November 7, 2023

To: Objection Reviewing Officer
USDA Forest Service Northern Region 26 Fort Missoula Road
Missoula, MT 59804

1. Objector's Name and Address:

Lead Objector Michael Garrity, Director, Alliance for the Wild Rockies (AWR), PO Box 505, Helena, MT 59624; phone 406-459-5936

And for

Sara Johnson
Native Ecosystems Council
P.O. Box 125
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And for

Steve Kelly

Director Council on Wildlife and Fish

P.O. Box 4641

Bozeman, MT 59772

And for

Kristine M. Akland

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Signed this 7th day of November, 2023 for Objectors

/s/
Michael Garrity

Pursuant to 36 CFR Part 218, the Alliance for the Wild Rockies, Native Ecosystems Council, Council on Wildlife and Fish and Center for Biological Diversity (hereafter Alliance) file this Objection to the Environmental Assessment (EA) and draft Decision Notice (DN) for the Knotty Pine Project.

2. Name of the Proposed Project

Kootenai Forest Plan Amendment for Bears Outside the Recovery Zone

3. Location of Project, Name and Title of Responsible Official

This amendment applies to lands outside the Cabinet-Yaak Grizzly Bear Recovery Zone, where recurring use of grizzly bears has been identified.

Kootenai National Forest All Units

Responsible Official for this decision is Chad Benson, the Supervisor the of the Kootenai National Forest

4. Connection between previous comments and those raised in the Objection:

Alliance submitted comments on the proposed amendment on September 8, 2023

In regards to the issues we raised in comments, the Forest Service (FS) responded inadequately. We therefore incorporate by reference our earlier comments into this Objection.

NOTICE IS HEREBY GIVEN that Alliance objects pursuant to 36 CFR section 218 to the Responsible Official's adoption of the selected Alternative. As discussed below, the Knotty Pine 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 Kootenai Forest Plan and the Administrative Procedure Act (APA).

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

6. Suggested Remedies that would Resolve the Objection:

We recommend that the "No Action Alternative" be selected. We have also made specific recommendations after each problem.

7. Supporting Reasons for the Reviewing Office to Consider:

This landscape has very high wildlife values, 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 wolverine. The agency will also be exacerbating an ongoing problem of grizzly bears being killed near roads. The public interest is not being served by this amendment.

We wrote in our comments:

Thank you for the opportunity to comment on the Kootenai Forest Plan Amendment for Bears Outside the Recovery Zone. Please accept these comments from me on behalf of the Alliance for the Wild Rockies, Center for Biological Diversity, Council on Wildlife and Fish, and Native Ecosystems Council.

The Alliance for the Wild Rockies, Council on Wildlife and Fish, Center for Biological Diversity, and Native Ecosystems Council (collectively "Alliance") submit the following comments to guide the development of the environmental analysis for the proposal.

Following the list of necessary elements, Alliance has also included a general narrative discussion on possible impacts of the Project, with accompanying citations to the relevant scien-

tific literature. These references should be disclosed and discussed in the EIS for the Project.

We believe the law requires the Kootenai National Forest to write an EIS for this project.

NECESSARY ELEMENTS FOR PROJECT EIS or an EA if that is what you have choose to do.

A. Disclose all Kootenai National Forest Plan (KNF) requirements for grizzly habitat and explain how the amendment would effect grizzlies and lynx;

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

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

D. Solicit and disclose comments from the Montana Department of Environmental Quality regarding the impact of the Project on water quality;

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

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

G. Disclose the current, during-project, and post-project road densities in each BORZ; and disclose the number of road closure violations in the KNF during the last 5 years.

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

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

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

K. Disclose the results of the field surveys for threatened, endangered, sensitive, and rare plants in each of the BORZ in the

KNF;

L. Disclose the level of current noxious weed infestations in each BORZ in the KNF and the cause of those infestations;

M. Disclose the impact of the amendment on noxious weed infestations and native plant communities;

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

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

P. Disclose the expected amount of detrimental soil disturbance in each BORZ after proposed mitigation/remediation;
Q. Disclose the analytical data that supports proposed soil miti- gation/remediation measures;

S. Disclose the current level of old growth forest in each third order drainage in the KNF;

T. Disclose the method used to quantify old growth forest acreages and its rate of error based upon field review of its pre- dictions;

U. Disclose the historic levels of mature and old growth forest in the KNF;

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

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

Z. Disclose the amount of current habitat for old growth and ma- ture forest dependent species in the KNF;

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

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

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

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

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

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

EE. Disclose the actions being taken to reduce fuels on private lands adjacent to the each BORZ and how those activities/or lack thereof will impact the efficacy of the activities proposed for this Project; II.Disclose the efficacy of the proposed activities at reducing wildfire risk and severity in each BORZ in the future, including a two-year, five-year, ten-year, and 20-year projection;

FF. Disclose when and how the KNF made the decision to suppress natural wildfire and replace natural fire with logging and prescribed burning;

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

HH. Disclose how proposed Forest Plan amendment complies with the Roadless Rule;

II. Disclose the impact of climate change on the efficacy of the proposed amendment;

JJ. Disclose the impact of the proposed amendment on the carbon storage potential of each BORZ;

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

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

1.Past, current, and reasonably foreseeable logging units in the each BORZ;

2.Past, current, and reasonably foreseeable grazing allotments in the each BORZ;

3.Density of human residences within 1.5 miles from each BORZ boundaries;
4.Hiding cover in each BORZ according to the Forest Plan definition;

5.Old growth forest in each BORZ;

6.Big game security areas in each BORZ;

7.Moose winter range;

The Kootenai National Forest responded:

Public comment was received that expressed concern that the expansion of BORZ areas would also result in an overall increase in the net total road density within the BORZ areas. As is displayed in table 1, BORZ is not calculated in road density, but in linear miles of roads. With the addition of more areas as BORZ, the baseline miles have been adjusted to account for the already existing miles of motorized route within the newly added acres. For example, the new baseline (standard) for the Cabinet Face BORZ would be the old baseline for the existing HUCs combined with the existing linear miles of motorized route within the newly added HUCs. This gives the forest a new baseline that is the aggregate of the old baseline and the existing miles in the newly added HUCs.

Furthermore, because the limit on permanent increases in linear miles of motorized route applies to an entire BORZ polygon and not to the individual HUCs within it, newly added HUCs may have an increase in miles of motorized route in the future. This is due to existing conditions within the overall BORZ being better than the baseline (fewer miles than the baseline because of past projects approving the decrease in linear miles within the existing BORZ), and that gives the forest the flexibility to add permanent linear miles of motorized

route within that BORZ if the total is less than the overall baseline established by this amendment. This would still be consistent with FW-STD-WL-02.

Temporary increases in motorized routes will also continue to be allowed within BORZ areas. This includes temporary roads, temporary removal of barriers on roads allowing for administrative use by agency personnel or others, authorized use by the appropriate agency personnel on gated roads, or motorized use for emergency situations (e.g., fire suppression). The effects of these activities are described in the Final EIS for the Forest Plan (USDA Forest Service 2013).

Public comment was received questioning the use of the term "no net increase" because the commenter claim's that this is an invalid measure of road impacts on grizzly bears over time. The goal of this amendment is to provide a limit to the permanent increase in linear miles in areas where documented recurring use by grizzly bears is occurring. When planning for management activities, this will require that if the agency proposes to construct a permanent road within a BORZ area, then an equivalent number of linear miles of road must be closed to stay at or below the amended baseline of road miles included in this amendment. The site-specific effects of these roads to natural resources will be analyzed at the time of the proposed activities. While the commenter may disagree with their interpretation of the term "no-net increase", I have decided to allow the use of the term for this decision to establish consistency between my decision and the supporting research.

The no-net increase in miles of open or total routes would maintain the possibility of road-related impacts to grizzly bears

to existing levels (e.g., mortality risk, displacement, security, connectivity). The fact that more bears are occurring in these areas indicates some level of tolerance of existing levels of motorized access within these HUCs, thus indicating those impacts are not significant. However, limiting the amount of motorized access to existing levels provides areas on the Forest where bears can utilize habitat outside of the recovery zones within that tolerance. The BORZ are still areas with more wheeled motorized access and more disturbance and mortality risk than management direction allows within the recovery zone.

Although the Forest Plan consultation (USDI 2013) identifies that the effects of the management direction on grizzly bears is likely to adversely affect because of the potential effects of roads on bears, I have determined that there will be an overall benefit to bears by placing a limit on the increase in linear miles of roads that can occur in areas where recurring use is documented and that this effect is not significant. I have submitted a biological assessment to the U.S. Fish and Wildlife Service for this amendment requesting their review.

Consideration of unauthorized use behind closure devices

Public comments received expressed concern about potential illegal motorized use occurring behind closure devices and the consideration of this in the analysis of effects.

I acknowledge that illegal motorized use behind closure devices is occurring and can result in effects to grizzly bears similar to authorized motorized use on gated and year-long open roads (ie. disturbance). As with open roads, roads with closure

devices that have been breached contribute to the risk of illegal shooting of grizzly bears. Monitoring of gates and barriers indicates that illegal use has occurred, but that 77 percent of the closure device surveys in Bear Year 2021 in the newly added HUCs found no evidence of illegal use. Breaches are repaired after they are discovered, preferably during the same Bear Year.

Even with 23 percent of motorized routes surveyed showing some illegal use, grizzly bear use has still increased in these HUCs and has triggered their inclusion as BORZ. Areas that are not BORZ receive the lowest emphasis for closure device monitoring and repairs compared to BMUs and BORZ, so the inclusion into BORZ for these HUCs will increase monitoring and repair efforts in these areas. Table 2 below shows the forest's closure device monitoring efforts. The forest completed 348 closure device surveys in Bear Year 2021 in these HUCs.

Summary of effects to grizzly bears

While I recognize that this decision will result in continued effects to grizzly bears from motorized use, I find that my decision will provide a net benefit to grizzly bears by limiting motorized use within areas where recurring use has been documented. Grizzly bears have expanded into these new areas even though there has been less restrictions on motorized use, less emphasis on monitoring of closure devices, and lower priority for repair of closure devices.

The inclusion of these new areas as BORZ will increase protections for grizzly bears by limiting the construction of new

motorized routes, increasing emphasis for monitoring of closure devices, and increasing priority for repairing of closure devices. I recognize that illegal use is occurring within these areas and will likely continue to some extent, but the grizzly population is increasing, and bears have moved into these areas with the existing level of illegal use. My decision will result in improved conditions and protection of grizzly bears within these areas.

The amendment allows the baseline of permanent linear miles of roads within the BORZ area to be adjusted with "updated/improved road data without an actual change on the ground" with "no net increase." This is arbitrary and capricious and a violation of the ESA, NEPA, NFMA and the APA and makes the access amendment meaningless. It is also an admission that the current road inventory of baseline permanent linear miles is inaccurate and understates the presence of total linear miles of roads and open roads.

Supervisor Benson told us in a phone call with Ranger Nate Gassman to discuss the Alliances objection to the Ripley project that people have been violating road closures in the Kootenai for the last 100 years and they will continue to violate road closures foe the next 100 years.

The solution is to count all roads as open or at least a percent of all roads to reflect that people are violating road closures and berms instead of just pretending that roads are not a problem to grizzly bears.

Updating road data "without an actual change on the ground" should not be necessary with an accurate baseline inventory. Additionally, any noted future increase in linear road miles has a mandate to be compensated for with in-kind reductions in linear total road miles concurrently with, or prior to, new road construction or reconstruction of currently bermed or barriered roads. 3 Any change on the ground must be counted toward TMRD and OMRD and must adhere to no net increase.

Supervisor Benson wrote in response to our comments:

I recognize that illegal use is occurring within these areas and will likely continue to some extent, but the grizzly population is increasing, and bears have moved into these areas with the existing level of illegal use. My decision will result in improved conditions and protection of grizzly bears within these areas.

This statement is arbitrary and capricious. Supervisor Benson is saying that having more roads will result in improved conditions and protection of grizzly bears within BORZ. This is not back up by the best available science. Please find attached, Proctor et al. 2023 which found, "Roads and associated motorized human access shape availability of food resources but also displace bears and facilitate human−caused mortality." Dr. David Mattson elaborated on this in his attached paper about high density roads on public lands.

