Amendment that 30% of lynx habitat can be clearcut, and that no specific amount of ma- ture forest needs to be conserved. It is now the best available science out there that de- scribes lynx habitat in the Northern Rockies related to lynx viability and recovery. Kosterman[rsquo]s study demonstrates that the Lynx Amendment standards are not ade-

quate for lynx viabili- ty and recovery, as previously assumed by the Forest Service.

Kosterman[rsquo]s Thesis says that clearcutting more than 10-15% of a lynx home range re- sults in declines in reproduction. Many Na- tional Forests allows more clearcut- ting than this. The Lynx Amendment allows up to 30% clearcutting in a home range, which means that habitat has declined and is de- clining from the levels nec- essary for re- production and therefore survival and recov- ery.

Kosterman[rsquo]s Thesis recommends conserving mature/old growth forest and main- taining 50% mature/old growth in each lynx home range. No National Forest is complying with that due to past and current logging, which means that habitat has declined and is de- clining from the levels necessary for repro- duction and therefore survival and recovery.

Squires says that lynx avoid clearcuts.

FWS has no idea what the population of lynx is because they don[rsquo]t do lynx popula- tion monitoring. In light of the government[rsquo]s failure to monitor lynx population trends, it would be disingenuous for FWS to argue that [ldquo]there is no evidence of population de- cline[rdquo] because the reason that "there is no evidence" is because the government refuses to conduct monitoring. In light of the gov- ernment[rsquo]s failure to monitor and document populations and population trends, the For- est Service and the FWS must apply the pre- cautionary principle and assume that the ef- fects of al- lowing logging that does not comply with Kosterman and Squires find- ings is re- sulting in population declines.

Since this is now the best available science we are hereby formally requesting that the Forest Service write a supplemental EIS for the Northern Rockies Lynx Man- agement Direction and reinitiate consultation with the FWS for the Lynx Amend- ment to publicly disclose and address the findings of this study, and to allow for further public com- ment on this important issue of lynx recov- ery.

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

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

The Forest Service[rsquo]s failure to take a hard look at lynx presence and the Forest Plan[rsquo]s potential impacts on lynx, using the best available science, including the agency[rsquo]s failure to assess the Forest Plan[rsquo]s impacts on lynx travel/linkage corri- dors, violates NEPA. See Pacific Rivers Council v. U.S.

Forest Service, --- F.3d ----, 2012 WL 336133 (9th Cir. 2012).

The Forest Service[rsquo]s failure to include bind- ing legal standards aimed at conserving and recovering ESA-listed lynx on the Forest in the Forest Plan violates NFMA.

The FS approval and implementation of the Lynx Management Direction is arbitrary and capricious, violates NEPA[rsquo]s hard look re- quirement and scientific integrity mandate and fails to apply the best available science necessary to conserve lynx. The Lynx Direc- tion contains no protection or standard for conservation of winter lynx habitat (old growth forests). This project allows the log- ging of thousands of

acres of old growth without any analysis of whether that forest is necessary for conser- vation as winter lynx habitat. The EA fails to take a hard look at this factor is in violation of NEPA. By failing to include a provision to protect winter lynx habi- tat, the Lynx Di-rection fails to apply the best available sci- ence and implement the measures necessary for lynx conservation, as required by the ESA. The Lynx

Direction also arbitrarily exempts WUI lands from lynx habitat protection. If this exemption did not exists, the project could not proceed because the logging autho- rized by the projects violates at least one of the protection for lynx habitat.

The Lynx Amendment and its Biological Opinion/Incidental Take Statement allow unrestricted logging in the wildland urban interface, which the agencies estimate to compose approximately 6% of the lynx habitat on National Forests. The EA nor the DN explain where the WUI is in relation to the projects and the LAUs but merely state that the entire project lies within the WUI bounder. EA p. 164, foot note 11. Also, it is not clear why the project does not utilize the Lynx Amendment wildland urban interface map to define WUI, the correct definition for WUI, but instead uses the definition in the Healthy Forest Restoration Act. If the projects were to use the correct definition of WUI, the project could not proceed. The failure to comply with logging restrictions outside the WUI violates NFMA. The failure to adequate- ly address this issue in the EA and demonstrate compliance with the Lynx Amend- ment violates NEPA.

The analysis of the impacts to lynx in the EA and the DN is extremely limited and it inappropriately uses an LAU that excessive- ly large, allowing the impacts to be mini- mized. The current best science suggests that female lynx home range as about 10,000 acres. The project area is almost 10 times the size. The analysis in the EA is invalid.

The current science demonstrates that lynx must travel between areas of high hare den- sities and resist

traveling through low cover areas in winter. The EA fails to identify the amount of non or low cover ar- eas that will be created from the project. The project fails to use the best available science in regard to lynx habitat. As stat- ed in AWR[rsquo]s comments, the best available science is now Kosterman[rsquo]s masters Thesis, [ldquo]Corre- lates of Canada Lynx Reproductive Success in Northwestern Mon- tana[rdquo] This study finds that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habi- tat should be young clearcuts, i.e. trees un- der 4 inched dbh. This contradicts the agency[rsquo]s assumption in the Lynx Amend- ment that 30% of

lynx habitat can be clearcut, and that no spe- cific amount of mature forest needs to be conserved. It is now the best available sci- ence out there that describes lynx habitat in the Northern Rockies related to lynx viabili- ty and recovery. Kosterman[rsquo]s study demon- strates that the Lynx Amendment standards are not adequate for lynx viability and re- covery, as assumed by the Forest Service

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

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

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

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

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

The Northern Rockies Lynx Management Direction is inadequate to ensure con- serva- tion and recovery of lynx. The amendments fail to use the best available sci- ence on necessary lynx habitat elements, including but not limited to, failing to in- clude stan- dards that protect key winter habitat. The

Endangered Species Act requires the FS to insure that the project is not likely to result in the destruction or adverse modification of critical habitat. 16 U.S.C. [sect]1536(a)(2). Ac- tivities that may destroy or adversely modify critical habitat are those that alter the physi- cal and biological features to an extent that appreciably re- duces 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 stan- dards Veg S1, S2, S5, or S6, pro- vided they do not occur on more than 6% of lynx habi-tat on each National Forest. See NRLMD ROD, Attachment 1, pages 2-3. Allowing the agency to destroy or adversely modify any lynx critical habitat has the potential to appreciably reduce the conservation

value of such habitat. The agency cannot simply set a cap at 6% forest- wide without looking at the individual characteristics of each LAU to de- termine whether the project has the po- tential to appreciably reduce the conserva-

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

Standard S2 prohibits projects that do regen- erate more than 15% of lynx habitat on NFS lands within an LAU in a 10-year period.

The EA and DN do not provide the number of acres with in the LAU that have been harvested within the last 10-years and fails to take previous project in account in re- gards to Veg Standard S2.

The FS violated NEPA by applying the above-mentioned exception without analyz- ing 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 viable populations of Canada lynx in the planning area. 36 C.F.R. 219.19. The FS has not shown that lynx will be well-distributed in the planning area. The FS has not ad- dressed how the project[rsquo]s adverse modifica- tion of denning and

foraging habitat will impact distribution. This is important because the agency readily admits that the LAUs already contain a [ldquo]rel- atively large percentage of un- suitable habi- tat.[rdquo] The NRLMD ROD at 40 states that: The national forests subject to this new di- rection will provide habitat to maintain a vi- able population of lynx in the northern

Rockies by maintaining the current distribu- tion of occupied lynx habi- tat, and main- taining or enhancing the quality of that habi- tat.[rdquo]

A big problem with the Forest Plan (includ- ing the NRLMD) is that it allows with few exceptions the same level of industrial forest management activities that oc- curred prior to Canada lynx ESA listing.

The Northern Rockies Lynx Management Direction appeal decision requires the FS to consult with the US Fish and Wildlife Ser- vice regarding lynx and lynx criti- cal habi- tat. The Wildlife Report, Frost 2017, states that the effects determination

for lynx is [ldquo]may affect, likely to adversely affect. This means that listed resources are likely to be exposed to the action or its envi- ronmental consequences and will respond in a negative manner to the exposure.

The project does not have a take permit from the USFWS and is in violation of the ESA,

NFMA, the APA and NEPA. The ESA (Sec- tion 3) defines take as "to harass, harm, pur- sue, hunt, shoot, wound, trap, capture, col- lect or attempt to engage in any such con- duct". The USFWS further defines "harm" as "significant habitat modifi- cation or degradation that results in death or injury to listed species by significantly impairing be- havioral patterns such as breeding, feeding, or sheltering", and "ha- rass" as "actions that create the likelihood of injury to listed species to such an ex- tent as to significantly disrupt normal behavior patterns which in- clude, but are not limited to, breeding, feed- ing or sheltering". The project will harm lynx.

Remedy: Choose the No Action Alter- native or write an EIS that fully complies with the law. Squires found that lynx avoid clearcuts for up to 50 years. A big problem with the Forest Plan and the NRLMD is that it allows with few exceptions the same level of industrial forest management activities that occurred prior to Canada lynx ESA list- ing. The FS approval and implementation of the NRLMD and the revised Beaverhead- DeerlodgeNational

Forest Forest Plan is ar- bitrary and capricious, violates NEPA[rsquo]s hard look requirement and scientific integrity mandate and fails to apply the best available science necessary to conserve lynx. The NRLMD or the revised BDNF Forest Plan contain no protection or standard for conser- vation of winter lynx habitat (old growth forests).

The EA doesn[rsquo]t disclose if the FS conducted

lynx occurrence surveys of habitat in the LAUs.

The EA doesn[rsquo]t disclose if surveys target snowshoe hare occurrence data in these stands newly considered unsuitable for lynx. Also, the EA doesn[rsquo]t indicate if the FS sur- veyed any areas (proposed for logging and/ or burning or not) thought to not be lynx habitat based on mapping or stand data were surveyed to confirm unsuitable habitat con- ditions.

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

It appears the FS doesn[rsquo]t have a coherent strategy for recovering lynx from their Threatened status, including linking current- ly populated areas with each other through important linkages such as project area LAUs.

The EA fails to analyze and disclose cumu- lative impacts of recreational activities on lynx, such as snowmobiles. As the KNF[rsquo]s Galton FEIS states, [ldquo]The temporal occur-

rence of forest uses such ... winter (skiing and snowmobiling) ... may result in a tempo- rary displacement of lynx use of that area...[rdquo]

The Pintler Face EA also fails to quantify and disclose the cumulative effects on Canada lynx due to trapping or from use of the road and trail networks in the project area.

In failing to properly analyze and disclose cumulative effects, the EA violates NEPA and the ESA.

The EA claims that sufficient denning habi- tat occurs in the LAU, but it fails to explain how it arrived at that conclusion. Habitat ca- pacity for denning will be impaired by project activities.

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

Lynx are highly mobile and generally move long distances [greater than 60 mi. (100 km.)]; they disperse primarily when snow- shoe hare populations decline; subadult lynx disperse even when prey is abundant, pre- sumably to establish new home ranges; and lynx also make exploratory movements out- side their home ranges. 74 Peg.

Reg. at 8617. The contiguous United States is at the southern edge of the boreal forest range, re- sulting in limited and patchy forests that can support snowshoe hare and lynx popula- tions.

Lynx subsist primarily on a prey base of snowshoe hare, and survival is highly de- pendent upon snowshoe hare habitat, forest habitat where young trees and shrubs grow densely. In North America, the distribution and range of lynx is nearly [ldquo]coincident[rdquo] with that of snowshoe hares, and protection of snowshoe hares and their habitat is criti- cal in lynx conservation strategies.

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

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

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

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

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

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

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

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

As early as 2000, the LCAS noted that lynx seem to prefer to move through continuous forest (1- 4); lynx have been observed to avoid large openings, either natural or creat- ed (1-4); opening and open forest areas wider than 650 feet may restrict lynx movement (2-3); large patches with low stem densities may be functionally similar to openings, and therefore lynx movement may be disrupted (2-4). Squires et al. 2006a re- ported that lynx tend to avoid sparse, open forests and forest stands dominated by

small-diameter trees during the winter.

Squires et al. 2010 again reported that lynx avoid crossing clearcuts in the winter; they generally avoid forests composed of small diameter saplings in the winter; and forests that were thinned as a silvicultural treatment were generally avoided in the winter.

Squires et al. 2010 show that the average width of openings crossed by lynx in the

winter was 383 feet, while the maximum width of crossed openings was 1240 feet.

Recent scientific findings undermine the Forest Plan/NRLMD direction for manage- ment 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 for- est for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts, i.e. trees under 4 inched dbh. Young regenerating forest should occur only on 10-15% of a female lynx home range, i.e. 10-15% of an LAU. This renders inadequate the agency[rsquo]s assumption in the Forest Plan/NRLMD that 30% of lynx habi- tat 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 manipu- lations other than regeneration logging and some intermediate treatments are essentially nil. However, Holbrook, et al., 2018 [ldquo]used univariate analyses and hurdle regression models to evaluate the spatio-temporal fac- tors influencing lynx use of treatments.[rdquo] Their analyses [ldquo]indicated ...there was a con- sistent cost in that lynx use was low up to

?10 years after all silvicultural

actions.[rdquo] (Emphasis added.) From their con- clusions:

First, we demonstrated that lynx clearly use silviculture treatments, but there is a ?10 year cost of implementing any treatment (thinning, selection cut, or regeneration cut) in terms of resource use by Canada lynx.

This temporal cost is associated with lynx preferring advanced regenerating and mature structural stages (Squires et al., 2010; Hol- brook et al., 2017a) and is consistent with previous work demonstrating a negative ef- fect of precommercial thinning on snowshoe hare densities for ?10 years (Homyack et al., 2007). Second, if a treatment is implement- ed, Canada lynx used thinnings at a faster rate post- treatment (e.g.,?20 years post- treatment to reach 50% lynx use) than either selection or regeneration cuts (e.g., ?34[ndash]40 years post- treatment to reach 50% lynx use). Lynx appear to use regeneration and selec- tion cuts similarly over time suggesting the difference in vegetation impact between these treatments made little difference con- cerning the potential impacts to lynx (Fig.

4c). Third, Canada lynx tend to avoid silvi- cultural treatments when a preferred struc- tural stage (e.g., mature, multi-storied forest or advanced regeneration) is abundant in the surrounding landscape, which highlights the importance of considering landscape-level composition as well as recovery time. For instance, in an area with low amounts of ma- ture forest in the neighborhood, lynx use of recovering silvicultural treatments would be

higher versus treatments surrounded by an abundance of mature forest (e.g., Fig. 3b). This scenario captures the

importance of post-treatment recovery for Canada lynx when the landscape context is generally composed of lower quality habitat. Overall, these three items emphasize that both the spatial arrangement and composition as well as recovery time are central to balancing sil- vicultural actions and Canada lynx conser- vation.

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

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

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

The Forest Plan/FEIS fail to describe the quantity and quality of habitat that is neces- sary to sustain the viability of the Canada lynx.

Bull Trout

We wrote in our comments;

In many ways, bull trout are like the ca- nary in the coal mine since the effects of a damaged watershed show up first on bull trout. It[rsquo]s scientifically well documented that more roads in a watershed mean bull trout will struggle to survive since they re- quire cold, clean and connected waterways. Salvage logging actually increases water temperatures since a clearcut does not pro- vide shade for streams nor contribute the woody debris necessary for aquatic health and the development of deep, cold holes in which the bull trout hide from predators.

How will bull trout and bull trout critical habitat be impacted by this project?

The Forest Service responded:

The IPNF will formally consult on those species likely to be adversely affected by the proposed action (grizzly bear and Canada lynx). There is no requirement to formally consult on species not adversely affected by the Project (Selkirk Mountains woodland caribou, bull trout and bull trout critical habitat), nor is there a requirement to con- sult on proposed species (whitebark pine).

The project as described in the DDN is a vi- olation of NFMA, the Clean Water Act, the ESA, the APA, the Forest Plan and the ESA.

One of the Endangered Species Act[rsquo]s strongest provisions, designation of [ldquo]critical habitat[rdquo] is required for all domestic species listed under the Act. Critical habitat includes specific areas within a species[rsquo] current range that have [ldquo]physical or biological features es- sential to the conservation of the species,[rdquo] as well as areas outside the species[rsquo] current range upon a determination [ldquo]that such

areas are essential for the conservation of the species.[rdquo] In other words, the original defini- tion of critical habitat said it must include all

areas deemed important to a species[rsquo] sur- vival or recovery, whether the species cur- rently resides in those areas, historically resided in those areas, uses those areas for movement, or needs them for any other rea- son.

Critical habitat provides key protections for listed species by prohibiting federal agencies from permitting, funding, or carrying out ac- tions that [ldquo]adversely modify[rdquo] designated ar- eas. Designating critical habitat also pro- vides vital information to local governments and citizens about where important habitat for endangered species is located [mdash] and why they should help conserve it.

Remedy
The remedy is to choose the No Action al- ternative or withdraw the draft Decision Notice (DDN) and write an EIS that fully com- plies with the law.

OLD Growth

We wrote in our comments, with the section beginning with:

It appears the agency wants to make the de- finition of old growth to be a simplistic numbers and database analysis game, de- void of biologically vital data gathered in the field which might document what is unique about old growth[mdash]not just a few large trees left over after logging, but decadence, rot, snags, down logs, patchy ir- regular canopy layers[mdash]things that can[rsquo]t be created by the agency[rsquo]s version of [ldquo]restora- tion[rdquo] and which would be depleted by such management actions.

Please disclose the natural historic range vs. current conditions regarding patch size, edge effect, and amount of interior forest old growth in the IPNF.

Snags and dead tree habitat

Please disclose how much snag loss would be expected because of safety concerns and also from the proposed methods of log re- moval.

The Forest Plan does not cite the scientific basis for the minimum amounts of snags to be retained under Guideline FW-GDL- VEG-04. Also the scientific basis for the delineation of snags into two diameter groups using 15[rdquo] d.b.h. as the division point is not disclosed.

The EA does not quantify the degree of snag loss expected because of safety con- cerns and also from the proposed methods of log removal.

The EA does not cite in the analysis the science that supports the FS assumption that the management will result in snags and down logs in abundance to someday, maybe, several decades later, support viable populations.There is no monitoring to sup-port any claims of benefits to snag and down log-dependent species[rsquo] population numbers or distribution.

The Forest Service responded:

There is no estimate of snag densities in the project area. Instead, snag densities have been estimated across larger land- scapes and reported by Bush and Lundberg (2006). Snag estimates were derived from FIA data, which is appropriate to use for broad-level estimates of old growth and snags. Snag densities for areas including the Westside Project area are reported at several progressively finer scales. The Bonners Ferry/Kootenai Geographic area contained an estimated 9.9 snags/acre

10-19.9[rdquo] DBH (90% Confidence Interval

(CI): 7.4-12.6 snags/acre), and 1.6 snags/ acre [ge]20[rdquo] DBH (90% CI: 0.8-2.3 snags/ acre). The smaller

Selkirk Landscape Area contained 9.9 snags/acre 10-19.9[rdquo] DBH (90% I:6.8-13.3 snags/acre), and 1.0 snags/acre

[ge]20[rdquo] DBH (90% CI: 0.1-2.0 snags/acre).

Maps depicting the spatial distribution of old growth stands in the project area are located in the project file. The primary tool utilized to identify and allocate old growth were stand examinations. Stands were identified, plots were installed, and the re- sultant stand means compared against the IPNF Forest plan old growth standards (minimums) for the forest type.

This stand exam effort for the project was directed and informed by aerial photogra- phy and existing older stand exam data.

Extensive walkthroughs of stands occurred during the reconnaissance and stand diag- nosis phase of project development (Vegeta- tion Report, p.3).

These field visits had several benefits. They allowed us to identify any old growth or re- cruitment potential old growth that was missed by the stand exams. They also al- lowed us to check if old growth identified in the stand exam effort was still valid. If a stand did not meet minimums any longer due to mortality from wind throw, insects, or diseases, being there, on the ground al- lowed us to ascertain whether it would function well as recruitment potential old growth. Stand exams and walkthrough notes are available in the project file.

The Forest Service[rsquo]s failure to use the Forest Plan definition of old growth, and conse- quent failures to demonstrate compliance with Forest Plan old growth standards for re- tention and viability, violates NFMA, the Forest Plan, NEPA, and the APA.

REMEDY

Choose the No Action Alternative or with- draw the DDN and write an EIS that fully complies with the law.

Habitat Effectiveness

We wrote in our comments:

BIG GAME SPECIES

How will the increased Road density and habitat destruction effect big game?

The science is clear that motorized access via trail, road, or oversnow adversely im- pact habitat for the elk. Servheen, et al., 1997 indicate that motorized trails increase elk vulnerability and reduce habitat effec- tiveness, and provide scientific manage- ment recommendations.

Also, the EA fails to provide a meaningful analysis of cumulative impacts of recre- ational activities on elk. Wintertime is an especially critical time for elk, and stress from avoiding motorized activities takes its toll on elk and populations.

The EA doesn[rsquo]t demonstrate consistency with Forest Plan requirements for these medium priority Planning Subunits, prob- ably because of its false assumptions noted above.

Scientific information recognizes the im- portance of thermal cover, including Lyon et al, 1985. Christensen et al., 1993 also emphasize [ldquo]maintenance of security, land- scape management of coniferous cover, and monitoring elk use...[rdquo] This USFS Re- gion 1 document also states, [ldquo]management of winter range to improve thermal cover and prevent harassment may be as impor- tant as anything done to change forage quantity or quality.[rdquo]

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

Optimum size for thermal cover on summer and spring-fall range is 12 to 24 ha (30 to 60 acres). Areas less than 12 ha (30 acres) are below the size required to provide nec- essary internal stand conditions and to ac- commodate the herd behavior of elk.

...Cover requirements on winter ranges must be considered separately and more carefully. Animals distributed over thou- sands of square miles in spring, summer and fall are forced by increasing snow depths at higher elevations to concentrate into much restricted, lower- elevation areas in mid- to late-winter. Winter range, be- cause of its scarcity and intensity of use, is more sensitive to land management deci- sions.

Regarding Black et al. (1976) conclusions, Thomas et al., 1988a state, [ldquo]We concur.

New research on elk use of habitat on summer and winter ranges has become available, however (Leckenby 1984). Land- use planning requirements indicate that a

model of elk winter-range habitat effec- tiveness is required.[rdquo]

Thomas et al., 1988a also state:

Thomas and others (1979, p. 104-127) de- fined two types of cover: thermal and hid- ing. Thermal cover was "any stand of coniferous trees 12 meters (40 ft) or more tall, with an average canopy closure ex- ceeding 70 percent" (p. 114). Dispropor- tionate use of such cover by elk was thought to be related to thermoregulation. Whether such thermoregulatory activity occurs or is significant has been argued (Geist 1982,Peek and others 1982). In the context of the model presented here, argu- ing about why elk show preference for such stands is pointless. They do exhibit a pref- erence (Leckenby 1984; see Thomas 1979 for a review). As this habitat model is based on expressed preferences of elk, we contin- ue to use that criterion as a tested habitat attribute. We cannot demonstrate that the observed preference is an expression of need, but we predict energy exchange ad- vantages of such cover to elk (Parker and Robbins 1984). We consider it prudent to assume that preferred kinds

of cover pro- vide an advantage to the elk over nonpre- ferred or less preferred options.

The EA acknowledges that noxious weeds are an issue, so where is the analysis of how weed populations and trends are af- fecting and will affect the forage the FS claims will be improved by the project?

Christensen, et al. (1993) is a Region One publication on elk habitat effectiveness.

Meeting a minimum of 70% translates to about 0.75 miles/sq. mi. in key elk habitat, as shown in their graph:

58

Also, Ranglack, et al. 2017 investigated habitat selection during archery and rifle hunting seasons.

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

The Forest Service responded;

Security (as influenced by motorized routes) is discussed in detail in the Wildlife Report Grizzly Bear analysis. Using the Revised Forest Plan definition of [ldquo]winter range[rdquo] as [ldquo]Generally, lands below 4,000 feet in elevation, on south and west aspects,[rdquo] there are approximately 5,100 acres of winter range in the Project area (based on VMap data [ndash] see response to Comment #13-111). This number would not change during or after implementation.

About 900 of these acres are proposed for harvest, 350 acres of which would be mandatory winter harvest (Unit 35). Popu- lations of native ungulates in the Westside area are considered stable (elk) or increas- ing (white-tailed deer and moose), and a large portion of the Project area is com- pletely closed to hunting (Myrtle Creek Game Preserve). There are no viability concerns with these species, as they are all legally hunted. The National Environmen- tal Policy Act (NEPA) directs the agency to focus on a full and fair discussion of sig- nificant issues, and identify and eliminate from detailed study the issues that are not significant. Since big game were not con-

sidered a significant issue for the Westside Project, detailed analysis and discussion (particularly related to hiding cover) was not warranted.

The EA and DDN did not demonstrate that the project is complying with the big game security, cover and habitat effectiveness.

Remedy: Select the No Action alternative. Alternatively, prepare an EIS that addresses the legal, analytical and scientific issues identified above.

UNLAWFUL FOREST PLAN

We wrote in our comments:

* The Forest Plan revision process itself violated NEPA and NFMA and failed to

utilize the best available science. Im- plementing actions under the Forest Plan would be significant. Therefore these comments identify legal deficien- cies of the Forest Plan as well as the project proposal.

The Forest Plan exhibits a relative ab- sence of explicit reference to the 1982 planning rule. The Forest Plan is in- consistent with the regulations written to guide planning under NFMA. Many Forest Plan Objectives are not linked with Forest Plan Goals, as re- quired.

The use of the word [ldquo]should[rdquo] in Forest Plan Standards and Guidelines allows land managers to have too much or un- defined levels of discretion.

[ldquo]Short term[rdquo] and [ldquo]long term[rdquo] are not adequately defined in the Forest Plan. The Forest Plan desired ranges for dominance groups are not supported by reliable historic data taken from IPNF surveys or scientific research. Also, the

FS has not explained how the effects of climate change and white pine blister rust affect the attainability of those de- sired ranges.