Please find attached Dr. Mattson's objection to the Custer-Gallatin NF Plan which it contains a couple of relevant sections that are highlighted in yellow.

Amendment 19 and Its Implementation are Inadequate

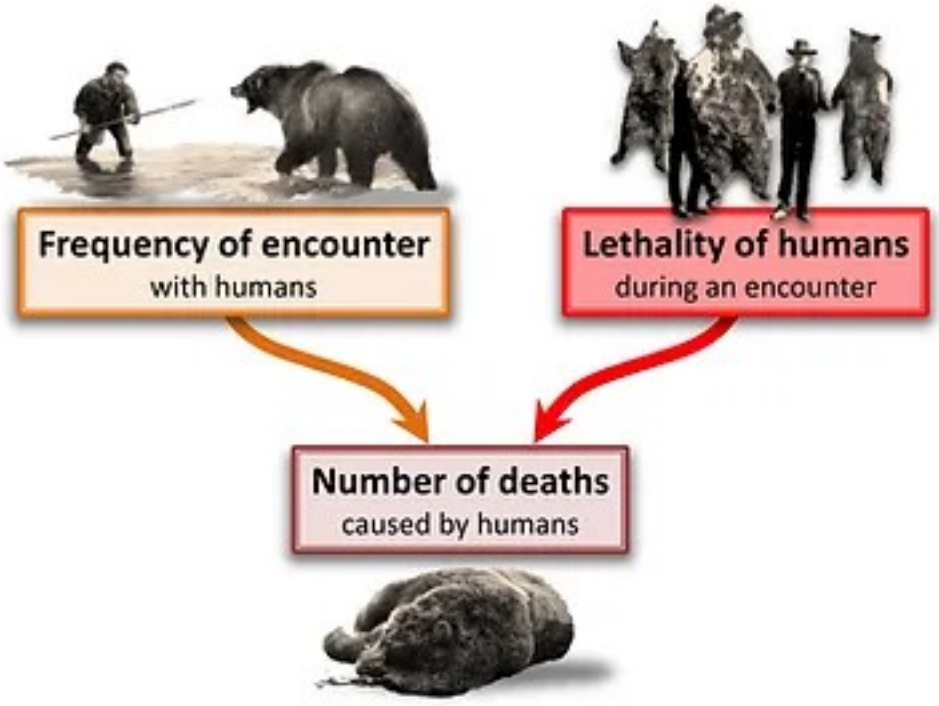
1. The CGNFPlan invokes Amendment 19 as a basis for monitoring road densities within the PCA, specifically areas impacted by >1 mile/mile^2 of open roads and >2 miles/mile^2 of roads both closed and open, but without offering any authoritative guidance or prescriptive response for when Amendment 19 standards are exceeded. Aside from lacking any substantive guidance, the Plan's disregard for impacts attributable to open road densities in excess of 1 miles/mile^2 ignores a substantial body of research showing that human impacts on grizzly bears increase exponentially with increasing road densities (e.g., Mace et al. 1996, Johnson et al. 2004, Suring et al. 2006, Schwartz et al. 2010, Boulanger & Stenhouse 2014, Lamb et al. 2020). This nonlinear relationship is not captured in a simple buffering of roads that assumes impacts on bears within a fixed buffer are equal regardless of larger-scale juxtapose with other roads, or in an approach that categorizes impacts on grizzly bears simply according to whether open road densities are greater or less than 1 mile/mile^2.

2. A recent federal court opinion (*Alliance for the Wild Rockies vs. Cheryl Probert*) is of further relevance to implementing Amendment 19 on CGNF lands, even for the simple purposes of monitoring. The Federal Judge in this case made clear that simply calling a road "closed" is not sufficient, but rather barriers used to close roads must demonstrably stop human traffic. This consideration is not only of legal but also practical importance given the low threshold of vehicle traffic (roughly 10 vehicles per day) at which impacts on grizzly bears have been demonstrated (see points 17 and 18 below).

This Following web page addressing "the lethality factor" may also be of interest. It provides evidence that residents of the Cabinet-Yaak region are more lethal than residents on average anywhere else, manifest in proportionately more bears dying from

malicious killing or related suspicious circumstances compared to the NCDE and GYE.
https://www.allgrizzly.org/the-lethality-factor

The lethality factor



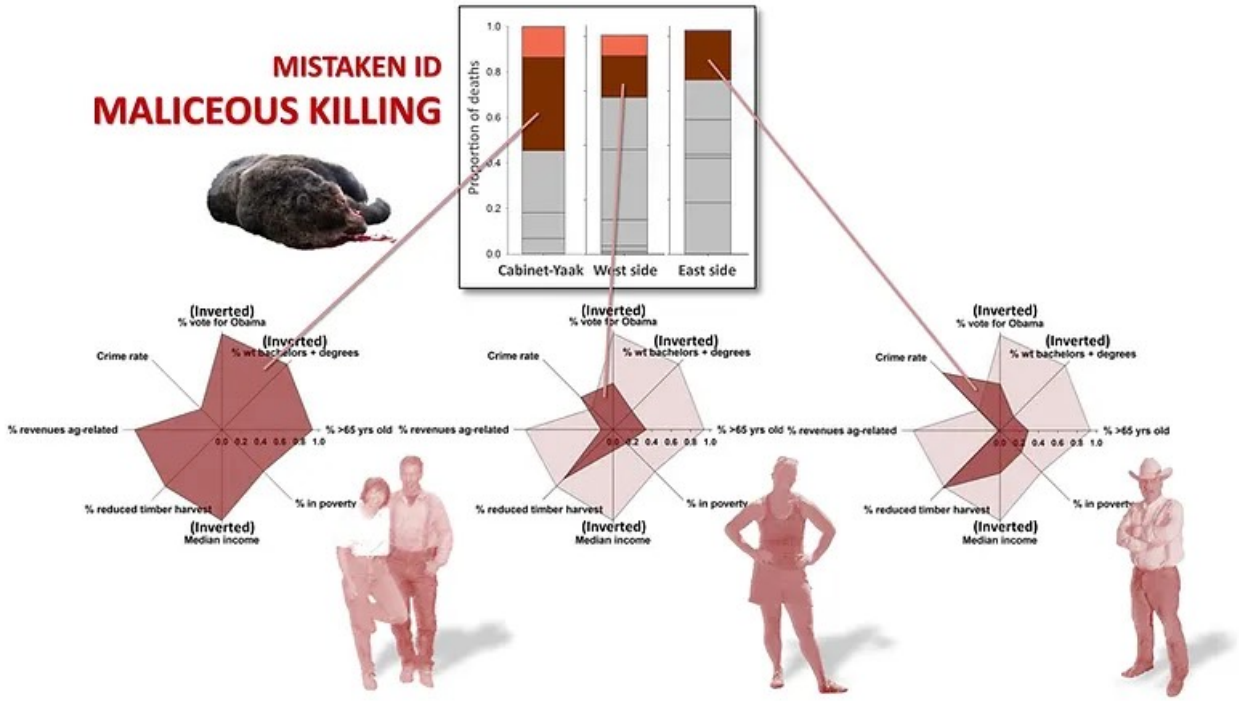
The "lethality factor" has a lot to do with people's attitudes and behaviors, and a bit less to do with whether they have access to poison, traps, or large-caliber firearms. People who are hostile to bears, intent upon doing them harm, and with a gun are perhaps the most lethal of all people to grizzlies--and the primary cause of brown bear extirpations worldwide.

Technically, "lethality" is the likelihood that a bear will end up dead as a result of encountering a human...the odds that death will occur given that an encounter has happened. As illustrated by the figure at left, the total number of grizzlies killed by humans is axiomatically a function of how often bears run into ("encounter") people and the odds that these encounters will be lethal to the involved bear. Both encounter rate and lethality can drive how many bears die, potentially in ways that allow for trade-offs. In other

words, if people are benign, well-behaved, and unarmed (i.e., not particularly lethal), grizzlies will be able to persist even if they are encountering people at a high rate. This kind of circumstance typifies a National Parks. Conversely, if people have a bad attitude and are armed to act on it (i.e., highly lethal), a low rate of encounters, if sustained, can drive a population of grizzlies to extinction. Such was the case during the late 1800s and early 1900s in North America (see Extirpations).

The lethality of humans to grizzly bears is clearly driven by culture and cultural narratives. The ethos of domination and use and the accompanying narrative of Manifest Destiny that Europeans brought with them to North America is a prime example of a combination that was highly lethal to grizzlies. But there are other factors that as clearly drive lethality. An obvious one is the extent to which people experience personal losses from grizzly bears. Lost livestock or agricultural crops are a common source of aggrievement, with damage to crops (for example, oats) more common in Europe and Asia than in North America. Familial idosyncracies are also a variable. People raised in families that esteem hunting, including the hunting of bears, may kill bears, but not necessarily harbor overt feelings of animosity. And, finally, people who don't have access to firearms or poisons may not be particularly lethal, despite disliking or even loathing bears. It is easy to imagine such circumstances in authoritarian states that closely regulate possession of guns, or empoverished developing countries where people can't afford such luxuries.

More about lethality & what goes on in peoples' heads



The figure above contains some relatively concrete as well as some pretty abstract information, all of which pertains to a key driver of human lethality: The ways that people symbolically construct grizzly bears. I have concluded that symbolic constructions have a lot to do with how people imagine bears and not much to do with the real animals. At the extremes, grizzlies can either be demons or close relatives. Grizzlies can also be symbolically identified with the extent to which a person might loathe the federal government (if the federal government is charged with conservation of bears) and environmentalists who voice an alien and scary worldview (especially if they are promoting the protection of bears over exploitation and use of nature). Which can lead to the displacement of fear and hatred onto grizzlies, even when the real objects are other people. Which can lead to the symbolic discharge of accumulated angst through the act of killing a grizzly bear. In the case of grizzlies in the lower-48 states, such killing is illegal and goes under the billing of "maliceous."

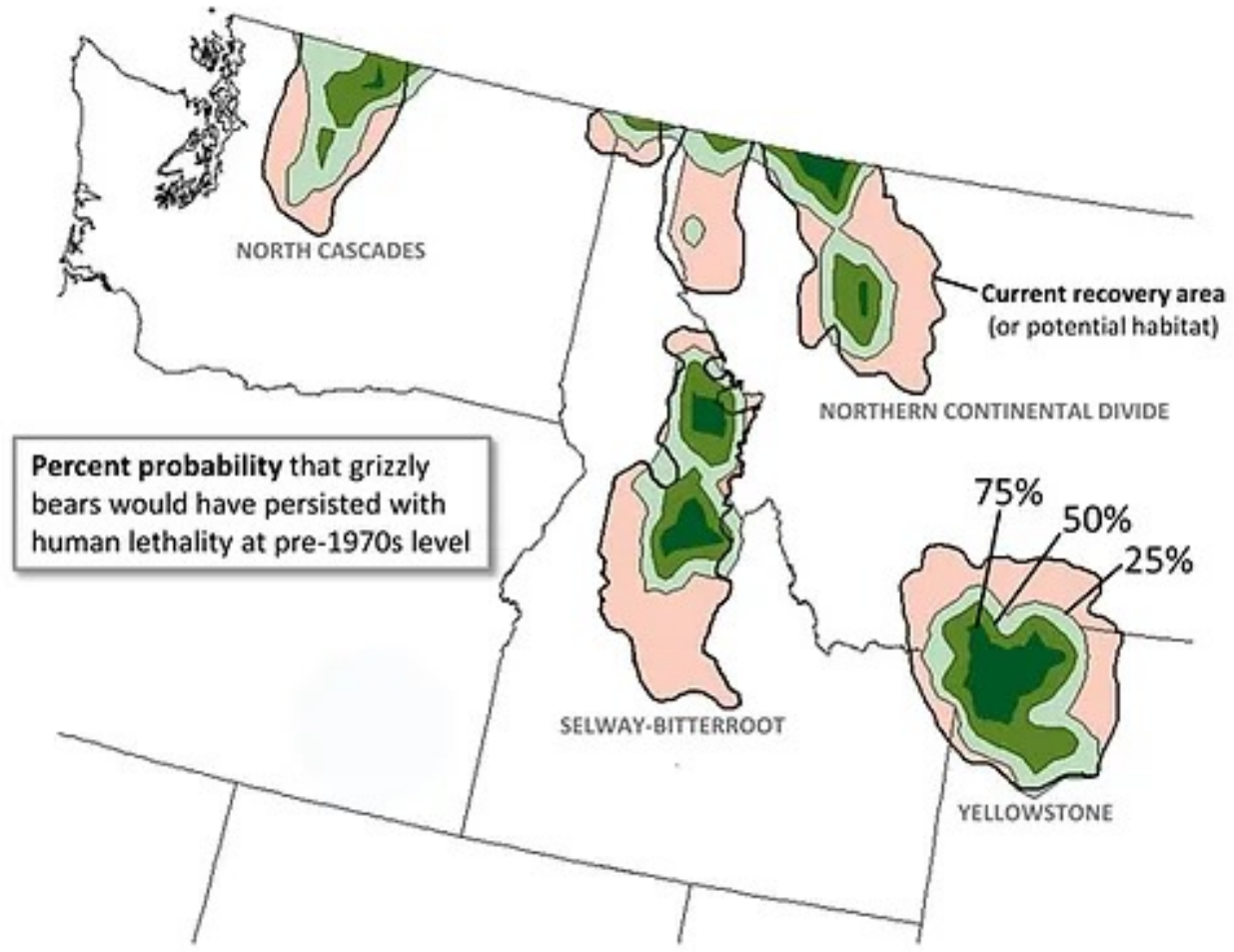
Getting back to the figure above: The bars at top are marked to show the proportional causes of grizzly bears deaths in three different areas of northwestern Montana: the Cabinet-Yaak ecosystem, and the West and East sides of the Northern Continental Divide ecosystem. I've highlighted two causes. Orange denotes the proportion caused by hunters intent on legally killing black bears (Ursus americanus) who instead "mistakenly"