The Forest Plan desired ranges for Size Class are not supported by reliable historic data taken from IPNF surveys or scientific research. And the FS has not explained how the effects of climate change and white pine blister rust affect the attainabili- ty of those desired ranges.

In FW-DC-VEG-03 the term [ldquo]substantial amounts[rdquo] is not defined. The desired [ldquo]greater increase[rdquo] related to the identified tree species is not supported by citation to specific reliable historic data taken from IPNF surveys or scientific research. The FS has not explained how the effects of

climate change and white pine blister rust affect the attainability of those increases.

In FW-DC-VEG-04 the implication that trees are generally too dense on the IPNF is not supported by specific reliable historic data gathered from IPNF surveys or scien- tific research.

In FW-DC-VEG-05 the desired increase in size of forest patches in the seedling and sapling size classes and decreases in size of forest patches in the small and medium size classes is not supported by specific reliable historic data gathered from IPNF surveys or scientific research.

In FW-DC-VEG-06 the implied assertion that root fungi and forest insects are caus- ing too much tree mortality on the IPNF is not supported by specific reliable historic data gathered from IPNF surveys or scien- tific research.

In FW-DC-VEG-07 the desired ranges for snags are not supported by reliable historic

data taken from IPNF surveys or scientific research. The scientific basis for the delin- eation of snags into two diameter groups using 20[rdquo] d.b.h. as the division point is not established.

In FW-DC-VEG-11 the desired ranges for forest composition, structure, and pattern for each biophysical setting are not sup- ported by reliable historic data taken from IPNF surveys or scientific research. The Forest Plan does not explained how the ef- fects of climate change and white pine blis- ter rust affect the attainability of those de- sired ranges.

The Forest Plan does not cite the scientific basis for the minimum amounts of coarse woody debris to be retained under Guide- line FW-GDL-VEG-03.

In FW-GDL-VEG-05 it is unclear if the use of the word [ldquo]should[rdquo] is intended to recog- nize the second

consistency requirement on page 4 of the Forest Plan, or if it is intend-

ed to render the entire Guideline to be dis- cretionary. Also, the [ldquo]fire salvage[rdquo] provi- sion for using untreated areas to meet snag requirement would lead to insufficient re- tention in logged areas.

In FW-GDL-VEG-06 it is unclear if the use of the word [ldquo]should[rdquo] is intended to recog- nize the second consistency requirement on page 4 of the Forest Plan, or if it is intend- ed to render the entire Guideline to be dis- cretionary.

The first sentence of FW-GDL-VEG-08 along with the consistency requirement on page 4 of the Forest Plan suggest that any silvicultural system may be used in any proposed treatment unit, regardless of its appropriateness.

6

Essentially, FW-DC-FIRE-02 and Guide- line MA6-GDL-FIRE-01 can be used to justify treatments regardless if they result in forest conditions that would not likely

occur naturally, or if the biophysical setting would require frequent, intensive fuel treatments to maintain the desired fuel conditions. Regardless of natural fire regime, [ldquo]Fire behavior is characterized by low- intensity surface fires with limited crown fire potential.[rdquo] Also, they prioritize fuel reduction over natural processes that create important wildlife habitat compo- nents and maintain soil productivity.

The wording of FW-DC-TBR-03 essentially nullifies any meaningful distinction be- tween suitable and unsuitable land, and to- gether FW-OBJ-TBR-01, MA6-STD-TBR- 01, and the ASQ (FW-DC-TBR-04), en-

courages logging in unsuitable land. One or more of the [ldquo]purposes[rdquo] of logging it al- lows in land that is [ldquo]unsuitable[rdquo] appear in every timber sale NEPA document.

FW-DC-TBR-04. The Allowable Sale Quantity (ASQ) of 120 million board feet annually is not based upon scientifically sound modeling that adequately considers

ecological and economic constraints. It is simply not ecologically sustainable. It cre- ates a sense of false expectations for forest products industries.

FW-OBJ-TBR-01. This timber target pro- vides incentives which conflict with ecolog- ical sustainability. The annual target of of- fering 45 million board feet is not based upon scientifically sound modeling that ad- equately considers ecological and economic constraints. It creates a sense of false ex- pectations for forest products industries

FW-STD-TBR-02 perpetuates the fiction that there is a category of natural processes that are some sort of [ldquo]catastrophe.[rdquo] This effectively translates to dead trees not being logged (not maximizing timber volume produced) as the catastrophe rather than there really being something truly ecologi- cally harmful.

Desired Condition FW-DC-SES-04 perpet- uates the Smoky Bear myth that protection

from fire is a promise that the government can and should make. Unlike the direction provided in the Forest Plan Fire section, there is no recognized balance with ecolog- ical considerations. This Desired Condition does not provide any further increment of public safety.

The EA states, [ldquo]Fifty-seven percent of the National Forest System lands within the project area have been

determined to be suitable for timber production: Please cite the specific documentation which deter- mined that these specific lands (57% of the national forest land in the project area) are suitable for timber production. We want to know when and how this was determined.

To the degree the forest plan direction has legitimacy, the EA fails to state all the rele- vant Plan direction and demonstrate con- sistency with it.

We also wrote:

Ecologically Deficient Forest Plan [ldquo]De- sired Conditions[rdquo]

The FS[rsquo]s [ldquo]desired conditions[rdquo] rationale is inconsistent with a more holistic ecosystem management approach, which acknowl- edges the forest[rsquo]s capability of operating in a self- regulatory manner. For example, Harvey et al., 1994 state:

Although usually viewed as pests at the tree and stand scale, insects and disease organ- isms perform functions on a broader scale.

...Pests are a part of even the healthiest eastside ecosystems. Pest roles[mdash]such as the removal of poorly adapted individuals, accelerated decomposition, and reduced stand density[mdash]may be critical to rapid ecosystem adjustment.

...In some areas of the eastside and Blue Mountain forests, at least, the ecosystem has been altered, setting the stage for high pest activity (Gast and others, 1991). This increased activity does not mean that the ecosystem is broken or dying; rather, it is demonstrating functionality, as pro- grammed during its developmental (evolu- tionary) history. (Emphasis added.)

Would the above statement[mdash]made by gov- ernment scientists as part of their partici- pation with the Interior Columbia Basin Ecosystem Management Project[mdash]be au- tomatically rejected from consideration as Best Available Science for the Buckskin Saddle process, because it is inconsistent with the assumptions contained in the Scoping Notice?

The EIS must demonstrate consistency with all the applicable direction in the For- est Plan to comply with NEPA and NFMA.

The IPNF Forest Plan and its wildlife via- bility methodology rely heavily upon the as- sumption that the FS knows the Historic Range of Variability (HRV) of a wide enough set of vegetation/habitat parame- ters, upon which [ldquo]Desired Conditions[rdquo] are constructed, and toward which [ldquo]move- ment[rdquo] is most of what[rsquo]s necessary for de- termining Forest Plan/NFMA compliance. Yet the reliability of the data sources used to construct the HRV is not disclosed. The data sources themselves are not identified or obscure.

The Forest Plan relies upon static Desired Conditions (DCs) to direct active manage- ment on the IPNF. The philosophy driving the FS strategy to [ldquo]move toward[rdquo] and replicate historic vegetative conditions (ba- sically, replace natural processes with log- ging and prescribed burning) is that emu- lation of the results of disturbance process- es would conserve biological diversity.

McRae et al. 2001 provide a scientific re- view summarizing empirical evidence that finds marked contrasts between the results of logging and wildfire. A plethora of scien- tific evidence directs that DCs be more properly stated in terms of desired future dynamics, in line with best available sci-ence. Hessburg and Agee (2003) for exam- ple, state:

Patterns of structure and composition with- in existing late-successional and old forest reserve networks will change as a result of wildfires, insect outbreaks, and other pro- cesses. What may be needed is an approach that marries a short-term system of reserves with a long-term strategy to convert to a continuous network of landscapes with dy- namic properties. In such a system, late- successional and old forest elements would be continuously recruited, but would shift semi-predictably in landscape position across space and time. Such an approach would represent a planning paradigm shift from NEPA-like desired future conditions, to planning for landscape-scale desired fu- ture dynamics. (Emphasis added.)

Likewise, Sallabanks, et al., 2001 state: Given the dynamic nature of ecological communities in Eastside (interior) forests and woodlands, particularly regarding po- tential effects of fire, perhaps the very con- cept of defining [ldquo]desired future conditions[rdquo] for planning could be replaced with a con- cept of describing [ldquo]desired future dynam- ics.[rdquo]

McClelland (undated) criticizes the aim to achieve desired conditions by the use of mitigation measures calling for retention of specific numbers of certain habitat struc- tures:

The snags per acre approach is not a long- term answer because it concentrates on the products of ecosystem processes rather than the processes themselves. It does not address the most critical issue[mdash]long-term perpetuation of diverse forest habitats, a mosaic pattern which includes stands of old-growth larch. The processes that pro- duce suitable habitat must be retained or reinstated by managers. Snags are the re- sult of these processes (fire, insects, dis- ease, flooding, lightning, etc.).

(Emphasis added.) There is much other support for such an approach in the scien- tific literature. Noss 2001, for example, be- lieves [ldquo]If the thoughtfully identified critical components and processes of an ecosystem are sustained, there is a high probability that the ecosystem as a whole is sustained.[rdquo] (Emphasis added.)

Noss 2001 describes basic ecosystem com- ponents:

Ecosystems have three basic components: composition, structure, and function. To- gether, they define biodiversity and ecologi- cal integrity and provide the foundation on which standards for a sustainable human relationship with the earth might be craft- ed.

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

Composition includes the kinds of species present in an ecosystem and their relative abundances, as well as the composition of plant associations, floras and faunas, and habitats at broader scales. We might de- scribe the composition of a forest, from in- dividual stands to watersheds and regions. Structure is the architecture of the forest, which includes the vertical layering and shape of vegetation and its horizontal patchiness at several scales, from within stands (e.g., treefall gaps) to landscape pat- terns at coarser scales. Structure also in- cludes the presence and abundance of such distinct structural elements as snags (standing dead trees) and downed logs in various size and decay classes.

Function refers to the ecological processes that characterize the ecosystem. These pro- cesses are both biotic and abiotic, and in- clude decomposition, nutrient cycling, dis-turbance, succession, seed dispersal, her- bivory, predation, parasitism, pollination, and many others. Evolutionary processes, including mutation, gene flow, and natural selection, are also in the functional catego- ry.

(Emphasis added.) Hutto, 1995 also ad- dresses natural processes, referring specifi- cally to fire: Fire is such an important cre- ator of the ecological variety in Rocky Mountain landscapes that the conservation of biological diversity (required by NFMA) is likely to be accomplished only through the conservation of fire as a process...Ef- forts to meet legal mandates to maintain biodiversity should, therefore, be directed toward maintaining processes like fire, which create the variety of vegetative cover types upon which the great variety of wildlife species depend. (Emphases added.)

Noss and Cooperrider (1994) state:

Considering process is fundamental to bio- diversity conservation because process de- termines pattern. Six interrelated cate- gories of ecological processes that biolo- gists and managers must understand in or- der to effectively conserve biodiversity are

(1) energy flows, (2) nutrient cycles, (3) hy- drologic cycles, (4) disturbance regimes, (5) equilibrium processes, and (6) feedback ef- fects. (Emphasis added.)

The Environmental Protection Agency (1999) recognizes the primacy of natural processes: (E)cological processes such as natural disturbance, hydrology, nutrient cycling, biotic interactions, population dy- namics, and evolution determine the species composition, habitat structure, and ecological health of every site and land- scape. Only through the conservation of ecological processes will it be possible to

(1) represent all native ecosystems within

the landscape and (2) maintain complete, unfragmented environmental gradients among ecosystems. (Emphasis added.)

Forest Service researcher Everett (1994) states:

To prevent loss of future options we need to simultaneously reestablish ecosystem pro- cesses and disturbance effects that create and maintain desired sustainable ecosys- tems, while conserving genetic, species, community, and landscape diversity and long-term site productivity. ...We must ad- dress restoration of ecosystem processes and disturbance effects that create sustain- able forests before we can speak to the restoration of stressed sites; otherwise, we will forever treat the symptom and not the problem. ... One of the most significant management impacts on the sustainability of forest ecosystems has been the disrup- tion of ecosystem processes through actions such as fire suppression (Mutch and others 1993), dewatering of streams for irrigation (Wissmar and others 1993), truncation of stand succession by timber harvest (Wal- stad 1988), and maintaining numbers of desired wildlife species such as elk in ex- cess of historical levels (Irwin and others 1993). Several ecosystem processes are in an altered state because we have interrupt- ed the cycling of biomass through fire sup- pression or have created different cycling processes through resource extraction (timber harvest, grazing, fish harvest). (Emphases added.)

Hessburg and Agee 2003 also emphasize the primacy of natural processes for man- agement purposes:

Ecosystem management planning must ac- knowledge the central importance of nat- ural processes and pattern[ndash]process interac- tions, the dynamic nature of ecological sys- tems (Attiwill, 1994), the inevitability of uncertainty and variability (Lertzman and Fall, 1998) and cumulative effects (Com-mittee of Scientists, 1999; Dunne et al., 2001). (Emphasis added.)