killed a protected grizzly. The burgundy denotes the proportion attributable to maliceous killing--or poaching. The Cabinet-Yaak ecosystem is remarkable. The majority of known grizzly bear deaths are due to poaching and mistaken identifications. Most of the remainder (in gray) are bears dying from unknown causes, which is often a euphamism for poaching that was not conclusively documented. This starkly contrasts not only with the Northern Continental Divide ecosystem, but with other grizzly bear ecosystems as well. So, what's going on with the people living in the Cabinet-Yaak ecosystem?

I tested a potential answer to this question by looking at factors that might underlie peoples' attitudes and behaviors, especially as they relate to grizzly bears. These factors pertain to degree of political conservatism (the Obama vote), age, extent of poverty, lack of education, economic reliance on agriculture, and the extent to which timber harvests have declined in recent decades, all of which likely positively correlate with a hostile or intolerant attitude. Of these, lack of eduction, extent of poverty, and decline in timber harvests--along with crime rate--potentially indicate high levels of social distress. Social distress is relevant because of the extent to which the entailed angst is often displaced onto "alien others," of which grizzly bears, environmentalists, and the federal government are prime candidates. Political conservatism can also fuel this dynamic.

I assembled information on all of these factors for the counties encompassing each of the three northwestern Montana grizzly bear ecosystems, and then plotted each factor along its own axis in a figure called a radar diagram. I show the resulting diagrams in dark pink for each of the ecosystems above. A key point here is that I plotted the information for all of the factors so that a higher value was more likely to positively correlate with negative attitudes towards grizzlies. Which means that the larger the pink "rose"--or plotted constellation of values--the greater the likelihood that people, on average, harbor a negative attitude towards grizzlies. Notice how much larger the dark pink rose is for the Cabinet-Yaak compared to the East and West sides of the Northern Continental Divide (parenthetically, I've reproduced the Cabinet-Yaak rose in light pink behind the other plots to highlight the contrast).

None of this is conclusive, it is probably no accident that the indicators of widespread social distress are so much more pronounced in the Cabinet-Yaak area than anywhere else. I can at least conclude from this that my speculations about symbolic drivers of human lethality to grizzlies are consistent with--or not contradicted by--the information that I assembled. Based on this I would tentatively conclude that people are quite lethal (on average) to grizzlies in the Cabinet-Yaak area, probably because of displaced unresolved angst organized around a demonic contruction of grizzlies. Which might partly explain why recovery of the grizzly bear population in this region has been so difficult.



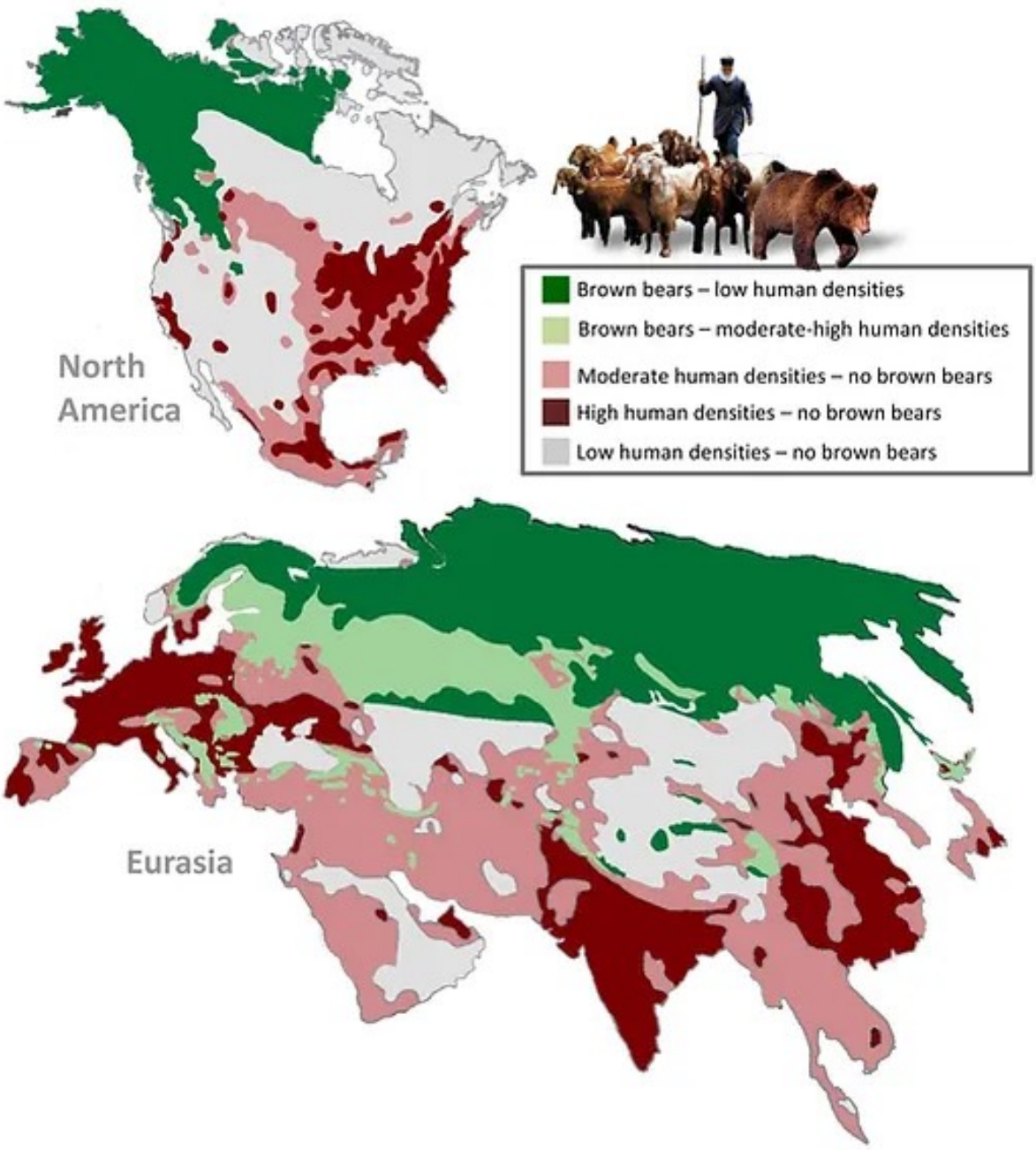
Evidence of lethality effects

Regardless of what credence you might give my argument immediately above, the question still remains: Is there evidence of the importance of human lethality to the survival of grizzly bear populations? The rapid extirpations of grizzly bears from western North America by newly-arrived European is perhaps self-evident proof of a lethality effect. But there are other lines of evidence supporting the importance of human lethality to survival of brown and grizzly bear populations.

The map at right shows a result that is germane to this issue. The map was taken from an analysis that looked at spatial drivers of grizzly bear extirpations in the western US between 1850 and 1970. The various shades of green delineate areas within which grizzly bears had different odds of surviving between 1970 and 2000...but assuming that human lethality during this interval was the same as it was between 1920 and 1970. The darker the green the higher the odds of population persistence. Under this scenario, grizzlies would have survived in the Yellowstone region only in the heart of Yellowstone National Park and barely at all in places such as the Glacer National Park and the Bob Marshall Wilderness Area in the Northern Continental Divide. The basic idea is that this map resulted from projecting historical drivers of extirpation foreward in time, most notably human population sizes--without any allowance for whether people were less likely to kill grizzlies.

But the assumption of constant lethality clearly failed. Grizzlies fared much better during 1970-2000 that was predicted. Some factor had changed that was not considered by the model. And, in fact, such was the case. Grizzly bears in this part of the world were afforded protection of the U.S. Endangered Species Act. These protections led to the end of sport hunting, the removal of garbage and other foods that might attract grizzlies to people, and even the ending of livestock grazing in places. Penalties for illegally killing bears also increased along with oversight of human activities that might otherwise harm grizzlies. All of this led to a substantial reduction of human lethality and a stabillization and even increase of grizzly bear populations, resulting in grizzlies in many more places than was predicted. Parenthetically, the Selway-Bitterroot area of central Idaho requires some explanation. As it turns out, grizzlies were extirpated in this ecosystem well before 1970, largely because the availability of spawning salmon concen-

trated grizzlies along rivers in the lowlands where they were highly vulnerable to humans--and despite the existence of extensive wilderness in the surrounding uplands (see Extirpations). However, according to the argument I offer here, grizzlies might have fared quite well between 1970 and 2000 if they had survived to experience the benefits of reduced human lethality.



Additional evidence for the effect of human lethality comes from looking at differences between Eurasia and North America in the joint distributions of humans and Ursus arctos (of which brown and grizzly bears are genetic variants).

The map at left shows the more-or-less current distribution of people and grizzly/brown bears, differentiating areas by whether brown bears are present and by human densities. Areas with no bears and high, moderate, or low densities of people are denoted, respectively, by dark burgundy, light burgundy, and gray. Green denotes areas with brown and grizzly bears; dark green indicates the presence of few people, light green the presence of moderate to high human densities.

The regions of this map that are most relevant to the topic of human lethality are those colored light green--where we jointly have Ursus arctos along with non-trivial numbers of people. Notice the virtual absence of such areas in North America in contrast to the extent of this overlap in Eurasia. The point being: there are large parts of Eurasia where brown bears have survived despite being around lots of people, unlike in North America, where essentially any exposure to people has apparently resulted in the extirpation of grizzlies. Which begs the question: Why?

I strongly suspect that this difference between the continents is largely a result of differences in how lethal humans were to bears during the last two centuries. Europeans arrived and spread like a lethal tidal wave in North America, descimating pretty much all life on the continent. The ethos they brought was especially destructive. By contrast, I suspect that brown bears and people were better able to work things out over a sustained period of time in Eurasia, resulting in gradual behavioral and attitudinal adjustments on the part of both species. Hence, there are lingering, and in places increasing, areas of overlap of relatively dense human populations with brown bear range, probably as a direct result of lesser lethality on the part of the involved people. This for an amalgam of speculative reasons that I describe above as drivers of human deadliness.

It does suggest that habitat security (i.e., restrictions on access) need to be greater rather than less in or near the Cabinet-Yaak and Selkirk Mountains to compensate for greater numbers of people who are lethal to bears.