The EA also fails to provide a rational ex- planation of the alleged need to conduct logging to mimic natural

processes[rsquo] effects creating patch size and pattern. Churchill, 2011 points out:

Over time, stand development processes and biophysical variation, along with low and mixed-severity disturbances, break up these large patches into a finer quilt of patch types. These new patterns then con- strain future fires. Landscape pattern is thus generated from a blend of finer scale, feedback loops of vegetation and distur- bance and broad scale events that are dri- ven by extreme climatic events.

(Emphases added.) Churchill describes above the ongoing natural processes that will alleviate the vegetative imbalances al- leged in the EA[mdash]without expensive and ecologically risky logging and road build-ing. Since no proper spatial analysis of the landscape pattern[rsquo]s departure has been completed, the EA has no scientifically de- fensible logging solution.

Further, Collins and Stephens (2007) sug- gest direction to implement restoring the process of fire by educating the public:

(W)hat may be more important than restor- ing structure is restoring the process of fire (Stephenson 1999). By allowing fire to re- sume its natural role in limiting density and reducing surface fuels, competition for growing space would be reduced, along with potential severity in subsequent fires (Fule and Laughlin 2007). As a result, we contend that the forests in Illilouette and Sugarloaf are becoming more resistant to ecosystem perturbations (e.g. insects, dis- ease, drought). This resistance could be important in allowing these forests to cope with projected changes in climate Al-

though it is not ubiquitously applicable,

(wildland fire use) could potentially be a cost-effective and ecologically sound tool for treating[rdquo] large areas of forested land. Decisions to continue fire suppression are politically safe in the short term, but eco- logically detrimental over the long term.

Each time the decision to suppress is made, the risk of a fire escaping and causing damage (social and economic) is essentially deferred to the future. Allowing more nat- ural fires to burn under certain conditions will probably mitigate these risks. If the public is encouraged to recognize this and to become more tolerant of the direct, near- term consequences (i.e. smoke production, limited access) managers will be able to more effectively use fire as a tool for restor- ing forests over the long term.

Typically, vegetation management propos- als and their accompanying NEPA docu- ments on the IPNF acknowledge that at- tempts to control or resist the natural process of fire have been a contributor to deviations from DCs. This Buckskin Saddle proposal is no exception. Often these same documents characterize fire as well as na- tive insects and other natural pathogens as threats to the ecosystem rather than reju- venating natural processes. They seem to need such an obsolete viewpoint in order to justify and prioritize the proposed vegeta- tion manipulations, tacitly for replacing natural processes with [ldquo]treat- ments[rdquo] and [ldquo]prescriptions.[rdquo] However the scientific support for assuming that large landscapes and ecosystems can be restored or continuously maintained by such ma- nipulative actions is entirely lacking.

The FS has recognized that natural pro- cesses are vital for achieving ecological in- tegrity. USDA Forest Service, 2009a incor-porates [ldquo]ecological integrity[rdquo] into its con- cept of [ldquo]forest health[rdquo] thus:

[ldquo](E)cological integrity[rdquo]: Angermeier and Karr (1994), and Karr (1991) define this as: The capacity to support and maintain a balanced, integrated, and adaptive biologi- cal system having the full range of ele- ments and processes expected in a region[rsquo]s natural habitat. [ldquo]...the ability to support and maintain a balanced, integrated, adap- tive community of organisms having a species composition, diversity, and func- tional

organization comparable to that of the natural habitat of the region.[rdquo] That is, an ecosystem is said to have high integrity if its full complement of native species is present in normal distributions and abun- dances, and if normal dynamic functions are in place and working properly. In sys- tems with integrity, the [ldquo]...capacity for self- repair when perturbed is preserved, and minimal external support for management is needed.[rdquo]

(Emphases added.) In their conclusion, Hessburg and Agee, 2003 state [ldquo]Desired future conditions will only be realized by planning for and creating the desired ecosystem dynamics represented by ranges of conditions, set initially in strategic loca- tions with minimal risks to species and pro- cesses.[rdquo]

The Forest Service Responded:

Each resource report lists the best available science used to support the respective analysis. The Land Management Plan (IPNF 2015 Forest Plan) provides plan- ning direction as explained in the EA pp.

3-4. The Forest Plan was signed in 2015 and is the legal planning document for this project. Please refer to https://www.fs.usda.gov/detail/ipnf/land- management/planning/?cid=stelprd- b5436518

The DDN and EA violate NFMA, NEPA, the APA, the ESA and the Clean Water Act. Remedy: Select the No Action alternative.

Alternatively, prepare an EIS that addresses the analytical and scientific issues identified above.

We wrote in our comments:

Cumulative Effects

[ldquo]The existing vegetation condition encompasses the cu- mulative effects analysis area and captures the effects of past activities on the forest vegetation resource in the planning area. Direct and indirect effects of the activities proposed in alternative 2 are additive to the activities which have led to the existing condition.[rdquo] This is typical of cu- mulative effects (non)analysis in the EA. To paraphrase, things are the way they are now because things happened in the past, and never mind that data is lacking to ade- quately describe the way things are now.

Project activities and their environmental impacts will ex- tend beyond the mapped project area boundary shown on the map, and the FS is obligated to acknowledge and dis- close those impacts. The FS should utilize an analysis area formed by the watershed boundaries encompassing all the logging and any other proposed active manage- ment.

It is vital that the results of past monitoring be incorpo- rated into this project analysis and planning. We request the following be disclosed:

* A list of all past projects (completed or ongoing) im- plemented in the analysis area.
* A list of the monitoring commitments made in all previous NEPA documents covering the

analysis area.

* The results of all that monitoring.

* A description of any monitoring, specified in those past project NEPA for the analysis area,

which has yet to be gathered and/or reported.

* A summary of all monitoring of resources and condi- tions relevant to the proposal or analysis

area as a part of the Forest Plan monitoring and evaluation effort.

* A cumulative effects analysis which includes the re- sults from the monitoring required by the

Forest Plan.

Please provide an analysis of how well those past FS projects met the goals, objectives, desired conditions, etc. stated in the corresponding NEPA documents, and how well the projects conformed to forest plan standards and guidelines.

Those items are a critical part of the NEPA analysis. Without this critical link the validity of the FS[rsquo]s cur- rent assumptions are baseless. Without analyzing the accuracy and validity of the assumptions used in pre- vious NEPA processes one has no way to judge the accuracy and validity of the current proposal. The predictions made in previous NEPA processes also need to be disclosed and analyzed because if these were not accurate, and the agency is making similar decisions, then the process will lead to failure. For instance, if in previous processes the FS said they were going to do a certain monitoring plan or im- plement a certain type of management and these were never effectively implemented, it is important for the public and the decision maker to know. If there have been problems with FS implementation in the past, it is not logical to assume that implementa- tion will now all of a sudden be appropriate. If prior logging, prescribed fire and other [ldquo]forest health treatments[rdquo] have not been monitored appropriately, then there is no valid reason for this project.

Please analyze and disclose the cumulative effects of past, ongoing, and proposed management actions, within a logically defined cumulative effects analysis area, on land of all ownerships. Please disclose if the FS has performed all of the monitoring and mitiga- tion required or recommended in those NEPA docu- ments, and the results of the monitoring. The FS would be unable to properly analyze and disclose cumulative effects of management plan implementa- tion if it is not adequately informed by past project monitoring and plan-mandated monitoring.

Please provide an analysis to determine if implementation of past management activities contributed to the claimed deficiency in resiliency.

The Forest Service responded:

The cumulative effects of past actions are described as the existing condition in each resource report respectively. For Past Present and Reasonably Foreseeable ac- tions, refer to the EA [ndash] Appendix E.

The EA fails to analyze and disclose all of the cumulative effects of the Westside project.

The Remedy is to choose the No Action Al- ternative or to withdraw the draft DN and write an EIS that fully complies with the law.

We wrote in our comments:

Climate Change and Carbon Sequestration

Please analyze how proposed management actions would be affected by likely climate change scenarios. Please quantify all hu- man-caused CO2 emissions for all project activities. Please quantify carbon seques- tration for each alternative. Please disclose how climate change has affected ecological conditions in the project area, and include an analysis of these conditions under cli- mate change scenarios.

Some politicians, bureaucrats, and industry profiteers pretend there[rsquo]s nothing to do about climate change because it isn[rsquo]t real.

The FS acknowledges it[rsquo]s real, pretends it can do nothing, provides but a limited fo- cus on its symptoms and[mdash]like those politi- cians and profiteers[mdash]ignores and distracts from the causes of climate change they en- able.

Global climate change is a massive, un- precedented threat to humanity and forests. Climate change is caused by excess CO2 and other greenhouse gases transferred to the atmosphere from other pools. All tem- perate and tropical forests, including those in this project area, are an important part of the global carbon cycle. There is signifi- cant new information reinforcing the need to conserve all existing large stores of car- bon in forests, in order to keep carbon out of the atmosphere and mitigate climate change. The agency must do its part by managing forests to maintain and increase carbon storage. Logging would add to cu- mulative total carbon emissions so is clear- ly part of the problem, so it must be mini- mized and mitigated. Logging would not only transfer carbon from storage to the atmosphere but future regrowth is unlikely to ever make up for the effects of logging, because carbon storage in logged forests lags far behind carbon storage in unlogged forests for decades or centuries. And before recovery, the agency plans even more activ- ities causing greenhouse gas emissions.

The Forest Service responded: Changing climate conditions, carbon cy-

cling,and how they pertain this project are

explained in the response to comments # 14-18, 14-19 and 14-56.

The EA provided a pittance of information on climate change effects on project area vegetation. The EA provides no analysis as to the veracity of the project[rsquo]s Purpose and Need, the project[rsquo]s objectives, goals, or de-sired conditions. The FS has the responsi- bility to inform the public that climate change is and will be bringing forest change. For the Buckskin Saddle project, this did not happen, in violation of NEPA.

The EA fails to consider that the effects of climate change on the project area, includ- ing that the [ldquo]desired[rdquo] vegetation conditions will likely not be achievable or sustainable. The EA fails to provide

any credible analy- sis as to how realistic and achievable its de- sired conditions are in the context of a rapidly changing climate, along an unpre- dictable but changing trajectory.

Hayward, 1994 essentially calls into ques- tion the entire manipulate and control regime, as represented in project design.

The managed portion of the IPNF has been fundamentally changed, as has the climate, so the FS must analyze how much land has been fundamentally changed for-

est wide compared to historic conditions, and disclose such information to the public in the context of an EIS.

We add this observation from Frissell and Bayles (1996):

Most philosophies and approaches for ecosystem management put forward to date are limited (perhaps doomed) by a failure to acknowledge and rationally address the overriding problems of uncertainty and ig- norance about the mechanisms by which complex ecosystems respond to human ac- tions. They lack humility and historical perspective about science and about our past failures in management. They still im- plicitly subscribe to the scientifically dis- credited illusion that humans are fully in control of an ecosystemic machine and can foresee and manipulate all the possible consequences of particular actions while deliberately altering the ecosystem to pro- duce only predictable, optimized and social- ly desirable outputs. Moreover, despite our

well-demonstrated inability to prescribe and forge institutional arrangements capa- ble of successfully implementing the prin- ciples and practice of integrated ecosystem management over a sustained time frame an at sufficiently large spatial scales, would-be ecosystem managers have ne- glected to acknowledge and critically ana- lyze past institutional and policy failures.

They say we need ecosystem management because public opinion has changed, ne- glecting the obvious point that public opin- ion has been shaped by the glowing promises of past managers and by their clear and spectacular failure to deliver on such promises.

And as the KNF[rsquo]s March 2017 Galton Fi- nal Environmental Impact Statement ex- plains:

This analysis identifies specific disturbance processes, together with landform and oth- er environmental elements, which have in- fluenced the patterns of vegetation across

the Decision Area. Vegetative Response Units (VRUs) were used to define and de- scribe the components of ecosystems. VRUs are used to describe an aggregation of land having similar capabilities and potentials for management. These ecological units have similar properties in natural commu- nities: soils, hydrologic function, landform and topography, lithology, climate, air quality, and natural processes (nutrient and biomass cycling, succession, productiv- ity, and fire regimes).

Each VRU has a characteristic frequency and type of disturbance based on its cli- mate, soils, vegetation, animals, and other factors. Populations of native plants and animals have responded and adapted to these characteristic disturbance regimes over time (~2500 years) and the resulting vegetation patterns, processes, and struc- ture within a historical range of variability. These characteristic processes, patterns,

and structure are termed [ldquo]Reference Con- ditions[rdquo].

It[rsquo]s clear that [ldquo]reference conditions[rdquo] are no longer valid conceptually as a manage- ment target. Pederson et al. (2009) note that western Montana has already passed through 3 important, temperature-driven ecosystem thresholds. Westerling, et al.

2006 state:

Robust statistical associations between wildfire and hydro-climate in western forests indicate that increased wildfire ac- tivity over recent decades reflects sub-re- gional responses to changes in climate.