The Forest Service must comply with National Forest Management Act ("NFMA") and its implementing regulations. NFMA requires the Forest Service to ensure that site-specific management projects are consistent with the applicable forest plan. 16 U.S.C. § 1604(i). Thus, the Forest Service must ensure that all

aspects of the proposed action comply with the Kootenai Panhandle National Forests Land Management Plan.

The Grizzly Bear Access Amendment set standards for open motorized route density ("OMRD"), total motorized route density ("TMRD"), and retention of core grizzly bear habitat within the Cabinet-Yaak and Selkirk Recovery Zones bear management units. This Amendment is incorporated as a standard (FW-STD-WL-02) in the Kootenai National Forest Plan at Appendix B. The Forest Service must comply with the Access Amendment TMRD standards during and after project implementation, it not the project directly violates NFMA.

Please find attached Dr. Mattson's comments on the Black Ram project.

Dr. David Mattson makes the following points in his comments on the Knotty Pine project which are also relevant here.

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 grizzly bear population is assumed to have improved since 2012. Second, and related, the KNF assumes that some erosion of security for grizzly bears is therefore permissible, conditioned on a related assumption that security and road access standards employed by the

Kootenai 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 another, 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 attributable to variations in abundance of natural foods—berries in particular—that affect exposure of bears to humans rather than to any increased mitigations. During years of scant berries, bears likely forage more widely and more often end up in conflict situations or exposed to malicious killing.***

- ***The population of grizzly bears in the Yaak/Yahk is far smaller than even the smallest size posited to be viable by any researcher. Related, the population remains acutely vulnerable to even the smallest increases in bear mortality that are predictably more likely to occur with any increase in road access and associated human activity.***

1

- ***Malicious and other unjustified killing by humans remains the dominant cause of death for grizzly bears in the Cabinet-Yaak Ecosystem. These kinds of killings are predictably associated with roads. As a result, levels of road access need to be substantially reduced and related levels of habitat security substantially increased rather than the opposite, as is being proposed for the Knotty Pine Project.***

- ***Road density and habitat security standards used by the Kootenai NF are patently deficient, partly because they are based on research that conflates behavioral phenomena such as avoidance and displacement with demographic 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-à-vis hazardous environs. As a corollary, the fact that standards on the Kootenai NF are***

more lax than standards on the Flathead NF is self- evidently nonsensical given that grizzly bears in the Cabinet-Yaak 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 Cabinet-Yaak Ecosystem—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.***

- ***Compounding prospective problems with the project, proposed activities are concentrated 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 Knotty Pine project promises to harm grizzly bears in the Cabinet-Yaak Ecosystem.

A. Weight of Evidence Does Not Support Concluding that Status of the Cabinet-Yaak Population has Improved Since 2012

A.1. The 2.1% Per Annum Growth Rate for the Cabinet-Yaak Population is Not Justified or Applicable

Use of a 2.1% per annum growth rate to project total size of the Cabinet-Yaak population from the Kendall et al. (2016) 2012 point estimate, as was done by Kasworm et al (2018), is not defensible. Such use is, moreover, guaranteed to produce spurious results that cannot legitimately be used to reach conclusions of management relevance. There are several unambiguous reasons.

A.1.a. The growth rate is not representative of the total population

First, the estimated 2.1% per annum growth rate only applies to an unknown fraction of the total Cabinet-Yaak grizzly bear population. Vital rates used to estimate this growth rate were based solely on "native" or "natural" research-trapped bears, and expressly excluded bears captured because of conflicts or part of the augmentation program (Kasworm et al. 2018: 10). The growth rate, moreover, applies almost exclusively to the Yaak portion of the population given that 95% of the data used to estimate survival rates and 85% of the data used to estimate reproductive rates came from this subpopulation (ibid: 36)—protestations by the authors notwithstanding (ibid: 36). On top of this, the 2.1% per annum rate was estimated only for the female portion of this high-grade (ibid: 10), which is of consequence even though female survival is disproportionately important in determining growth rate, as such.

In other words, the 2.1% per annum growth rate can only be legitimately applied to females residing in the Yaak subpopulation that were not trapped and marked as a result of conflicts nor part of the augmentation program. Put another way, management-trapped bears, augmentation bears, and males would need to be represented in a modeling framework if any estimated population growth rate were to be prima facie representative of the total population. Moreover, if the fates of all such bears were to be considered, estimated population growth rate would almost certainly be lower given that survival rates of males, augmentation bears, and management bears are substantially less than survival rates of the females used to estimate the 2.1% per annum growth rate (ibid: 33-35).

If a growth rate were to be used to project a total population estimate, comparable to the Kendall et al. 2012 point estimate of 49 bears (95% CI = 44-62), then such a growth rate would need to represent birth and death rates of the total population, and apply specifically to the period of interest (e.g., 2012-2017) rather than a longer period of time that masks the relevant trajectory (see my point below).

A.1.b. The growth rate does not represent 2012-2017

The 2.1% per annum growth rate used by Kasworm et al to project 2017 population size was calculated using data that span 1983-2017 and so, therefore, axiomatically represent a generalized growth rate for Yaak females during this lengthy 35-year period. Put another way, the 2.1% per annum growth is not an estimate of growth for the period 2012-2017. For it to be so, the rate would have necessarily been estimated only using data from the approximate 2012-2017 period.

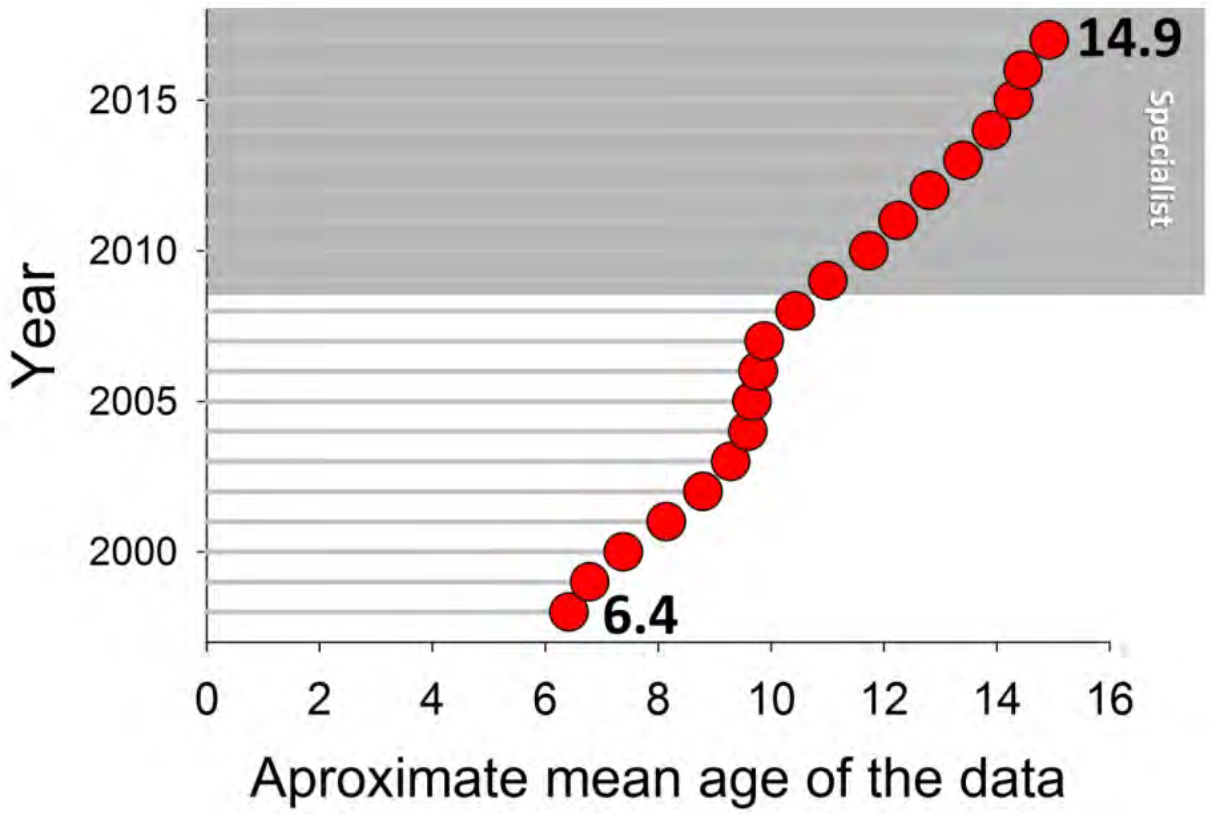
More to the point, estimates of growth for the Yaak female population are increasing back-weighted by inclusion of data that are, on average, increasingly old. Figure 1 (herein) shows the approximate average age of data used to calculate vital rates with the passage of time (from ibid: Table 17, 40-42). Notice that average age has increased from around 6-7 years in 1998 to nearer 15 years in 2017. In other words, with the progression of time estimates of population growth for the female segment of the Yaak population have become increasingly irrelevant to judging current population trajectory.

The Government retort to these contentions would probably be that the data from such a short period of time would be so sparse as to preclude a usefully accurate estimate. That is almost certainly the case, and a commentary in its own right on the profound limitations imposed by intrinsically small sample sizes. Nonetheless, this does not negate the point that the 2.1% per annum growth rate for 1983-2017 is spurious when applied to the 2012-2017 period. As Figure 11 clearly suggests (ibid: 37), population growth rate has almost certainly varied over time, albeit in largely indeterminate ways (see my following point).

Figure 1. Trend in mean age of data used to calculate vital rates of Cabinet-Yaak grizzly bears with passage of years from 1998 to 2017. Mean age has more than doubled, with trend towards increased aging accelerating since deployment of a conflict management specialist in the ecosystem. Increasing age renders estimated vital rates increasingly irrelevant to current conditions.

A.1.c. Uncertainty of the growth rate as currently (or even ideally) calculated debars use

Small sample sizes impose very real constraints on the precision and accuracy of all demographic rates being used by Cabinet-Yaak researchers and managers. These constraints follow ineluctably from the small size of the Cabinet-Yaak grizzly bear population, which is a non-negotiable feature of this ecosystem.



As a practical upshot, all of the population growth rates calculated to date have uncertainty intervals (e.g., 95% confidence intervals) that not only substantially overlap zero (i.e., no growth) but also, over time, each other. More specifically, de-

spite purporting to show trend in cumulative growth rate over time, the confidence intervals shown in Figure 10 (ibid: 37) all overlap—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 "The probability that the population was stable or increasing was 73%" (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 relationship to current rate of population increase or decline.

Moreover, when the totality of point estimates and uncertainty is taken into consideration for the period 1998-2017, there is a cumulative 62% probability that the population was declining during these 19 years, consistent with the 2017 estimate of population size for Yaak females still being around 52% less than the estimate of population size for 1998 (Figure 2A and 2B herein).

The implications of uncertainty are thrown into relief by examining the specifics of projecting 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 magnifies exponentially over time when manifest in population size. For example, after back-casting to obtain a plausible 1983 population starting point, deterministic projections 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, generate 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 simplistic given the self-evident structural complexity of grizzly bear population demography in the Cabinet-Yaak Ecosystem. For any estimate of growth rate to be realistic, explanatory, relevant, and accurate, all of the main structure needs to be accommodated. More specifically, a relevant demographic model would ideally include source-sink structures accounting for management- trapped versus research-trapped bears, bears in the Yaak area versus the Cabinet Mountains, augmentation bears versus in situ bears—in addition to accounting for the male segment as well as inter-annual variation attributable to variation in key food resources (see later). The model described in Kasworm et al. does none of this.

Again, the probable retort would be that sample sizes are too small to support estimating the many rates required for such a model. But that is, indeed, the point. And no amount of hand-waving or protest will make it otherwise nor redeem the deficiencies in current estimates of demographic rates. The uncertainty is real and unavoidable, and should be acknowledged in management decision-making.

A.2. Even taking estimated growth rate at face value, current population status is problematic

Even taking the population growth rate estimated by Kasworm et al. at face value, the most defensible conclusions would be, first, that status of the population has worsened during 2014-2017 compared to 2006-2013, and, second, that numbers are still substantially less than the presumed peak reached around 1998. These conclusions are based on trend in population growth rate over time (as per ibid: 37), and trend in population size estimated by projections using year-specific cumulative population growth rates (e.g., projecting population size for 1998 using the 1983-1998 growth rate estimate, and then doing the same for each successive year, with 1983 the starting year throughout).

Figure 2 (herein) shows seminal results. In Figure 2A I've identified three periods typified by trends in population growth: rapid decline of 2% per annum during 1998-2006, coincident with the berry famine (see below); a nearly as rapid 1.1% rate of improvement during 2006-2014; followed by stalling in the rate of improvement to around 0.2% per annum since 2014—an 82% decline in rate of change— coincident with population growth rate finally reaching positive territory. Importantly, this refers to the per annum rate of deterioration or improvement in population trajectory, which is perhaps the most relevant information to be gleaned from the estimates of population growth rate presented by Kasworm et al.

Finally, Figure 2B (herein) shows trend in estimated size of the Yaak female population, both as a central tendency (dark green line) as well as bounding uncertainty (light green band, based on projections using the upper and lower confidence intervals for each cumulative estimate of growth rate). Parenthetically, I transformed the values to a natural log scale in Figure 2B to visually emphasize trends given that the bounds of uncertainty explode with projections increasingly farther forward in time. The take-away point is that, according to these values, population size peaked during 1998, reached a nadir during the height of the berry famine in 2006, increased through 2014, and then stalled during 2015-2017 at a size that was still around 52% less than peak numbers reached during 1998.

The key points here are that improvement in status of the female segment of the Yaak population stalled beginning in 2014 at numbers that were still approximately 52% less than the peak reached during 1998. Having said this, both of these conclusions remain severely compromised by the intrinsic uncertainties, lack of relevance, and bias of methods used by Kasworm et al.

A.3. Conclusion

The upshot of all this is that there is no legitimate basis for estimating current population size (e.g., 55- 60) by applying a biased 1983-2017 growth rate—based on high-graded data representing only a fraction of the population—to a point population estimate made during 2012. Moreover, even taken at face value, the current cumulative population growth rate shows

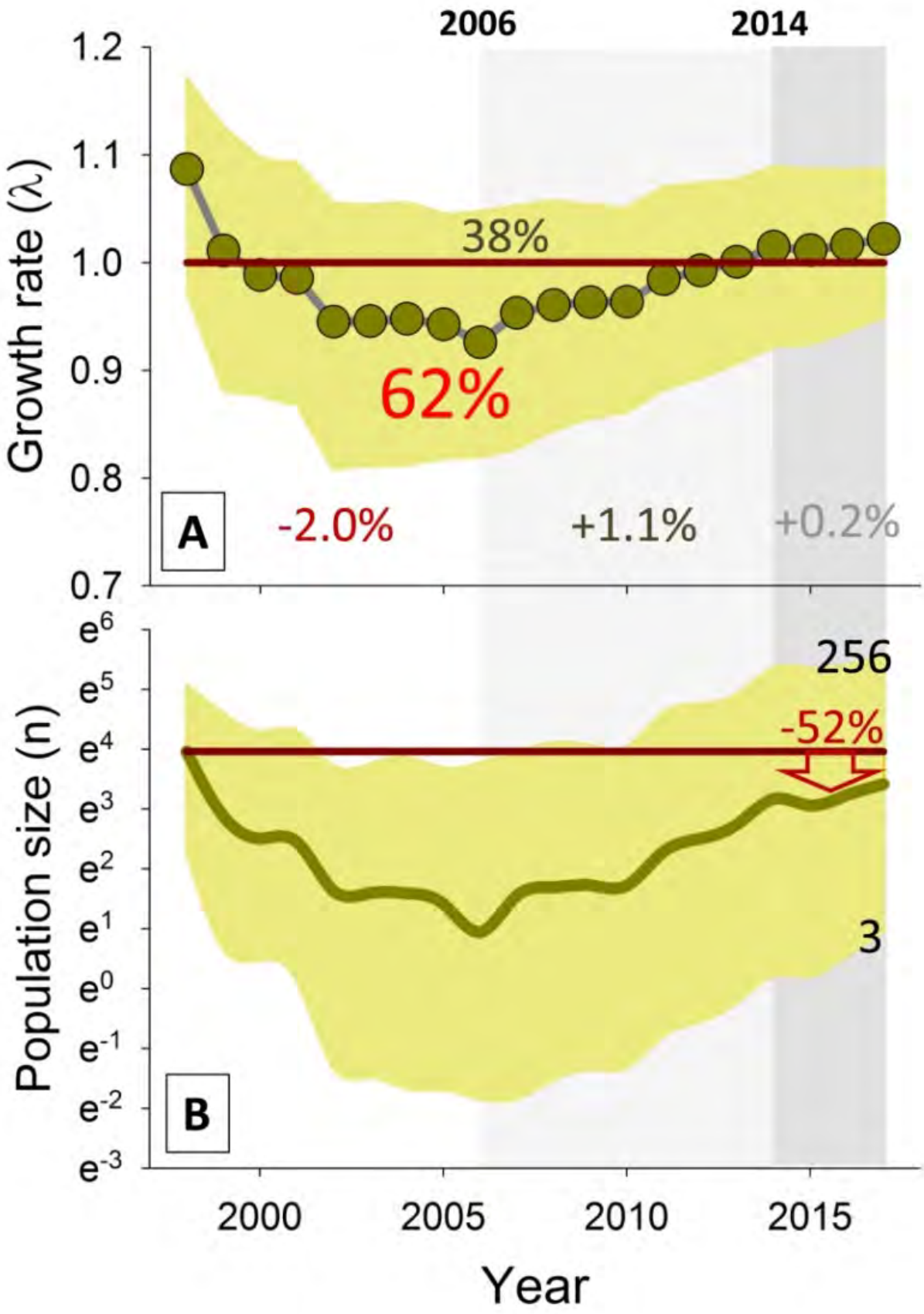
stalled improvement in population status and a population still substantially less than peak numbers reached during 1998.

The best that can be perhaps be invoked is a contrast between the presumed minimum estimate of 35 bears during 2014-2017 (ibid: 27) and the 2012 estimate of 49 (44-62) bears reported by Kendall et al.

(2016). The estimate of 35 for 2014-2016 is self-evidently less than the lower bound of the 2012 confidence interval, more consistent with a static or even declining population than with an increasing one. Of greater relevance to the draft EIS, this general conclusion also holds for comparisons specific to the Cabinet population (a current minimum of 13 bears compared to lower confidence intervals of around 20 reported by Kendall et al. for 2012).

Figure 2. Trend in estimated population growth rate (A) and related estimated total population size (B) for Cabinet-Yaak grizzly bears, with the notable proviso that both sets of estimates are based almost wholly on data obtained from female grizzly bears in the Yaak population. Dark green dots or lines denote central tendencies, large green bands bounds of uncertainty. The horizontal dark red line in (A) denotes no growth, with any values above leading to increase and any values below leading to decline. The red line in (B) corresponds with estimated population size in 1998. In (A) I also show the cumulative weight of evidence for population declines versus increases for 1998-2017 along with average annual rates of change in lambda during three periods characterized by non-

stationary shifts in dynamics. The numbers at right in (B) correspond to the range in estimated population size given uncertainties in growth rate (3-256), as well as the deviance in current estimated population size from the 1998 benchmark.


2006
2014
1.2
1.1
1.0
0.9
0.8
0.7
Growth rate (λ)
38%
62%
A
-2.0%
+1.1%
+0.2%
e6
e5
e4
e3
e2
e1
e0
e-1
e-2
e-3
Population size (n)
256
-52%
3
B
2000
2005
2010
2015
Year

B. Comparison of Pooled Survival Rates in Kasworm et al. (2018) is Not Legitimate

As ancillary support for the proposition that size of the Cabinet-Yaak population has increased between 1999-2006 and 2007-2017, Kasworm et al state that "Grizzly bear survival of all sex and age classes decreased from 0.899 during 1983–1998 to 0.792 during 1999–2006 and then rose to 0.934" (ibid: 34), and then summarize these same numbers in Table 13 (ibid: 34).

Most of the problems and associated bias noted above applies to this comparison. Note, first, that the 95% confidence intervals reported in Table 13 for pooled estimates from all three time periods overlap, which precludes confidently concluding there is any difference in mean rates. Moreover, note the restriction to "native" bears, which excludes any consideration of conflict-trapped or augmentation bears, which were very much a component of the 2012 point estimate of population size.

The other problematic aspect of this comparison is that data from all bear sex and age-classes were pooled, without any apparent attempt to determine whether this collapse of data preserves representation of the population at large. Are males over- or under-represented?...likewise subadults versus adults? Some sort of weighting scheme reflective of current or even stable population structure could provide some remedy, but without compensating for other biases.

The other interesting aspect of this data-pooling is the extent to which it is at odds with other results and commentary in Kasworm et al. More specifically, this aggregation of data ignores the disproportionate importance of subadult females to population dynamics. This importance is evident in the near 85% variance in estimated population trend attributed to survival of subadult and adult female bears in Booter calculations (but with 60% attributable to subadult female survival, Table 15; ibid: 37), as well as the different contextual emphasis placed by the authors on female survival on Pages 32 ("...it is important to consider the rate of female mortality") and 37.

The implication of all this is that the comparison of survival rates estimated from pooled data presented by Kasworm et al on Pages 33 and 34 does not mitigate the many fatal problems with their estimates of population growth rate.

C. Comparison of Annual Average Deaths in Kasworm et al. (2018) is Uninformative

Kasworm et al. (2018) present information on grizzly bear deaths in the Cabinet-Yaak Ecosystem in terms of numerous contrasts and adjustments presumably designed to be of relevance to various management deliberations. On pages 15-16 a running average of annual mortalities is related to recovery criteria; on pages 16-18 a full list of deaths with ancillary details is provided; and on pages 31- 33 mortality is summarized in multiple ways presumably relative to different management considerations. Throughout, the parsing, categories, and nomenclature are confusing, obfuscated, and confounded. As a result, I needed to reconstruct much of the analysis of mortalities presented by

Kasworm from the raw data on pages 16-18. The contrast among time periods presented in Table 11 (ibid: 33) was a particular focus.

C.1. Table 11 in Kasworm et al. (2018) is a Tangled Mess

The totals in the column farthest right in Table 11 of Kasworm et al. (2018) include all mortalities— human-caused, natural, within 16-km of the Recovery Area boundary, in the US as well as Canada—plus the estimated unrecorded human-caused mortalities. For some inexplicable reason, and unlike in the NCDE and GYE, natural mortalities and mortalities of unknown cause were not accounted for in estimations of unrecorded mortalities.

The upshot is that the row totals in Table 11 represent a mishmash of natural, human-caused, and estimated unrecorded human-caused mortalities, without any straight-forward connection to judging overall population status. In fact, the inattention and even outright dismissal in this context of natural mortality as a factor in judging population status is mystifying given that a dead bear, for whatever reasons, matters in assessing the toll taken by mortality.

C.2. Comparison of 'rates' between 1999-2006 and 2007-2017 is Uninformative

By contrast, the comparison of annually-averaged human-caused mortality between 1999-2006 and 2007-2017 on Page 32 of Kasworm et al. only considers human-caused mortality, but without including any of the estimated unrecorded human-

caused mortality included in Table 11—and without any cogent explanation. The confusion implicit to this inexplicable parsing is compounded by use of the term 'rate' in reference to an annual average, in context of 'rate' being used elsewhere in reference to survival and reproductive rates referenced to fates of individual bears. On top of this, a typo was made in reference to the 2007-2017 'rate,' which should be 2.2, not 2.1. This error amplified the potential for confusion arising from comparing '2.1' with '2.25' and calling the first value an increase over the second.

Reducing this chaos to something comprehensible: the annually averaged number of known and probable human-caused deaths during 1999-2006 was 2.13. Using all currently available data, for 2007- 2018 the average was 2.08. When the estimate of unreported human-caused deaths is included, the average for 1999-2006 was 2.75 (95% CI 1.6-3.9). For 2007-2018 it was 3.2 (95% CI 2.2-4.2). Considering total known-probable mortality plus estimated unreported human-caused mortality—but without any correction for unreported natural deaths—the annual averages for 1999-2006 and 2007-2018 were virtually identical: 3.9 and 3.8.