Historical wildfire observations exhibit an abrupt transition in the mid-1980s from a regime of infrequent large wildfires of short (average of one week) duration to one with much more frequent and longer-burn- ing (five weeks) fires. This transition was marked by a shift toward unusually warm springs, longer summer dry seasons, drier vegetation (which provoked more and longer-burning large wildfires), and longer fire seasons. Reduced winter precipitation and an early spring snowmelt played a role in this shift. Increases in wildfire were par- ticularly strong in mid-elevation

forests. ...The greatest increases occurred in mid-elevation, Northern Rockies forests, where land- use histories have relatively lit- tle effect on fire risks, and are strongly as- sociated with increased spring and summer temperatures and an earlier spring snowmelt.

Running, 2006 cites model runs of future climate scenarios from the 4th Assessment of the Intergovernmental Panel on Climate Change, stating:

(S)even general circulation models have run future climate simulations for several different carbon emissions scenarios.

These simulations unanimously project June to August temperature increases of 2[deg] to 5[deg]C by 2040 to 2069 for western North America. The simulations also project pre-

cipitation decreases of up to 15% for that time period (11). Even assuming the most optimistic result of no change in precipita- tion, a June to August temperature in- crease of 3[deg]C would be roughly three times the spring-summer temperature increase that Westerling et al. have linked to the current trends. Wildfire burn areas in Canada are expected to increase by 74 to 118% in the next century (12), and similar increases seem likely for the western Unit- ed States.

The Pacific Northwest Research Station, 2004 recognizes [ldquo](a) way that climate change may show up in forests is through changes in disturbance regimes[mdash]the long- term patterns of fire, drought, insects, and diseases that are basic to forest develop- ment.[rdquo]

The EA fails to analyze and disclose how climate change is already, and is expected to be even more in the future, influence forest ecology. This has vast ramifications

as to whether or not the forest in the project area will respond as the FS as- sumes. As the forest plan FEIS states, [ldquo]Forest Plan management strategies may affect the composition, structure, and land- scape pattern of forests. This could influ- ence the susceptibility and resiliency of the forests to significant disturbance agents such as large intense wildfires, insect and disease epidemics, weather events, and cli- mate change.[rdquo] One of the needs for forest plan revision revolves around [ldquo]concerns that the forest composition, structure, and pattern had shifted away from historical conditions to the extent that ecosystems, and the goods and services that it provided, may not be sustainable, especially in light of potential impacts from climate

change.[rdquo] (Id.) It also states:

The 1987 Forest Plan does not contain di- rection on moving towards historic condi- tions or to improve resistance and resilien- cy in the light of climate change. Contin-

ued deviation from historic conditions would lead to changes in disturbance and succession processes, making it difficult to provide for a sustainable ecosystem.

The EA fails to

to water stress, competing vegetation, and repeat fires that burn young stands,[rdquo] which will likely lead to a dramatic increase in non-forest land acres. (Johnson, et al., 2016.)

acknowledge the likelihood that [ldquo]...high seedling and sapling mortality rates due

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

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

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

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

A landmark report from the United Na- tions[rsquo] scientific panel on climate change paints a much darker picture of the imme- diate consequences of climate change than previously thought and says that avoiding the damage requires transforming the world economy at a speed and scale that has [ldquo]no documented historic precedent.[rdquo]

The report, issued late 2018 by the Inter- governmental Panel on Climate Change, a group of scientists convened by the United Nations to guide world leaders, describes a world of worsening food shortages and wildfires, and a mass die-off of coral reefs as soon as 2040 [mdash] a period well within the lifetime of much of the global population.

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

The authors found that if greenhouse gas emissions continue at the current rate, the atmosphere will warm up by as much as 2.7 degrees Fahrenheit (1.5 degrees Celsius) above preindustrial levels by 2040, inundat- ing coastlines and intensifying droughts and poverty. Previous work had focused on estimating the damage if average tempera- tures were to rise by a larger number, 3.6 degrees Fahrenheit (2 degrees Celsius), be- cause that was the threshold scientists pre- viously considered for the most severe ef- fects of climate change.

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

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

KEY MESSAGES

* Annual average temperatures, includ- ing daily minimums, maximums, and averages, have

risen across the state between 1950 and 2015. The increases range between 2.0- 3.0[deg]F (1.1-1.7[deg]C) during this period.

[high agreement, robust evidence]

* Winter and spring in Montana have ex- perienced the most warming. Average temperatures during these seasons have risen by 3.9[deg]F (2.2[deg]C) between 1950 and 2015. [high agreement, robust evi- dence]
* Montana[rsquo]s growing season length is in- creasing due to the earlier onset of spring and more extended summers; we are also experiencing more warm days and fewer cool nights. From

1951-2010, the growing season in- creased by 12 days. In addition, the an- nual number of warm days has in- creased by 2.0% and the annual num- ber of cool nights has decreased by 4.6% over this period. [high agreement, robust evidence]

* Despite no historical changes in aver- age annual precipitation between 1950 and 2015, there have been changes in average seasonal precipitation over the same period. Average winter precipita- tion has decreased by 0.9 inches (2.3 cm), which can mostly be attributed to natural variability and an increase in El Ni[ntilde]o events, especially in the west- ern and central parts of the state. A sig- nificant increase in spring precipitation (1.3-2.0 inches [3.3-5.1 cm]) has also occurred during this period for the eastern portion of the state. [moderate agreement, robust evidence]
* The state of Montana is projected to continue to warm in all geographic lo- cations, seasons, and under all emis- sion scenarios throughout the 21st cen- tury. By mid century, Montana temper- atures are projected to increase by ap- proximately 4.5-6.0[deg]F (2.5-3.3[deg]C) de-pending on the emission scenario. By the end-of-century, Montana tempera- tures are projected to increase

5.6-9.8[deg]F (3.1-5.4[deg]C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nation- ally. [high agreement, robust evidence]

* The number of days in a year when dai- ly temperature exceeds 90[deg]F (32[deg]C) and the number of frost-

free days are ex- pected to increase across the state and in both emission scenarios studied. In- creases in the number of days above 90[deg]F (32[deg]C) are expected to be greatest in the eastern part of the state. Increas- es in the number of frost-free days are expected to be greatest in the western part of the state. [high agreement, ro- bust evidence]
* Across the state, precipitation is pro- jected to increase in winter, spring, and fall; precipitation is projected to de- crease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to

occur during summer in the central and southern parts of the state. [moderate agreement, moderate evidence]

In a literature review, Simons (2008) states, [ldquo]Restoration efforts aimed at the mainte- nance of historic ecosystem structures of the pre-settlement era would most likely re- duce the resilient characteristics of ecosys- tems facing climate change (Millar 1999).[rdquo] The project area and IPNF have been fun- damentally changed, so the agency must consider how much native forest it has fundamentally altered compared to historic conditions forestwide before pursuing [ldquo]treatments[rdquo] here. And that includes con-sidering the effects of human- induced cli- mate change. Essentially, this means con- sidering new scientific information on all kinds of changes away from historic condi- tions.

The FS[rsquo]s position on project impacts on climate change is that the project would have a miniscule impact on global carbon emissions. The obvious problem with that viewpoint is, once can say the same thing about every source of carbon dioxide and other greenhouse gas emission on earth, and likewise justify inaction as does this EA. In their comments on the KNF[rsquo]s Draft EIS for the Lower Yaak, O'Brien, Sheep project, the EPA rejected that sort of analy- sis, basically because that cumulative ef- fects scale dilutes project effects. We would add that, if the FS wants to refer to a wider scope to analyze its carbon footprint, we suggest that it actually conduct such a cu- mulative effect analysis and disclose it in a NEPA document.

The FS (in USDA Forest Service, 2017b) discusses some effects of climate change on forests, including [ldquo]In many areas, it will no longer be possible to maintain vegetation within the historical range of variability.

Land management approaches based on current or historical conditions will need to be adjusted.[rdquo] The Buckskin Saddle EA has no scientific basis for its claims that pro- posed vegetation [ldquo]treatments[rdquo] will result in sustainable vegetation conditions under likely climate change scenarios. It also fails to provide a definition of [ldquo]increasing re- silience[rdquo] that includes metrics for valid and reliable measurement of resilience. The scientific literature even debates if the same tree species mix that has historically inhab- ited sites can persist after disturbances, in- cluding the types of disturbances proposed under project action alternatives.

The Buckskin Saddle EA ignores scientific opinion on forest management[rsquo]s negative effects on carbon sequestration. The forest plan FEIS states, [ldquo]Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by vegetation through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils.[rdquo] Best available science supports the proposition that forest policies must shift away from logging if a priority is carbon sequestration. Forests should be preserved indefinitely for their carbon stor- age value.

We incorporate the following article from the Missoulian ([ldquo] 2019):

March 11,

Fire study shows landscapes such as

Bitterroot's Sapphire Range too hot, dry to restore trees[rdquo]) written by Rob Chaney (Burned landscapes like this drainage in the Sapphire Mountains hasn't been able to grow new trees since the Valley Complex fire of 2000, due to lack of soil moisture, humidity and seed trees, as well as excess heat during the growing season. University of Montana students Erika Berglund and Lacey Hankin helped gather samples for a study showing tree stands are getting re- placed by grass and shrubs after fire across the western United States due to climate change.

Courtesy Kim Davis

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

[ldquo]The drier aspects aren[rsquo]t coming back, es- pecially on north-facing slopes,[rdquo] said Kim Davis, a UM landscape ecologist and lead investigator on the study. [ldquo]It[rsquo]s not soil ster- ilization

Other vegetation like grasses are re-sprout- ing. It[rsquo]s too warm. There[rsquo]s not enough moisture for the trees.[rdquo]

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

of Sciences journal.

[ldquo]What[rsquo]s striking is if you asked scientists two decades ago how climate warming would play out, this is what they expected we[rsquo]d see,[rdquo] Higuera said. [ldquo]And now we[rsquo]re starting to see those predictions on the im- pact to ecosystems play out.[rdquo]

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

[ldquo]We did over 4,000 miles of road-tripping across the West, as well as lots of miles hik- ing and backpacking,[rdquo] Davis said. The survey crews brought back everything from dead seedlings to 4-inch-diameter tree rings; nearly 3,000 samples in total. Then they analyzed how long each tree had been growing and what conditions had been when it sprouted.

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

[ldquo]There used to be enough variability in seasonal conditions that seedlings could make it across these fixed thresholds,[rdquo] Do- browski said. [ldquo]After the mid-[lsquo]90s, those

windows have been closing more often. We[rsquo]re worried we[rsquo]ll lose these low-eleva- tion forests to shrubs or grasslands. That[rsquo]s what the evidence points to.[rdquo]

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

[ldquo]The six sites we looked at in the Bitter- roots haven[rsquo]t been above the summer hu- midity threshold since 1997,[rdquo] Higuera said. [ldquo]Soil moisture hasn[rsquo]t crossed the threshold since 2009.[rdquo]

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

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

The study also found that soil sterilization wasn[rsquo]t a factor in tree regrowth, even in the most severely burned areas. For example, the 2000 Sula Complex of fires stripped forest cover in the southern end of the Bit-terroot Valley. While the lodgepole pine stands near Lost Trail Pass have recovered, the lower- elevation Ponderosa pine and Douglas firs haven[rsquo] t.

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

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

The Resources Planning Act of 1974 (RPA) and National Forest Management Act of 1976 (NFMA) mandate long-range plan-ning which impose numerous limitations on timber extraction practices and the amount of timber sold annually. These long range plans are based on assumptions, which are based on data, expert opinion, public participation and other factors which mostly view from a historical per- spective. So it[rsquo]s time to peer into the future to examine closely (NEPA: [ldquo]take a hard look at[rdquo]) those assumptions.

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

The EA and Forest Plan FEIS fail to reex- amine the assumptions relating to timber suitability, resilience and sustainability as a result of recent fires, past regeneration success/failures, and climate-risk science.

Conventional wisdom dictates that forests regenerate and recover from wildfire. If that[rsquo]s true, then it[rsquo]s logical to conclude that forests can regenerate and recover from logging. And these days, [ldquo]resilience[rdquo] is a core tenant of Forest Service planning. Un- fortunately, assumptions of the EA and Forest Plan FEIS relating to desired condi- tions are incorrect. NEPA requires a [ldquo]hard look[rdquo] at the best available science relating to future concentrations of greenhouse gases and gathering climate risk as we move forward into an increasingly uncer- tain and uncharted climate future. This has not been done. The Forest Plan and Buck- skin Saddle EA do not include a legitimate climate-risk analysis.

Scientific research indicates that increas- ing CO2 and other greenhouse gas concen- trations may preclude maintaining and at- taining the anticipated forest conditions in the project area and across the IPNF. The agency downplays the implications across the entire Northern Rockies bioregion and beyond, seeming unaware of the likelihood that its desired conditions are at great risk.

No amount of logging, thinning and pre- scribes burning will cure the cumulative ef-

fects (irretrievable loss) already baked into the foreseeably impending climate chaos. [ldquo]Treatments[rdquo] must be acknowledged for what they are: adverse cumulative envi- ronmental effects. Logging can neither mit- igate, nor prevent, the effects of wildfire or logging. Both cause disturbance to forests that cannot be restored or retrieved[mdash]the resilience assumed no longer exists. It is way too late in the game to pretend to ig- nore the elephant in the room.