The important point is, here again, that rote statistical uncertainty debars any conclusion about increase, stasis, or decrease in numbers of human-caused deaths. The confidence intervals of annual averages overlap substantially, which is not surprising given the small sample of years and dead bears. This statistical uncertainty is amplified by uncertainty attached to detecting any bear death other than that of an actively radio-monitored animal. Considering only human-caused

deaths, this certainly holds for poached bears, deaths 'under investigation,' and deaths from unknown (but human-related) causes. A back-of-the-envelope calculation suggests that such deaths need to be increased by around 70 to 120% in year-end tallies.

In the face of such irrefutable uncertainty, Kasworm et al resort to focusing on and then emphasizing female mortality, which reduces the absolute values of calculated averages even further. When an estimate of unreported human-caused female mortalities is added to known mortalities (using the long-term proportion of F:M deaths=0.4), the result is an annual average of 1.75 (95% CI 0.83-2.67) female deaths for 1999-2006 and 0.80 (95% CI 0.34-1.54) female deaths for 2007-2018. All of the reported differences in mean values are so far within the range of statistical uncertainty as to render these comparisons a bit absurd.

C.3. Conclusion

Again, researchers and managers in this ecosystem might argue that small samples prevent any degree of certainty about conclusions, but this does not obviate the obligation to acknowledge uncertainty. Nor does it eliminate the practical consequences of small sample sizes and the compromising effects of chance processes—highlighted recently by a jump in recorded deaths from 1 in 2017 to 3 in 2018, a tripling in just one year. More certainly, it recommends humility and precaution in the face of such statistical ambiguities.

But all of this still leaves open the question of why natural mortalities as well as mortalities that cannot be definitively ascribed to human causes are not accounted for in assessing population status. This question is especially relevant given that Kasworm et al comment in several places on the extent to which variation in abundance of key natural foods likely drives population dynamics, often through the 'natural' death of dependent young (see below). Or, even, why, when considering only human-caused mortality, adjustments to account for unrecorded deaths were not included. This is all a bit mystifying as well as prima facie unjustified.

D. Status of the Cabinet-Yaak Population Remains Highly Precarious

The current vulnerability of the Cabinet-Yaak population can be illustrated through a simple exercise, even without accounting for spatial structure of the Cabinet and Yaak subpopulations. 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 cumulative geometric mean growth rate (lambda) varied from a maximum of 1.035 to a minimum 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 produced 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 geometric

cumulative mean growth rate dropped from 0.952 (already much less than 1) to an astounding 0.202 at year 34 of the simulation (Figure 3 herein). 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 is not presented as any definitive modeling result, but rather illustrative of how little the margin of error is, and how vulnerable this population is to even the smallest increased increments of mortality (e.g., Kendall et al. 2016). This point is especially germane given that one adult female was killed by humans each of the last two years, during 2018 and 2019. And this does not account for adult females that died and were not documented.

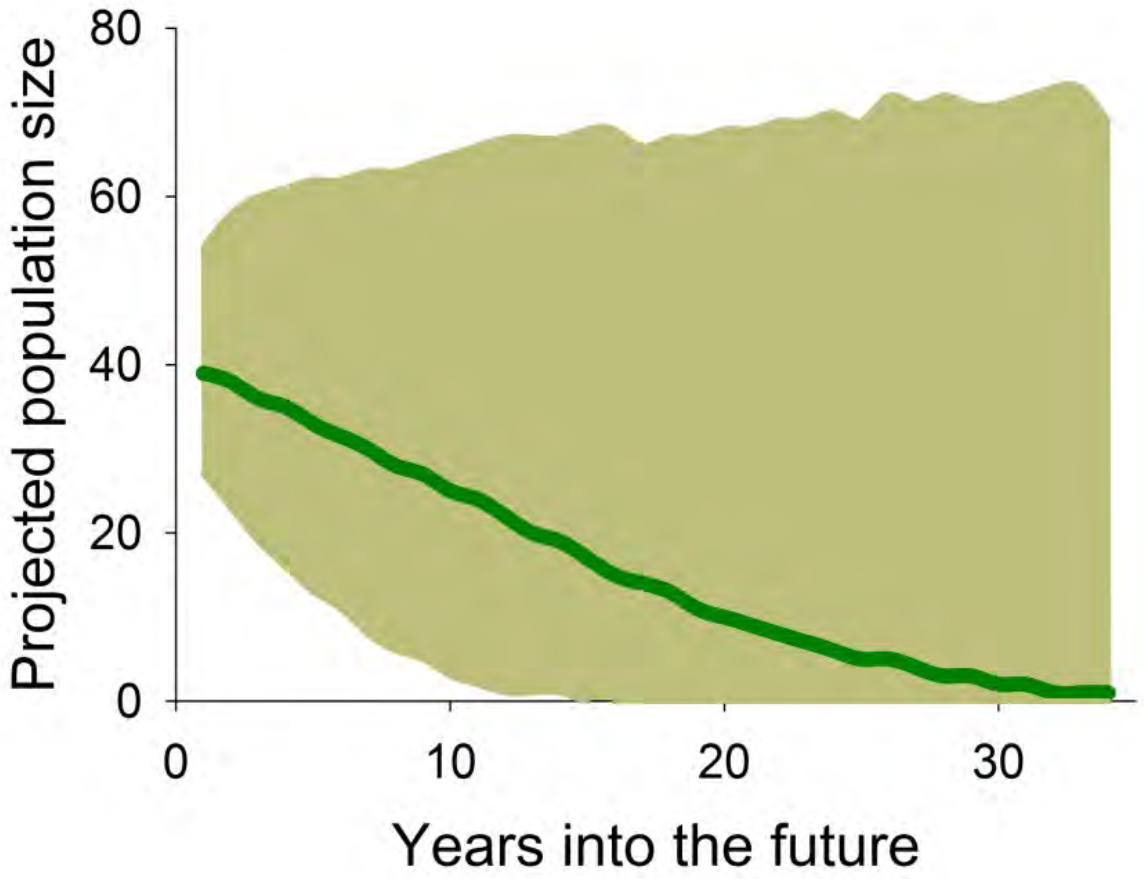
Figure 3. Results of RISKMAN projections for the Cabinet-Yaak population using vital rates reported by Kasworm et al. (2018), but introducing the death of an additional female grizzly bear once every 2 years. The thick green line represents the median trend of projections; the dusky green band above and below the variability of projections.

E. 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 effectiveness 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 notoriously unresponsive to education and 'outreach'. The phenomenon is about willful malfeasance. As such, limitations on road access coupled with improved law enforcement and successful prosecutions are logically the most appropriate redress—not, for example, conflict mitigation by a specialist who is not tasked primarily with law enforcement.

Before pursuing this any farther, some clarification of obfuscations in the dead bear database is needed. During 1999-2017 a number of deaths were ascribed to 'Undetermined' human causes, 'Poaching' or listed as 'Under investigation'. The first and last categories are not explicit, but nonetheless strongly suggestive. Certainly, 'Under investigation' suggests that the death occurred under suspicious circumstances warranting investigation—with a strong likelihood of either poaching or other



unwarranted lethal action by the involved people. Such suspicions are rarely definitively resolved. 'Undetermined' is also more suggestive of malfeasance rather than innocence on the part of the involved people. Given the alternatives, such deaths are more defensibly allocated to causes more resistant than not to mitigation.

With all of this as context, there were a total of 7 known-probable deaths during 1999-2006 attributed to either poaching or undetermined causes, representing 58% of total human-caused deaths. During 2007-2018 there were a total of 13 deaths either 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 'unreported' deaths did not apply to bears that were radio-collared or removed by managers, which leaves this unreported estimate levied almost entirely against malicious or otherwise suspect causes. When these unreported estimates are added to the known-probable toll taken by poaching, unknown causes, or suspicious circumstances, the percentage increases to around 70% during 1999-2006 and approximately 77% during 2007-2016.

Taken together, these figures support concluding that (1) malicious or otherwise suspect causes account for a large portion—if not majority—of grizzly bear deaths in the Cabinet-Yaak 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 aggressive limitations to road access by the USFS are needed, especially in areas with concentrations of productive habitat (Proctor et al. 2015, 2017).

F. Access Management is Critical to Limiting Malicious & Other Unjustified Killing

The consensus of relevant research is unambiguous about the link between road access and grizzly bear mortality. The more access, the more dead bears there are, with disproportionate concentrations near roads (Brannon 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 concentrated within 100 to

500 m of roads, averaging around 300 m (± 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 geospatial configuration of mortality risk and, even more important, decrements in survival and population growth. These parameters 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'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 Kootenai National Forest based on the results of Wakkinen & Kasworm (1997).

Taking 300 m as a ballpark figure, road densities of roughly 0.6 km/km^2 translate into areas remote from where human-caused mortality 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 will move from one presumably secure area to another—even assuming that these bears exhibit "average" avoidance of human features 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 Knotty Pine 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 Knotty Pine Project are highlighted in contrast to standards applied in the Northern Continental Divide Ecosystem (NCDE), as well as in contrast to trajectories of populations in the NCDE and Greater Yellowstone Ecosystem. The populations of already relatively numerous grizzly bears in the NCDE and GYE have increased substantially since the early 1990s to 2000s, in contrast to in the Cabinet-Yaak 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 allowed comprise around 56% of the NCDE and GYE. In the Cabinet-Yaak Ecosystem this figure is less than half as much, nearer 21%. This difference alone can explain much of the corresponding difference in fates of grizzly bear populations.

Despite these telling differences in fates and trajectories of grizzly bear populations, the road density and habitat security standards applied by the Kootenai National Forest are more lax, not less, than those applied on the Flathead National Forest. On the Kootenai, areas allowed with >1 mile/mile2 of roads are 1.7-times greater; areas with >2 miles/mile2 of roads are 1.4-times greater; and extents of secure habitat nearly 20% less compared to what is ostensibly allowed on the Flathead NF. These disparities are perverse and not able to be explained on the basis of differences in the extent of movements by grizzly bears. If anything, bears range more widely in the Cabinet-Yaak Ecosystem compared to the NCDE (Kasworm et al. 2018).

As a bottom line, existing and proposed access management in the Knotty Pine Project Areas has jeopardized and will continue to jeopardize grizzly bears.

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

The argument for more aggressive management 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 increase 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 concluding that hazards for grizzly bears have remained 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 Knotty Pine Project. As per my point F, above, the most efficacious means available to the USFS for addressing this imperative is through providing increased rather than diminished habitat security, axiomatically through reducing road access in the Project area.

Activities of the Knotty Pine Project Are Problematic in a Larger Geospatial Context

Please examine the cumulative effects of this project.

Please evaluate the impacts of proposed activities on grizzly bears in a larger geospatial context. Mattson & Merrill (2004) and Proctor 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 Cabinet-Yaak

Moreover, with the Cabinet-Yaak Recovery Area as a logical unit of analysis, any assessment of cumulative effects needs to account for other on- going and planned human activities associated with forest treatments and harvest in this Ecosystem, as well as foreseeable impacts associated with the proposed Rock Creek and Montanore Mines; as well as on-going and foreseeable impacts associated with the human transportation infrastructure (e.g., railways and associated highways that already fragment grizzly bear distribution in this Ecosystem, Mattson et al. [2019b]), all with the potential to amplify impacts arising from the Knotty Pine Project.

K. A Devil's Bargain Will Not Rescue This Small Population

K.1. The Cabinet-Yaak Population is Not Viable and Remains Acutely Vulnerable to Increased Mortality

The Cabinet-Yaak grizzly bear population is smaller than the smallest census population size ever posited as being viable. The Yaak/Yahk subpopulation has limited connectivity with grizzly bear populations elsewhere, and the Cabinet Mountains

subpopulation is more isolated yet (Apps et al. 2016; Kendall et al. 2016; Proctor et al. 2012, 2015). 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 Cabinet-Yaak 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 compared to environmental variation, catastrophes, negative deterministic trends, and loss of genetic diversity—all of which are documented or potential factors in the Cabinet-Yaak. 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 Yaak and Cabinet grizzly bear populations remain acutely vulnerable to even small changes in levels of mortality. Under such circumstances, a precautionary approach to managing spatial hazards and habitat security is not only advisable, but mandatory. Unfortunately, there is no evidence of caution or even meaningful recognition of threats to the Cabinet population.