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

NEPA requires analysis of an alternative that reflects our common understanding of climate risk. A considerable amount of data and scientific research repeatedly confirms that we may be looking in the wrong direc- tion (back into history, e.g., [ldquo]natural range

of variability[rdquo]) for answers to better under- stand our forest future.

The Forest Service fails to analyze an al- ternative projecting climate science into the forest[rsquo]s future. It fails to adequately con- sider that the effects of climate risk repre- sent a significant and eminent loss of forest resilience already, and growing risk into the [ldquo]foreseeable future.[rdquo]

Funk et al., 2014 indicate that at least five common tree species, including aspens and four conifers, are at great risk unless at- mospheric greenhouse gases and associat- ed temperatures can be contained at today[rsquo]s levels of concentration in the atmosphere.

It is indeed time to speak honestly about unrealistic expectations relating to desired conditions.

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

The Forest Service fails to analyze and dis- close conditions we can realistically expect as heat trapped by increasing greenhouse gas concentrations steadily tightens its grip

[mdash]and impacts on forests accrue locally, regionally, nationally, and globally.

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

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

Golladay et al., 2016 state, [ldquo]In an uncer- tain future of rapid change and abrupt, un- foreseen transitions, adjustments in man- agement approaches will be necessary and some actions will fail. However, it is in- creasingly evident that the greatest risk is posed by continuing to implement strate- gies inconsistent with and not informed by current understanding of our novel future... (Emphasis added).

In the face of increasing climate risk, growing impacts of wildfire and insect ac- tivity, plus scientific research findings, the Forest Service must disclose the significant trend in post-fire regeneration failure. The EA fails to do so. The national forests have already experienced considerable difficulty restocking on areas that have been subject- ed to clear-cut logging, post- fire salvage logging and other even-aged management [ldquo]systems.[rdquo] NFMA (1982) regulation 36CFR 219.27(c)(3) implements the NFMA

statute, and requires restocking in five years.

The EA doesn[rsquo]t address the question of how lands were determined to be suitable for the type of management ongoing or proposed. It does not cite the specific doc- umentation which determined that the spe- cific areas proposed for logging in this proposal are suitable for timber produc- tion.

It[rsquo]s time to analyze and disclose the fact that the IPNF can no longer [ldquo]insure that timber will be

harvested from the National Forest system lands only where...there is assurance that such lands can be restocked within five years of harvest.[rdquo] [NFMA [sect]6(g) (3)(E)(ii)].

Davis et al., 2019 state: [ldquo]

At dry sites across our study region, sea- sonal to annual climate conditions over the past 20 years have crossed these thresholds, such that condi- tions have

become increasingly unsuitable for regen- eration. High fire severity and low seed availability

further reduced the probability of postfire regeneration. Together, our results demon- strate that

climate change combined with high severi- ty fire is leading to increasingly fewer op- portunities

for seedlings to establish after wildfires and may lead to ecosystem transitions in low-el- evation ponderosa pine and Douglas-fir forests across the western United States.[rdquo]

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

The EA does not disclose restocking moni- toring data and analysis.

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

The FS must finally accept scientific re- search and opinion that recognizes the crit- ical challenge posed by climate change to global ecosystems and the IPNF. The statement in the 2010 KIPZ Climate Change Report, [ldquo]Harvested wood products increase the net sequestration on these forests by an undetermined amount[rdquo] is un- substantiated by cited scientific research or information. The statement frames the po-

sition of denial that FS officials adopt as policy.

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

The EA fails to analyze how proposed management actions would be affected by likely climate change scenarios. The EA fails to quantify all human-caused CO2 emissions for all project activities or quan- tify carbon sequestration for each alterna- tive. The EA doesn[rsquo]t disclose how climate change has affected ecological conditions in the project area, and include an analysis of these conditions under climate change scenarios.

Some politicians, bureaucrats, and industry profiteers pretend there[rsquo]s nothing to do about climate change because it isn[rsquo]t real.

The FS acknowledges it[rsquo]s real, pretends it can do nothing, provides but a limited fo- cus on its symptoms and[mdash]like those politi- cians and profiteers[mdash]ignores and distracts from the causes of climate change they en- able.

Global climate change is a massive, un- precedented threat to humanity and forests. Climate change is caused by excess CO2 and other greenhouse gases transferred to the atmosphere from other pools. All tem- perate and tropical forests, including those in this project area, are an important part of the global carbon cycle. There is signifi- cant new information reinforcing the need to conserve all existing large stores of car- bon in forests, in order to keep carbon out of the atmosphere and mitigate climate change. The agency must do its part by managing forests to maintain and increase carbon storage. Logging would add to cu- mulative total carbon emissions so is clear- ly part of the problem, so it must be mini- mized and mitigated. Logging would not only transfer carbon from storage to the atmosphere but future regrowth is unlikely to ever make up for the effects of logging, because carbon storage in logged forests lags far behind carbon storage in unlogged forests for decades or centuries. And before recovery, the agency plans even more activ- ities causing greenhouse gas emissions.

Clearly, the management of the planet[rsquo]s forests is a nexus for addressing the largest crisis ever facing humanity. This is an is- sue as serious as nuclear annihilation (al- though at least with the latter we[rsquo]re not al- ready pressing the button).

There is no cumulative effects analysis of IPNF carbon sequestration over time.

Respected experts say that the atmosphere might be able to safely hold 350 ppm of

CO2.5 So when the atmosphere was at pre- industrial levels of about 280 ppm, there was a cushion of about 70 ppm which rep- resents millions of tons of greenhouse gas emissions. Well, now that cushion is com- pletely gone. The atmosphere is now over 400 ppm CO2 and rising. Therefore the safe level of additional emissions (from logging or any other activity) is negative.

There is no safe level of additional emis- sions that our earth systems can tolerate. We need to be removing carbon from the

atmosphere[mdash]not adding to it.6 How? By allowing forest to grow. Logging moves us away from our objective while conservation moves us toward our objective.

Pecl, et al. 2017 [ldquo]review the consequences of climate-driven species redistribution for economic development and the provision of ecosystem services, including livelihoods, food security, and

1. http://www.350.org/about/science.
2. [ldquo]To get back to 350 ppm, we[rsquo]ll have to run the whole carbon-spewing machine backwards, sucking carbon out of the at- mosphere and storing it somewhere

safely. ... By growing more forests, growing more trees, and better managing all our forests...[rdquo] (http://blog.cleanenergy.org/ 2013/11/26/exploringbiocarbon-tools/com- ment-page-1/#comment-375371)

culture, as well as for feedbacks on the climate itself.[rdquo] They state, [ldquo]Despite mount- ing evidence for the pervasive and substan- tial impacts of a climate-driven redistribu- tion of Earth[rsquo]s species, current global goals, policies, and international agree- ments fail to account for these effects..... To

date, all key international discussions and agreements regarding climate change have focused on the direct

socioeconomic impli- cations of emissions reduction and on funding mechanisms; shifting natural ecosystems have not yet been considered in detail.[rdquo] (Emphasis added.)

From a report by the Union of Concerned Scientists & Rocky Mountain Climate Or- ganization (Funk et al., 2014):

The caption under Funk et al.[rsquo]s Figure 5 and Table 1 states:

Much of the current range of these four widespread Rocky Mountain conifer species is projected to become climatically unsuitable for them by 2060 if emissions of heat-trapping gases continue to rise. The map on the left shows areas projected to be climatically suitable for these tree species under the recent historical (1961[ndash]1990) climate; the map on the right depicts condi- tions projected for 2060 given medium- high levels of heat-trapping emissions. Ar- eas in color have at least a 50 percent like- lihood of being climatically suitable ac- cording to the models, which did not ad- dress other factors that affect where species occur (e.g., soil types). Emissions levels re-

flect the A2 scenario of the Intergovern- mental Panel on Climate Change. For more about this methodology, see www.uc- susa.org/forestannex.

Pecl, et al. 2017 conclude:

The breadth and complexity of the issues associated with the global redistribution of species driven by changing climate are cre- ating profound challenges, with species movements already affecting societies and regional economies from the tropics to po- lar regions. Despite mounting evidence for these impacts, current global goals, poli- cies, and international agreements do not sufficiently consider species range shifts in their formulation or targets. Enhanced awareness, supported by appropriate gov- ernance, will provide the best chance of minimizing negative consequences while maximizing opportunities arising from species movements[mdash]movements that, with or without effective emission reduction, will continue for the foreseeable future, owing to the inertia in the climate system.

Moomaw and Smith, 2017 identify the need for forest protection to be an urgent, na- tional priority in the fight against climate change and as a safety net for communities

against extreme weather events caused by a changing climate. As those authors ex- plain,

Global climate change is caused by excess CO2 and other greenhouse gases trans- ferred to the atmosphere from other pools. Human activities, including combustion of fossil fuels and bioenergy, forest loss and degradation, other land use changes, and industrial processes, have contributed to increasing atmospheric CO2, the largest contributor to global warming, which will cause temperatures to rise and stay high into the next

millennium or longer.

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

emissions peak would persist for the next millennium or longer.

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

The most recent U.S. report of greenhouse gas emissions states that our forests cur- rently [ldquo]offset[rdquo] 11 to 13 percent of total U.S. annual emissions. That figure is half that

of the global average of 25% and only a fraction of what is needed to avoid climate catastrophe. And while the U.S. govern- ment and industry continue to argue that we need to increase markets for wood, pa- per, and biofuel as climate solutions, the rate, scale, and methods of logging in the United States are having significant, nega- tive climate impacts, which are largely be- ing ignored in climate policies at the in- ternational, national, state, and local levels.

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

for, carbon emissions can actually exceed carbon stored in wood products.

Like all forests, the IPNF is an important part of the global carbon cycle. Clear scien- tific information reinforces the critical need to conserve all existing stores of car- bon in forests to keep it out of the at- mosphere. Given that forest policies in oth- er countries and on private lands are politi- cally more difficult to influence, the FS must take a leadership role to maintain and increase carbon storage on publicly owned forests, in order to help mitigate climate change effects.

The effects of climate change have already been significant, particularly in the region. Westerling, et al. 2006 state:

Robust statistical associations between wildfire and hydro-climate in western forests indicate that increased wildfire ac- tivity over recent decades reflects sub-re- gional responses to changes in climate.

Historical wildfire observations exhibit an abrupt transition in the mid-1980s from a regime of infrequent large wildfires of short (average of one week) duration to one with much more frequent and longer-burn- ing (five weeks) fires. This transition was marked by a shift toward unusually warm springs, longer summer dry seasons, drier vegetation (which provoked more and longer-burning large wildfires), and longer fire seasons. Reduced winter precipitation and an early spring snowmelt played a role in this shift. Increases in wildfire were par-

ticularly strong in mid-elevation

forests. ...The greatest increases occurred

in mid-elevation, Northern Rockies forests, where land- use histories have relatively lit- tle effect on fire risks, and are strongly as- sociated with increased spring and summer temperatures and an earlier spring snowmelt.

Running, 2006 cites model runs of future climate scenarios from the 4th Assessment

of the Intergovernmental Panel on Climate Change, stating:

(S)even general circulation models have run future climate simulations for several different carbon emissions scenarios.

These simulations unanimously project June to August temperature increases of 2[deg] to 5[deg]C by 2040 to 2069 for western North America. The simulations also project pre- cipitation decreases of up to 15% for that time period (11). Even assuming the most optimistic result of no change in precipita- tion, a June to August temperature in- crease of 3[deg]C would be roughly three times the spring-summer temperature increase that Westerling et al. have linked to the current trends. Wildfire burn areas in Canada are expected to increase by 74 to 118% in the next century (12), and similar increases seem likely for the western Unit- ed States.

Pederson et al. (2009) note that western Montana has already passed through 3 im-

portant, temperature-driven ecosystem thresholds.

The Pacific Northwest Research Station, 2004 recognizes [ldquo](a) way that climate change may show up in forests is through changes in disturbance regimes[mdash]the long- term patterns of fire, drought, insects, and diseases that are basic to forest develop- ment.[rdquo]

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

Forest recovery following logging and nat- ural disturbances are usually considered a given. But forests have recovered under climatic conditions that no longer exist.

Higher global temperatures and increased levels of disturbance are contributing to

greater tree mortality in many forest ecosystems, and these same drivers can also limit forest regeneration, leading to vegetation type conversion. (Bart et al., 2016.)

The importance of trees for carbon capture will rise especially if, as recent evidence suggests, hopes for soils as a carbon sink may be overly optimistic. (He et al., 2016.) Such a potentially reduced role of soils doesn[rsquo]t mean that forest soils won[rsquo]t have a role in capture and storage of carbon, rather it puts more of the onus on above- ground sequestration by trees, even if there is a conversion to unfamiliar mixes of trees.

The IPNF Forest Plan draft EIS defines carbon sequestration: [ldquo]The process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as car- bon in biomass (trunks, branches, foliage, and roots) and soils.[rdquo]

The analysis fails to quantify CO2 and oth- er greenhouse gas emissions from other common human activities

related to forest management and recreational uses. These include emissions associated with ma- chines used for logging and associated ac- tivities, vehicle use for administrative ac- tions, recreational motor vehicles, and emissions associated with livestock grazing. The FS is simply ignoring the climate im- pacts of these management and other au- thorized or allowed activities.

Kassar and Spitler, 2008 provide an analy- sis of the carbon footprint of off-road vehi- cles in California. They determined that:

Off-road vehicles in California currently emit more than 230,000 metric tons [mdash] or 5000 million pounds [mdash] of carbon dioxide into the atmosphere each year. This is equivalent to the emissions created by burning 500,000 barrels of oil. The 26 mil- lion gallons of gasoline consumed by off- road vehicles each year in California is

equivalent to the amount of gasoline used by 1.5 million car trips from San Francisco to Los Angeles.

. . . Off-road vehicles emit considerably more pollution than automobiles. Accord- ing to the California Air Resources Board, off-road motorcycles and all-terrain vehi- cles produce 118 times as much smog- forming pollutants as do modern automo- biles on a per-mile basis.

. . . Emissions from current off-road vehi- cle use statewide are equivalent to the car- bon dioxide emissions from 42,000 passen- ger vehicles driven for an entire year or the electricity used to power 30,500 homes for one year.

Also, Sylvester, 2014 provides data on the amount of fossil fuel being consumed by snowmobiles in Montana, from which one can calculate the carbon footprint. The study finds that resident snowmobilers burn 3.3 million gallons of gas in their

snowmobiles each year and a similar amount of fuel to transport themselves and their snowmobiles to and from their desti- nation. Non-residents annually burn one million gallons of gas in snowmobiles and about twice that in related transportation.

So that adds up to 9.6 million gallons of fuel consumed in the pursuit of snowmobil- ing each year in Montana alone. Multiply that by 20 pounds of carbon dioxide per gallon of gas (diesel pickups spew 22 pounds per gallon) and snowmobiling re- leases 192 million pounds (96 thousand tons) of climate-warming CO2 per year into the atmosphere. Can we really afford this?

The FS distracts from the emerging scien- tific consensus that removing wood or any biomass from the forest only worsens the climate change problem. Law and Harmon, 2011 conducted a literature review and concluded ...

Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict

with carbon sequestration goals, and, if implemented, would result in a net emis- sion of CO2 to the atmosphere because the amount of carbon removed to change fire behavior is often far larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.

Best available science supports the proposi- tion that forest policies must shift away from logging if carbon sequestration is pri- oritized. Forests must be preserved indefi- nitely for their carbon storage value.

Forests that have been logged should al- lowed to convert to eventual old-growth condition. This type of management has the potential to double the current level of carbon storage in some regions. (See Har- mon and

Marks, 2002; Harmon, 2001; Harmon et al., 1990; Homann et al., 2005; Law, 2014; Solomon et al., 2007; Turner et

al., 1995; Turner et al., 1997; Woodbury et al., 2007.)

Kutsch et al., 2010 provide an integrated view of the current and emerging methods and concepts applied in soil carbon re- search. They use a standardized protocol for measuring soil CO2 efflux, designed to improve future assessments of regional and global patterns of soil carbon dynamics:

Excluding carbonate rocks, soils represent the largest terrestrial stock of carbon, hold- ing approximately 1,500 Pg (1015 g) C in the top metre. This is approximately twice the amount held in the atmosphere and thrice the amount held in terrestrial vegeta- tion. Soils, and soil organic carbon in par- ticular, currently receive much attention in terms of the role they can play in mitigating the effects of elevated atmospheric carbon dioxide (CO2) and associated global warm- ing. Protecting soil carbon stocks and the process of soil carbon sequestration, or flux of carbon into the soil, have become

integral parts of managing the global car- bon balance. This has been mainly because many of the factors affecting the flow of carbon into and out of the soil are affected directly by land-management practices. (Emphasis added.)

Moomaw and Smith, 2017 state: Multiple studies warn that carbon emis- sions from soil due to logging are signifi-

cant, yet under-reported. One study found that logging or clear-cutting a forest can cause carbon emissions from soil distur- bance for up to fifty years. Ongoing re- search by an N.C. State University scientist studying soil emissions from logging on Weyerhaeuser land in North Carolina sug- gests that [ldquo]logging, whether for biofuels or lumber, is eating away at the carbon stored beneath the forest floor.[rdquo]

Moomaw and Smith, 2017 examined the scientific evidence implicating forest bio-

mass removal as contributing to climate change:

All plant material releases slightly more carbon per unit of heat produced than coal. Because plants produce heat at a lower temperature than coal, wood used to pro- duce electricity produces up to 50 percent more carbon than coal per unit of electrici- ty.

Trees are harvested, dried, and transported using fossil fuels. These emissions add about 20 percent or more to the carbon dioxide emissions associated with combus- tion.

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

The [carbon neutrality] bills[rsquo] assumption that emissions do not increase atmospheric

concentrations when forest carbon stocks are stable or increasing is clearly not true scientifically. It ignores the cause and ef- fect basis of modern science. Even if forest carbon stocks are increasing, the use of forest biomass energy can reduce the rate at which forest carbon is increasing. Con- servation of mass, a law of physics, means that atmospheric carbon would have to be- come higher as a result of this action than would have occurred otherwise. One can- not legislate that the laws of physics cease to exist, as this legislation

suggests.

Van der Werf, et al. 2009 discuss the effects of land-management practices and state: (T)he maximum reduction in CO2 emis- sions from avoiding deforestation and for- est degradation is probably about 12% of current total anthropogenic emissions (or 15% if peat degradation is included) - and that is assuming, unrealistically, that emis- sions from deforestation, forest degrada-tion and peat degradation can be complete- ly eliminated.

...reducing fossil fuel emissions remains the key element for stabilizing atmospheric CO2 concentrations.

(E)fforts to mitigate emissions from tropi- cal forests and peatlands, and maintain ex- isting terrestrial carbon stocks, remain crit- ical for the negotiation of a post-Kyoto agreement. Even our revised estimates rep- resent substantial emissions ...

Keith et al., 2009 state:

Both net primary production and net ecosystem production in many old forest stands have been found to be positive; they were lower than the carbon fluxes in young and mature stands, but not significantly different from them. Northern Hemisphere forests up to 800 years old have been found to still function as a carbon sink. Carbon stocks can continue to accumulate in mul- ti-aged and mixed species stands because

stem respiration rates decrease with in- creasing tree size, and continual turnover of leaves, roots, and woody material con- tribute to stable components of soil organic matter. There is a growing body of evidence that forest ecosystems do not necessarily reach an equilibrium between assimilation and respiration, but can continue to accu- mulate carbon in living biomass, coarse woody debris, and soils, and therefore may act as net carbon sinks for long periods.

Hence, process-based models of forest

growth and carbon cycling based on an as- sumption that stands are even- aged and carbon exchange reaches an equilibrium may underestimate productivity and carbon accumulation in some forest types. Con- serving forests with large stocks of biomass from deforestation and degradation avoids significant carbon emissions to the at- mosphere. Our insights into forest types and forest conditions that result in high biomass carbon density can be used to help identify priority areas for conservation and restoration.

Hanson, 2010 addresses some of the false notions often misrepresented as [ldquo]best sci- ence[rdquo] by agencies, extractive industries and the politicians they[rsquo]ve bought:

Our forests are functioning as carbon sinks (net sequestration) where logging has been reduced or halted, and wildland fire helps maintain high productivity and carbon storage.

Even large, intense fires consume less than 3% of the biomass in live trees, and carbon emissions from forest fires is only tiny frac- tion of the amount resulting from fossil fuel consumption (even these emissions are balanced by carbon uptake from forest growth and regeneration).

"Thinning" operations for lumber or bio- fuels do not increase carbon storage but, rather, reduce it, and thinning designed to curb fires further threatens imperiled

wildlife species that depend upon post-fire habitat.

Campbell et al., 2011 also refutes the no- tion that fuel-reduction treatments increase forest carbon storage in the western US:

It has been suggested that thinning trees and other fuel-reduction practices aimed at reducing the probability of high-severity forest fire are consistent with efforts to keep carbon (C) sequestered in terrestrial pools, and that such practices should there- fore be rewarded rather than penalized in C-accounting schemes. By evaluating how fuel treatments, wildfire, and their interac- tions affect forest C stocks across a wide range of spatial and temporal scales, we conclude that this is extremely unlikely.

Our review reveals high C losses associated

with fuel treatment, only modest differ- ences in the combustive losses associated with high-severity fire and the low-severity fire that fuel treatment is meant to encour- age, and a low likelihood that treated

forests will be exposed to fire. Although fuel-reduction treatments may be necessary to restore historical functionality to fire- suppressed ecosystems, we found little cred- ible evidence that such efforts have the added benefit of increasing terrestrial C stocks.

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

Forests affect the climate, climate affects the forests, and there[rsquo]s been increasing ev- idence of climate triggering forest cover loss at significant scales (Breshears et al.

2005), forcing tree species into new distrib- utions [ldquo]unfamiliar to modern

civilization[rdquo] (Williams et al. 2012), and raising a question of forest decline across the 48 United States (Cohen et al. 2016).

In 2012 Forest Service scientists reported, [ldquo]Climate change will alter ecosystem ser- vices, perceptions of value, and decisions regarding land uses.[rdquo] (Vose et al. 2012.)

The 2014 National Climate Assessment chapter for the Northwest is prefaced by four [ldquo]key messages[rdquo] including this one: [ldquo]The combined impacts of increasing wild- fire, insect outbreaks, and tree diseases are already causing widespread tree die-off and are virtually certain to cause additional forest mortality by the 2040s and long-term transformation of forest landscapes. Under higher emissions scenarios, extensive con- version of subalpine forests to other forest types is projected by the 2080s.[rdquo] (Mote et al. 2014.)

None of this means that longstanding val- ues such as conservation of old-growth forests are no longer important. Under in- creasing heat and its consequences, we[rsquo]re likely to get unfamiliar understory and canopy comprised of a different mix of

species. This new assortment of plant species will plausibly entail a new mix of trees, because some familiar tree species on the (IPNF) may not be viable[mdash]or as vi- able[mdash]under emerging climate conditions.

That said, the plausible new mix will in- clude trees for whom the best policy will be in allowing them to achieve their longest possible lifespan, for varied reasons includ- ing that big trees will still serve as impor- tant carbon capture and storage (Stephen- son et al. 2014).

Managing forest lands with concerns for water will be increasingly difficult under new conditions expected for the 21st centu- ry. (Sun and Vose, 2016.) Already, concerns have focused on new extremes of low flow in streams.

(Kormos et al. 2016.) The 2014 National Climate Assessment Chapter for the Northwest also recognizes hydrologic challenges ahead: [ldquo]Changes in the timing of streamflow related to changing

snowmelt are already observed and will continue, reducing the supply of water for many competing demands and causing far- reaching ecological and socioeconomic consequences.[rdquo] (Mote et al. 2014.)

Heat, a long-established topic of physics, plays an equally important role at the level of plant and animal physiology[mdash]every or- ganism only survives and thrives within thermal limits. For example, P[ouml]rtner et al. (2008) point out, [ldquo]All organisms live within a limited range of body temperatures... Di- rect effects of climatic warming can be un- derstood through fatal decrements in an organism's performance in growth, repro- duction, foraging, immune competence, behaviors and competitiveness.[rdquo] The au- thors further explain, [ldquo]Performance in an- imals is supported by aerobic scope, the in- crease in oxygen consumption rate from resting to maximal.[rdquo] In other words, rising heat has the same effect on animals as re- ducing the oxygen supply, and creates the

same difficulties in breathing. But breath- ing difficulties brought on by heat can have important consequences even at sub-lethal levels. In the case of grizzly bears, in- creased demand for oxygen under increas- ing heat has implications for vigorous (aerobically demanding) activity including digging, running in pursuit of prey, mating, and the play of cubs.

Malmsheimer et al. 2008 state, [ldquo]Forests are shaped by climate. Along with soils, aspect, inclination, and elevation, climate deter- mines what will grow where and how well.

Changes in temperature and precipitation regimes therefore have the potential to dramatically affect forests nationwide.[rdquo]

Kirilenko and Sedjo, 2007 state [ldquo]The re- sponse of forestry to global warming is likely to be multifaceted. On some sites, species more appropriate to the climate will replace the earlier species that is no longer suited to the climate.[rdquo]

Some FS scientists recognize this changing situation, for instance Johnson, 2016: Forests are changing in ways they[rsquo]ve never experienced before because today[rsquo]s grow- ing conditions are different from anything in the past. The climate is changing at an unprecedented rate, exotic diseases and pests are present, and landscapes are frag- mented by human activity often occurring at the same time and place.

The current drought in California serves as a reminder and example that forests of the 21st century may not resemble those from the 20th century. [ldquo]When replanting a forest after disturbances, does it make sense to try to reestablish what was there before? Or, should we find re-plant material that might be more appropriate to current and future conditions of a changing environment?

[ldquo]Restoration efforts on U.S. Forest Service managed lands call for the use of locally adapted and appropriate native seed

sources. The science-based process for se- lecting these seeds varies, but in the past, managers based decisions on the assump- tion that present site conditions are similar to those of the past.