K.2. Variation in Population Trajectory Has Likely Been Driven by Exposure to Humans

As a hypothetical, it is worth taking claims regarding an improvement in status of the Cabinet-Yaak grizzly bear population between 1999-2006 and 2007-2018 at face value. Again, the emphasis here is on the hypothetical 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. Nonetheless, 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:

"The increase in total known mortality beginning 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." (emphasized in Figure 10; ibid: 32; see Fig. 6, herein).

"Some of this decrease [in survival] in the 1999-2006 period could be attributed to an increase in natural mortality probably related 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." (ibid: 34).

In reference to a probable increase in size of the Cabinet Mountains subpopulation from around <15 (possibly 5-10) in 1988 to around 22-24 in 2012: "These data indicate the Cabinet Mountains population has increased 2-4 times since 1988, but this increase is largely a product of the augmentation effort with reproduction from that segment." (ibid: 36).

L. Conclusion

Reiterating my conclusion in the Introduction to these comments, the Knotty Pine Project as described in the scoping notice promises to harm grizzly bears in the Cabinet-Yaak Ecosystem. The Forest Service could unequivocally benefit grizzly bears in this area by the closure and retirement of roads.

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Please see the following report by Montana Fish Wildlife and Parks.

BEAR EUTHANIZED NEAR EUREKA; CUBS SENT TO ZOO MONTANA
Oct 11, 2023 3:37 PM

https://fwp.mt.gov/homepage/news/2023/oct/10-11-bear-euthanized-near-eureka-cubs-sent-to-zoomontana

KALISPELL — A grizzly bear was captured and euthanized after multiple conflicts with people in the Eureka area in Lincoln County.

Montana Fish, Wildlife & Parks received reports of an adult female grizzly bear with three cubs getting into buildings, cabins, chicken coops, and outdoor freezers in search of food sources. The female was previously captured and moved after conflicts with people in Lincoln County.

FWP bear specialists captured the adult female and two of the cubs in early October. Based on reports, the bears were severely food conditioned. The decision was made to euthanize the adult bear in consultation with the U.S. Fish & Wildlife Service and by Interagency Grizzly Bear Committee guidelines.

FWP was unable to capture the third cub and transported the two cubs to the Grizzly & Wolf Discovery Center for temporary placement. Both cubs will be going to ZooMontana, a zoological/botanical garden, accredited arboretum and educational facility in Billings.

Food-conditioned bears are those that have sought and obtained unnatural foods, destroyed property, or displayed aggressive, non-defensive behavior toward humans. Once a bear has become food-conditioned, hazing and aversive conditioning are unlikely to be successful in reversing this type of behavior. Food-conditioned and habituated bears are not relocated due to human safety concerns.

It is assumed that the 3rd cub died. Therefore, with this one incident, the Cabinet Yaak grizzly population decreased by almost

9%. With the population hanging by a thread, this is not the time to be allowing more roads in grizzly bear habitat.

Bears can likely survive in human affected environments despite numerous encounters with people but only if the encounters are non lethal such as in Glacier and Yellowstone National Parks. Unfortunately, in the KNF, man of the human grizzly encounters end up with dead grizzlies based in recent history. Please find attached Mattson 2020 Efficacies & Effects of Sport Hunting Grizzlies. Mattson writes: ***Without exhausting all of the current identifiable threats, grizzly bears remain threatened by malicious killing, often by people driving backcountry road networks. These roads are nowhere more problematic than on Forest Service jurisdictions where management prioritizes industrial-scale extraction of timber over all other values—and nowhere more so than in the Selkirk and Cabinet-Yaak Ecosystems (Mattson 2019d, pages 11-12) as well as in western portions of the NCDE on the Flathead and Lolo National Forests (Mattson 2019a, page 37).***

Remedy

Withdraw the proposed amendment and write an EIS to ensure secure habitat for grizzlies and the recovery of grizzly bears. The current and proposed direction for BORZ does not require any security for grizzly bears, even though, again, security is required as per the current best science. The continued implementation of inadequate protections to conserve and recover the grizzly bear within BORZ requires the completion of an Environmental Impact Statement (EIS), along with accepted methods to reduce and also measure the ongoing “take” of grizzly bears

The New roadbuilding in each BORZ without meaningful reclamation to ensure no net increase in the road system presents a significant threat to grizzly bears, because motor vehicle users and other recreation activities can trespass on the supposedly "impassable" roads and thus encroach on grizzly bear habitat. Further, even unused roads cause detrimental impacts to grizzly bear survival and reproduction, because grizzly bears are displaced from roaded habitat, regardless of whether the roads receive public or administrative use. However, in concluding that the Revised Forest Plan will not jeopardize the species, FWS's Revised Biological Opinion failed to adequately examine adverse impacts to grizzly bears from unauthorized motorized use on roads closed according to the Revised Forest Plan's weaker closure standards; failed to consider the displacement impacts caused by roads even when they do not receive motorized use; and failed to account for increased roadbuilding enabled by the Forest Service's abandonment of stringent road-reclamation requirements.

The Forest Service has failed to rationally determine, based on a consideration of all relevant factors, whether the Forest Plan's new first plan amendment will jeopardize the survival of grizzly bears in the KNF and therefore each BORZ

We wrote in our comments:

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

It does not appear that the Forest Service consulted with the FWS on the impact of the amendment on lynx, lynx critical habitat, bull trout, bull trout critical habitat, whitebark pine, monarch butterflies, and grizzly bears in violation of the ESA, NEPA and the APA.

REMEDY

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

We wrote in our comments

Please disclose if the project is meeting:

(1) Forest Plan Standard 3 - Hiding Cover,

(2) Forest Plan Standard 3 - Thermal Cover,

(3) Forest Plan Standard 4a - Open Road

Density & Hiding Cover,

(4) Habitat Effectiveness,

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

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

The total number of elk is not a correct measure of whether or not adequate secure big game habitat is available on Forest Service lands: "This is inappropriate because the correct measures of big game security are annual bull survival rates and the degree to which big game are retained on public land during the fall hunting season.

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

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

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

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

Montana FWP has indicated that there is a serious problem with elk being displaced from insecure National Forest lands onto private land during hunting season.

Repeatedly exempting logging and roading projects from the only quantitative limits on logging and roading on this Na-

tional Forest exacerbates this elk displacement problem and (a) results in a failure to comply with Forest Plan objectives and goals to maintain elk habitat and- hunter opportunity, (b) results in a major change to standards and guidelines intended to maintain elk habitat and hunter op- portunity, (c)signifi- cantly limits hunter opportunity on this Forest, and (d) affects a large portion of this National Forest that is reasonably available to the public for hunting.

The Forest Service did not respond in violation of NEPA, NFMA and the APA.

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

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

The Proposed amendment would violate the Forest Plan/Access standards, a violation of NFMA because of road closure violations and because it will not count an actively used logging road as open or apparently even road. What science supports your

conclusion that logging traffic does not effect grizzly bears or other wildlife?

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

Please take a hard look as road closure violations.

Remedy

Write an EIS that analyzes the impact of the proposed amendment on big game.

Christensen et al (1993) states: "Any motorized vehicle use on roads will reduce habitat effectiveness. Recognize and deal with all forms of motorized vehicles and all uses, including administrative use." Please disclose this to the public and stop representing that roads closed to the public should not be included in habitat effectiveness calculations. The facts that (a) you are proposing an amendment to allow constructing or reconstructing many miles of new roads, (b) you have problems with recurring illegal use, and (c) you already admit in the past that you found another many miles of illegal roads that you have not committed to obliterating, means that your conclusion that this Project will have no effect on open road density or habitat effectiveness is implausible to the point of being disingenuous. You cannot ex-

clude these roads simply because you say they are closed to the public. Every road receiving motorized use must be included in the HE calculation. You must consider all of this road use in order to take a hard look that is fully and fairly informed regarding habitat effective- ness. In the least you must add in all "non-system" roads, i.e. illegal roads, as well as recurring illegal road use (violations) in your ORD calculations. Also, as a side note, your calculations in Christensen et al 1993 finds: "Areas where habitat effectiveness is retained at lower than 50 percent must be recognized as making only minor contributions to elk management goals. If habitat effectiveness is not important, don't fake it. Just admit up front that elk are not a consideration."

In May 2019, the United Nations released a report finding that the current rate of species extinction "is already at least tens to hundreds of times higher than it has averaged over the past 10 million years."[1] The mountain caribou in the lower 48 states went extinct just a few months ago. Like the Selkirk grizzly bear, the mountain caribou lived primarily on National Forest land, had a population of less than 50 individuals, and was threatened by logging and roads.

Alliance reiterates this point here because the agencies issued similar assurances regarding the mountain caribou that they now issue for the Cabinet-Yaak grizzly bear. For example, in litigation to protect the mountain caribou in this Court, the agencies represented that they would "meet caribou needs" by using the best available science and applying forest plan protections, and not approving logging projects unless they concluded that the project was "not likely to adversely affect" the mountain cari-

bou. Jayne v. Sherman, 706 F.3d 994, 1001 (9th Cir.2013)(quoting FWS Biological Opinion).

In Jayne, these statements were accepted as adequate protections for the mountain caribou. Now the mountain caribou is extinct. It is not too late to avoid the same fate for the Cabinet Yaak grizzly bear. As members of Congress stated when

[1]https://www.ipbes.net/sites/default/files/downloads/spm_unedited_advance_f or_posting_htn.pdf

they passed the ESA: "The agencies of Government can no longer plead that they can do nothing about [the grizzly bear]. They can, and they must. The law is clear." Tennessee Valley Auth. v. Hill, 437 U.S. 153, 184 (1978) (quoting Congressional Record).

The preservation of endangered species takes "priority over the 'primary missions' of federal agencies." Accordingly, courts must "afford[] endangered species the highest of priorities," and act with "institutionalized caution" when reviewing ESA cases. Cottonwood Envtl. Law Ctr. v. USFS, 789 F.3d 1075, 1091 (9th Cir.2015). This Court holds that the "fundamental principle [of institutionalized caution] remains intact and will continue to guide district courts when confronted with requests for injunctive relief in ESA cases." Id. Although the district court did not apply this fundamental principle in this case, this Court may now remedy that error by issuing a temporary injunction pending appeal to preserve the status quo until a final decision is issued on the merits.

The Access Amendment is the product of years of public interest litigation on behalf of the imperiled Cabinet-Yaak grizzly bear. The well-established scientific consensus is that roads pose the most imminent risk to this grizzly population. Ninety percent of this population's Recovery Zone habitat isolated on public National Forest lands. Thus, the federal government has the power to limit road density for grizzly bear protection on the vast majority of its habitat and thereby prevent the extinction of this grizzly population. Ostensibly, this is the purpose of the Access Amendment.

However, since the Access Amendment was approved in 2011, the U.S. Forest Service has prepared multiple years of monitoring reports regarding its implementation of road closures in grizzly habitat. These monitoring reports establish that these road closures are routinely violated and therefore ineffective: members of the public regularly ignore signs, drive around gates or earthen berms, remove obstructions such as boulders or logs, or simply create their own new motorized routes.

Although these monitoring reports are only required for the Recovery Zone, there are incidental observations in these reports regarding closure violations found in grizzly habitat outside of the Recovery Zone, in the government-designated "Bears Outside Recovery Zone" or "BORZ" areas.

The majority of the Cabinet-Yaak Grizzly Bear Ecosystem – 90% – is National Forest land, managed by the Forest Service. 64 Fed. Reg. 26725, 26728 (May 17,1999). In terms of all of the human uses that affect grizzly bears, "[r]oads probablypose the most imminent threat to grizzly habitat today []. The management of roads is one of the most powerful tools available to balance the needs of people with the needs of bears." Accordingly, the U.S. Fish & Wildlife Service (FWS) states: "It is strongly recommended that road management be given the highest priority within all recovery zones." Roads pose a threat to grizzly bears because roads provide humans with access into grizzly bear habitat, which leads to direct bear mortality from accidental shootings and intentional poachings.

Human access also leads to indirect bear mortality by creating circumstances in which bears become habituated to human food and are later killed by wildlife managers. Human access also results in indirect mortality by displacing grizzly bears from good habitat into areas that provide sub-optimal habitat conditions.

Displacement may have long term effects: "Females who have learned to avoid roads may also teach their cubs to avoid roads. In this way, learned avoidance behavior can persist for several generations of bears before they again utilize habitatassociated with closed roads." Both open and closed roadsdisplace grizzly bears: "grizzlies avoided roaded areas even where existing roads were officially closed to public use []. Females with cubs remained primarily in high, rocky, marginal habitat far from roads. Avoidance behavior by bears of illegal vehicular traffic, foot traffic, and/or authorized use behind road closures may account

for the lack of use of areas near roads by female grizzly bears in this area.

This research demonstrated that a significant portion of the habitat in the study area apparently remained unused by female grizzlies for several years. Since adult females are the most important segment of the population, this lack of use of both open-roaded and closed-roaded areas is significant to the population." In addition to having a significant impact on female grizzly bears, displacement may also negatively impact the survival rates of grizzly cubs: "survivorship of the offspring of females that lived in unroaded, high elevation habitat was lower than that recorded in other study areas in the [Northern Continental Divide Ecosystem].

The majority of this mortality was due to natural factors related to the dangers of living in steep, rocky habitats. This is important in that the effects of road avoidance may result not only in higher mortality along roads and in avoidance of and lack of use of the resources along roads, but in the survival of young when their mothers are forced to live in less favorable areas away from roads."

Current peer-reviewed science still finds that roads have the most significant impact on grizzly bear survival: "[o]f all the covariates we examined, the amount of secure habitat and the density of roads in nonsecure habitat on public lands had the greatest effect on grizzly bear survival."

Roads, even if nominally "temporary," can still have long-lasting generational displacement effects on grizzly bears because females teach their cubs to avoid these areas.

These roads can therefore result in direct mortality, indirect mortality, and reduced cub survival. When applied to an extremely small, endangered[2] population of fewer than 50 individuals that is already experiencing high mortality rates, failing recovery targets, and hovering at less than half the numbers needed for viability, these harms are amplified and create a great cause for concern for Alliance's members. Neither the "imminent harm" posed by roads nor the dire status of this population are acknowledged by the agencies.

It is misleading to state that this population is merely "threatened." The District of Montana vacated FWS's rule finding that endangered status was not warranted and "reinstate[d] the FWS's November 2013 warranted but precluded finding." All. for the Wild Rockies v. Zinke, 265 F. Supp. 3d 1161, 1181 (D. Mont. 2017). Thus, the population is currently warranted for listing as an endangered species, but it is still on the waiting list.

The project will not maintaining and enhancing grizzly habitat and will increase the potential for grizzly-human conflicts in violation of NFMA, NEPA, the APA and the ESA.

The Forest does not have a good track record of keeping closed roads closed. The Forest Service does not disclose the road mileage behind these ineffective closures; therefore it is unclear how many miles of additional open and total roads must be

added to the existing condition calculations as a result of these ineffective closures.

In a recent Ninth Circuit Opinion, the court found that the Forest Service had failed to establish whether similar "undetermined" roads of unknown origin caused an increase above the Tobacco BORZ baseline:

The error cannot be treated as harmless in light of the ambiguity in the record as to whether the "undetermined" roads at issue were, in fact, included in the Access Amendments baseline calculation.

There are at least three problems with the KNF's record of amount of roads. First, because "undetermined" is a sub-category of "unauthorized" roads, it is possible that the particular undetermined roads at issue in this case were created—without authorization from the Forest Service—in the interim between the measurement of the Access Amendments baseline and the Forest Service's survey of existing roads for the Project.

All. for the Wild Rockies v. Savage, 897 F.3d 1025, 1036, n.18 (9th Cir. 2018). In light of these circumstances that (1) road closures/barriers are regularly breached but the Forest Service conducts no systematic monitoring to determine how many miles of illegal road use are occurring behind barriers each year, and (2) the Forest Service simply ignores illegal "undetermined" roads and does not include them in its calculations for open or total roads in the annual monitoring reports, the open and total road numbers in the monitoring reports are not accurately reflecting the conditions on the ground. It is therefore reasonable to as-

sume that the baselines in each BORZ regularly exceeded because the reported conditions hover at or near the baseline.

Chronic recurring road closure breaches cannot reasonably be construed as "temporary;" and illegal road use does not fall within the scope of Access Amendment "temporary" roads.

The Forest Service and FWS have acknowledge that road closure breaches (and resulting illegal road use) are not addressed in the Access Amendment. Nonetheless, the agencies argue that all road closure breaches regardless of whether they are chronically recurring and regardless of how long they last on the landscape must be construed as "temporary" road increases. Onto this premise, the agencies then bootstrap an additional argument that because certain specific types of temporary roads were addressed in the Access Amendment, that discussion must also apply to "temporary" road increases from illegal road use.

First, it is not reasonable to construe recurring illegal road use as "temporary" road density increases. The monitoring reports indicate that public users may repeatedly breach the same closure year after year. See, e.g., AR42:000059-62 (noting that boulders placed in 2015 have been removed and unauthorized users are again circumventing gate on Road 2236). Moreover, the Forest Service may take years to act on known violations. See, e.g., AR42:000061 ("The Clatter Creek gate (268) was included on the 2015 gate repair contract but after the bids came in the Clatter Creek gate was dropped due to repair costs for all gate repairs exceeding available funding. In BY2016 the gate remained damaged and ineffective."); see also AR43:000081-82 (note 2)

(during planning for the Hanna Flats logging project, the Forest Service found illegal motorized use on 15.7 miles of road that were not included in the baseline but the agency postponed remedial action until implementation of the logging project; in the 2018 monitoring report, the agency concedes it has still not yet eliminated this illegal use); see also AR232:000767 (finding that four barriers did not effectively prevent motorized use but deferring any action to fix the problems).

Thus, while the Forest Service insists that all breaches are temporary, those same breaches may be recurring or may have lasted for many years prior to discovery and remedial action, resulting in a chronic situation. The situation with the BORZ is a good illustration of this problem S although the Forest Service insists that it fixes all breaches as soon as possible, nonetheless at least four out of seven BORZ areas chronically fail to meet both the open and total road baseline conditions from the Access Amendment, as shown above in the table in Section B.

Second, even assuming that illegal road use could be construed as "temporary," it still does not have the same effect as lawful temporary road use. A breach of a closure device that results in public motorized use in effect results in an open road. The Access Amendment severely restricts temporary increases in open roads: "immediately following completion of all mechanized harvest and post- harvest slash activities requiring use of the road, to allow motorized public use during the bear summer season prior to the fall bear hunt (i.e., June 16 - August 31) for ac-

tivities such as personal firewood collection. This public access would only be provided in cases where the mechanized harvest and/or post-harvest slash activities occurred during the same active bear year."

Thus, temporary increases in open roads are limited to a June 16-August 31 window, and may only occur in the same year in which logging activities have already occurred and used that particular road, presumably because grizzlies would have already been displaced from those areas. In contrast, illegal motorized use behind road closure breaches is not limited to a June 16-August 31 window, and is not limited to a single year entry on a road along and on which logging activities have already been occurring.

Moreover, illegal road use would also constitute an increase in total roads. However, temporary increases in total roads are only permitted if the roads are "effectively" gated to prevent public use during a project, (2) after project use, the roads are treated so as to "effectively prevent[] motorized access" and require no motorized access for maintenance for at least 10 years, and (3) upon project completion, the area is "returned to or below the baseline levels contained in Table 16" of the Access Amendment ROD. Obviously a road that has illegal road use is not "effectively" gated to prevent public use.

Thus, illegal road use does not comply with the restrictions set for lawful increases in temporary roads neither open nor closed in the Access Amendment and therefore cannot possibly have the same effects. It is simply implausible that unlimited illegal

road use occurring at any time in any location would have the same effect on grizzly bears as Access Amendment temporary roads that are significantly restricted in both timing and location. Indeed, illegal road use is illegal precisely because the Forest Service has already closed these specific roads to protect grizzly bears. If illegal motorized use occurs on these roads that were closed to protect grizzly bears, it may displace grizzly bears from areas that they would otherwise not be displaced from.

2017 DNA sampling identified only 44 individual bears. 1 Specifically, the recent sampling identified 20 females and 24 males, with 23 bears in the Cabinets and 21 bears in the Yaak portion of the ecosystem.

Recognizing that the grizzly bear population in the Cabinets portion of the ecosystem is likely much smaller than the estimated population for the entire ecosystem, we are likely looking at a much larger percentage of the population being seriously impacted during the life because of this project.

Because of the serious impacts to grizzly bears, please demonstrate compliance with Forest Plan standards relevant to grizzly bears, and analyze the direct, indirect, and cumulative impacts to grizzly bears.

The Grizzly Bear Access Amendment set standards for open motorized route density ("OMRD"), total motorized route density ("TMRD"), and retention of core grizzly bear habitat within the Selkirk and Cabinet Yaak Recovery Zones bear management units. The Forest Service must comply with the Access Amend-

ment TMRD standards during and after project implementation, it not the project directly violates NFMA.

We wrote in our comments:

Please prepare a Biological Assessment and formally consult with the USFWS as required by law.

THE AGENCIES MUST COMPLETE A BIOLOGICAL ASSESSMENT, BIOLOGICAL OPINION, INCIDENTAL TAKE STATEMENT, AND MANAGEMENT DIRECTION AMENDMENT FOR THE RMP FOR THE WOLVERINE.

The agencies do not have in place any forest plan biological assessment, biological opinion, incidental take statement, and management direction amendment for wolverines.

THE AGENCIES MUST CONDUCT ESA CONSULTATION FOR THE WOLVERINE.

Wolverines may be present in each BORZ. The Forest Service concedes that the Project "may affect" wolverines. The agencies' failure to conduct ESA consultation for a species that may be present and may be affected by the Project violates the ESA. Wolverines are currently warranted for listing under the ESA. As the agencies are well aware, the scheduled, court ordered listing date for the wolverine is this year. In fact, FWS has recently filed the a document in federal court committing to a listing date for the wolverine. Accordingly, the wolverine will be listed under the ESA before the final decision is made to authorize and implement this Project, and long before any

project activities commence. Regardless, even candidate species must be included in a biological assessment.

Did the Forest Service survey for wolverines in each BORZ? Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area. Ruggierio et al 2000;

Wolverines generally scavenge for ungulates along valley bottoms and forage and den in remote, high-elevation areas (Hornocker and Hash 1981; Morgan and Copeland 1998). Thus if mangers wished to provide habitat for wolverines, they could pay particular attention in the planning process to ungulates winter range and other aspects of habitat quality for ungulates to provide a consistent supply of carcasses for wolverine to scavenge. In addition, wolverines generally avoid areas of human activity. To limit the threat of human-caused disturbance or mortality, managers could restrict access to portions of the landscape where wolverines are most likely to occur.

In order to meet this viability mandate, the 1982 NFMA planning regulations require that the Forest Service select "management indicator species" whose "population changes are be-

lieved to indicate the effects of management activities." 36 C.F.R. § 219.19 (1) (2000). 253.

The 1982 NFMA planning regulations require the Forest Service to monitor the population trends of these species and to state and evaluate land management alternatives

"in terms of both amount and quality of habitat and of animal population trends of the management indicator species." 36 C.F.R. § 219.19 (2),(6) (2000).

The wolverine was recently determined to be warranted for listing under the ESA. 75 Fed. Reg.78030 (Dec. 14, 2010). It is currently a proposed species, waiting for work to be completed on other species before it is officially listed. The USFWS found that "[s]ources of human disturbance to wolverines include . . . road corridors, and extractive industry such as logging . . .." .The Forest Service admits that the wolverine and/or its habitat are present within each BORZ and would be impacted by the project. The Forest Service must go through ESA consultation for the wolverine for this project.

The Forest Service did not respond to our comments in violation of NEPA.

REMEDY

Please formally consult with the FWS on the impact of the amendment on wolverines.

Thank you for your time and consideration of our objection

Sincerely yours,

Mike Garrity

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