[ldquo]This may no longer be the case.[rdquo]

The issue of forest response to climate change is also of course an issue of broad importance to community vitality and eco- nomic sustainability. Raising a question about persistence of forest stands also rais- es questions about hopes[mdash]and community economic planning[mdash]for the sustainability of forest-

dependent jobs. Allen et al., 2015 state:

Patterns, mechanisms, projections, and consequences of tree mortality and associ- ated broad-scale forest die-off due to drought accompanied by warmer tempera- tures[mdash]hotter drought[rdquo], an emerging characteristic of the Anthropocene[mdash]are the fo- cus of rapidly expanding literature.

...(R)ecent studies document more rapid mortality under hotter drought due to neg- ative tree physiological responses and ac- celerated biotic attacks. Additional evidence suggesting greater vulnerability includes rising background mortality rates; project- ed increases in drought frequency, intensi- ty, and duration; limitations of vegetation models such as inadequately represented mortality processes; warming feedbacks from die-off; and wildfire synergies.

...We also present a set of global vulnerabil- ity drivers that are known with high confi- dence: (1) droughts eventually occur everywhere; (2) warming produces hotter droughts; (3) atmospheric moisture de- mand increases nonlinearly with tempera- ture during drought; (4) mortality can oc- cur faster in hotter drought, consistent with fundamental physiology; (5) shorter droughts occur more frequently than longer droughts and can become lethal un- der warming, increasing the frequency of lethal drought nonlinearly; and (6) mortal- ity happens rapidly relative to growth inter- vals needed for forest recovery.

These high-confidence drivers, in concert with research supporting greater vulnera- bility perspectives, support an overall view- point of greater forest vulnerability global- ly. We surmise that mortality vulnerability is being discounted in part due to difficul- ties in predicting threshold responses to ex- treme climate events. Given the profound ecological and societal implications of un- derestimating global vulnerability to hotter drought, we highlight urgent challenges for research, management, and policy- making communities.

Moomaw and Smith, 2017 conclude:

With the serious adverse consequences of a changing climate already occurring, it is important to broaden our view of sustain- able forestry to see forests ...as complex ecosystems that provide valuable, multiple life-supporting services like clean water,

air, flood control, and carbon storage. We have ample policy mechanisms, resources, and funding to support conservation and protection if we prioritize correctly.

...We must commit to a profound transfor- mation, rebuilding forested landscapes that sequester carbon in long-lived trees and permanent soils. Forests that protect the climate also allow a multitude of species to thrive, manage water quality and quantity and protect our most vulnerable communi- ties from the harshest effects of a changing climate.

Protecting and expanding forests is not an [ldquo]offset[rdquo] for fossil fuel emissions. To avoid serious climate disruption, it is essential that we simultaneously reduce emissions of carbon dioxide from burning fossil fuels and bioenergy along with other heat trap- ping gases and accelerate the removal of carbon dioxide from the atmosphere by protecting and expanding forests. It is not one or the other. It is both!

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

It may be asking a lot to [ldquo]rethink the forest economy[rdquo] and to [ldquo]invest in forest steward- ship,[rdquo] but tabulating the multiple benefits of doing so will demonstrate that often a forest is worth much more standing than logged. Instead of subsidizing the logging of forests for lumber, paper and fuel, soci- ety should pay for the multiple benefits of

standing forests. It is time to value U.S. forests differently in the twenty-first centu- ry. We have a long way to go, but there is not a lot of time to get there.

The FS doesn[rsquo]t consider that the [ldquo]desired[rdquo] vegetation conditions may not be achiev- able or sustainable, nor conduct an analy- sis as to how realistic and achievable For- est Plan desired conditions are in the con- text of a rapidly changing climate, along an unpredictable but changing trajectory.

Global warming and its consequences are effectively irreversible which implicates certain legal consequences under NEPA and NFMA and ESA (e.g., 40 CFR [sect] 1502.16; 16 USC [sect]1604(g); 36 CFR

[sect]219.12; ESA Section 7; 50 CFR [sect][sect]402.9,

402.14). All net carbon emissions from log- ging represent [ldquo]irretrievable and irre- versible commitments of resources.[rdquo]

The Committee of Scientists, 1999 recog- nize the importance of forests for their con-

tribution to global climate regulation. Also, the 2012 Planning Rule recognizes, in its definition of Ecosystem services, the [ldquo]Ben- efits people obtain from ecosystems, includ- ing: (2) Regulating services, such as long term storage of carbon; climate regulation...[rdquo]

Harmon, 2009 is the written record of [ldquo]Testimony Before the Subcommittee on National Parks, Forests, and Public Lands of the Committee of Natural Resources for an oversight hearing on The Role of Fed- eral Lands in Combating Climate Change.[rdquo] The author [ldquo]reviews, in terms as simple as possible, how the forest system stores carbon, the issues that need to be addressed when assessing any proposed ac- tion, and some common misconceptions that need to be avoided.[rdquo] His testimony be- gins, [ldquo]I am here to ...offer my expertise to the subcommittee. I am a professional sci- entist, having worked in the area of forest carbon for nearly three decades. During that time I have conducted numerous stud- ies on many aspects of this problem, have published extensively, and provided in- struction to numerous students, forest managers, and the general public.[rdquo]

Climate change science suggests that log- ging for sequestration of carbon, logging to reduce wild fire, and other manipulation of forest stands does not offer benefits to cli- mate. Rather, increases in carbon emis- sions from soil disturbance and drying out of forest floors are the result. The FS can best address climate change through mini- mizing development of forest stands, espe- cially stands that have not been previously logged, by allowing natural processes to function. Furthermore, any supposedly carbon sequestration from logging are usually more than offset by carbon release from ground disturbing activities and from the burning of fossil fuels to accomplish the timber sale, even when couched in the language of restoration. Reducing fossil

fuel use is vital. Everything from travel planning to monitoring would have an im- portant impact in that realm.

There is scientific certainty that climate change has reset the deck for future eco- logical conditions. For example, Salla- banks, et al., 2001:

(L)ong-term evolutionary potentials can be met only by accounting for potential future changes in conditions Impending

changes in regional climates ...have the ca- pacity for causing great shifts in composi- tion of ecological communities.

Remedy: Choose the No Action Alternative. Revise the Forest Plan to take a hard look at the science of climate change. Alterna- tively, revise the EA for this project if the FS still wants to pursue it, which includes an analysis that examines climate change in the context of project activities and De- sired Conditions. Better yet, it[rsquo]s time to prepare an EIS on the whole bag of U.S. Government climate policies.

The Forest Service responded:

Background information on Climate and Carbon Cycling and how it relates to the 2015 IPNF Forest Plan can be found here: https://www.fs.usda.gov/Internet/FSE_- DOCUMENTS/stelprdb5345936.pdf For the Westside Restoration Project - Refer to pp. 5-7 of the Forest Carbon Cycling and Storage Report - Analysis for Carbon Se- questration and Climate Change in the Westside Restoration Project area is tiered to the Idaho Panhandle National Forests (IPNF) 2015 Forest Plan [ndash] Record of Deci- sion - Alternative B Modified (U.S. De- partment of Agriculture 2015). Relevant analysis and conclusions from the Forest Plan Final Environmental Impact State- ment (FEIS) is summarized below. Since the Forest Plan analysis, there have been no changes in conditions of a magnitude that would change the Forest Plan FEIS analysis for carbon cycling and as of the date of this report, there is no new science that would change the Forest Plan FEIS carbon cy- cling analysis or conclusions. The Forest Plan, FEIS, and the Kootenai Idaho Pan- handle Zone (KIPZ) Climate Change Re- port documents are available to the public on the IPNF website at: https://www.fs.us- da.gov/detail/ipnf/landmanagement/plan- ning/?cid=stelprdb5436518

The Forest Service response to an problem that is threatening human existence was not adequate and is a violation of NEPA, NFMA and the APA.

Remedy

Choose the No Action Alternative which would prserve the forest in the project area as a climate sink or withdraw the DDN and write an EIS that fully complies with the law.

We wrote in our comments:

INVENTORIED ROADLESS AREAS AND OTHER UNROADED AREAS

The Forest Plan lacks direction to update roadless area boundaries utilizing a trans- parent public procedures in order to evalu- ate unroaded areas contiguous with Inven- toried Roadless Areas (IRAs) and Wilder- ness.

The FS is required to discuss a project's impacts on areas of "sufficient size" for fu- ture wilderness designation. Lands Coun- cil, 529 F.3d at 1231, citing 16 U.S.C. [sect] 1131(c).

The Kootenai National Forest[rsquo]s Lower Yaak, O[rsquo]Brien, Sheep Draft Environmental Impact Statement explains the concept of Roadless Expanse as explained in USDA Forest Service, 2010e:

Northern Region (Region 1) Direction for Roadless Area Analysis Region 1 provides additional guidance for roadless area analysis in a draft document titled [ldquo]Our Approach to Roadless Area Analysis of Un- roaded Lands Contiguous to Roadless Ar- eas[rdquo] (12/2/10). In summary this paper is based on court history regarding the Road- less Area Conservation Rule. The [ldquo]Our Approach[rdquo] document states that [ldquo]projects on lands contiguous to roadless areas must analyze the environmental consequences, including irreversible and irretrievable commitment of resources on roadless area attributes, and the effects for potential des- ignation as wilderness under the Wilder- ness Act of 1964. This analysis must con- sider the effects to the entire roadless ex- panse; that is both the roadless area and the unroaded lands contiguous to the road- less area.

(Emphasis added.) The FS must analyze and disclose impacts on the Roadless Characteristics and Wilderness Attributes of the Roadless Expanse. The public must be able to understand if the project would cause irreversible and irretrievable impacts on the suitability of any portion of Roadless Expanse for future consideration for Rec- ommended Wilderness or for Wilderness designation under forest planning.

The FS doesn[rsquo]t recognize best scientific in- formation that indicates the high ecological integrity and functioning of roadless and unmanaged areas. Management activities have damaged the streams and other nat- ural features found in the project area wa- tersheds. The FS has yet to demonstrate it can extract resources in a sustainable manner in roaded areas.

Unroaded areas greater than about 1,000 acres, whether they have been inventoried or not, provide valuable natural resource attributes that are better left protected from

logging and other management activities. Scientific research on roadless area size and relative importance is ongoing. Such research acknowledges variables based upon localized ecosystem types, naturally occurring geographical and watershed boundaries, and the overall conditions within surrounding ecosystems. In areas such as the Buckskin Saddle project area, where considerable past logging and man- agement alterations have occurred, protect- ing relatively ecologically intact roadless areas even as small as 500 - 1,000 acres has been shown to be of significant ecolog- ical importance. These valuable and in- creasingly rare roadless area attributes in- clude: water quality; healthy soils; fish and wildlife refugia; centers for dispersal, re- colonization, and restoration of adjacent disturbed sites; reference sites for research; non-motorized, low-impact recreation; car- bon sequestration; refugia that are relative- ly less at-risk from noxious weeds and oth- er invasive non- native species, and many

other significant values. (See Forest Ser- vice Roadless Area Conservation FEIS, November 2000.)

See the report by Friends of the Clearwater, [ldquo]The Roadless Report: Analyzing the Im- pacts of Two Roadless Rules on Forested Wildlands[rdquo] for an observation on how roadless rules are being exploited to down- grade the wilderness values and roadless characteristics of IRAs. The Forest Service responded:

Land Management Plan (IPNF 2015 For- est Plan) direction is explained in the EA pp. 2-3. The Forest Plan was signed in 2015 and is the legal planning document for this project. Please refer to https:// www.fs.usda.gov/detail/ipnf/landmanage- ment/planning/?cid=stelprdb5436518 Remedy: Select the No Action alternative. Alternatively, prepare an EIS that address- es the analytical and scientific issues iden- tified above.

The Forest Service responded:

The Idaho Panhandle National Forests Land and Resource Management Plan (Forest Plan) established Forest-wide mul- tiple use goals, objectives, and management area requirements as well as management area prescriptions for all lands, including IRAs. Some roadless areas were recom- mended for inclusion in the National Wilderness Preservation System and others were assigned various non-wilderness pre- scriptions. A 36, 700 acre portion of the Selkirk IRA was recommended for wilder- ness designation in the 2015 Forest Plan (Management Area 1b), a 3,907 acre por- tion of the recommended acreage overlaps the northwest portion the Westside project area. No timber harvest or road construc- tion is proposed in the Wild Land Recre- ation theme. However, two small sections of trail construction are being proposed.

Kootenai Peak and White Mountain IRAs were not recommended for wilderness

in this process but could be in future For- est Plans (Management Area 5 and 6).

Manageability: Alternative 2 would not af- fect the existing manageability of the road- less expanse. There are no new permanent roads proposed in the roadless expanse that would complicate potential wilderness boundary management. Firelines would be rehabilitated, which would eliminate the potential for unauthorized motor vehicle trespass (Roadless Expanse Effects Analy- sis Report, page 8). Literature cited is also included in the report. The project area contains various stand of various ages that have been managed for years in a sustainable manner. Many of the old roads now support timber.

The Forest Service analysis was inadequate.

The project is in violation of the roadless rule, the APA, NEPA, NFMA, and the APA.
Remedy:

Choose the No Action Alternative or write an EIS that fully complies with the law.