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January 27, 2024.

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

Responsible Official: Cheryl F. Probert

Objection to the “Nez Perce-Clearwater NFs Forest Plan Revision EIS”

Lead Objector: Paul Sieracki

Paul Sieracki is a co-signatory of comments for the dEIS submitted by Friends of the Clearwater.

The information presented in the FEIS is new information and was not in the dEIS, therefore a link to the dEIS cannot be provided.

Issue:

The attempt at discounting published peer reviewed literature titled GRIZZLY BEAR DENNING HABITAT AND DEMOGRAPHIC CONNECTIVITY IN NORTHERN IDAHO AND WESTERN MONTANA. Bader and Sieracki 2022. Northwestern Naturalist 103(3):209-225, on page 1010-1011 of the Final Environmental Impact Statement for the Land Management Plan of the Nez Perce-Clearwater National Forests.

Relief Requested:

Remove the speculative and inaccurate statements by “the Review Team” about Bader and Sieracki, 2022 from the Decision documents. Please see the rebuttal on the following pages which addresses the issues raised in the entire Allen et al “critique” letter.

Paul Sieracki

Rebuttal to U.S. Forest Service/U.S. Fish and Wildlife Service Review (Allen et al.), July 26, 2023
Critique of GRIZZLY BEAR DENNING HABITAT AND DEMOGRAPHIC CONNECTIVITY IN NORTHERN IDAHO AND WESTERN MONTANA.
Bader and Sieracki 2022. Northwestern Naturalist 103(3):209-225.

January 25, 2024

In order to obtain a copy of the critique we had to file a Freedom of Information Act Request and we received an anonymously authored document. Again, going through the FOIA officer, the names of the primary authors were identified (Allen et al. 2023). The agencies cannot supplant or substitute themselves for the peer-review process of scientific journal publications. Here, the agencies (U.S. Forest Service, U.S. Fish & Wildlife Service) have used this critique to make a decision to ignore and exclude the best available scientific information from their EAs and EISs. Overall, we find the critique to be unscientific, biased and based upon inaccurate accusations which are easily refuted.

Concluding that our peer-reviewed, published research paper is not the best available science nor should it be used is arbitrary and capricious and an abuse of agency discretion. Courts have found that even where the agency has its own analysis, they must rely on other existing analysis even if that analysis had not been published in a journal. (Order: *WildEarth Guardians et al.; Swan View Coalition et al. v. Steele and Bernhardt* Case 9:19-cv-00056-DWM).

No model is perfect, but in this case the Forest Service does not have its own peer-reviewed, published paper estimating denning habitat. By law it is bound to use the one that went through the scientific journal peer-review process.

Rebuttal

Claim- our recommendations go well beyond our results.

Bader and Sieracki did not *"go well beyond their results"* to make management recommendations. We found significant areas of medium and high denning habitats outside the current Bitterroot Recovery Area and we also justified expanding the Recovery Area based on several peer-reviewed published analyses showing high quality Spring, Summer and Fall grizzly bear habitat outside the current recovery area (Merrill et al. 1999; Carroll, et al. 2001; Boyce and Waller 2003) and a professional field study by the Craighead Institute (2001). Thus, these areas have been documented to have high quality habitats in all four seasons.

Allen et al. are ignorant of history. The current Bitterroot Recovery Area was the result of a political deal between timber harvest interests and two national conservation organizations. The areas Bader and Sieracki recommended for addition were part of the original Bitterroot

Recovery Area in the 1993 Recovery Plan (see Figure 1). The areas recommended for inclusion were also part of three alternatives in the EIS on Bitterroot Grizzly Bear Recovery, U.S. Fish & Wildlife Service (2000); (see figures 2, 3).

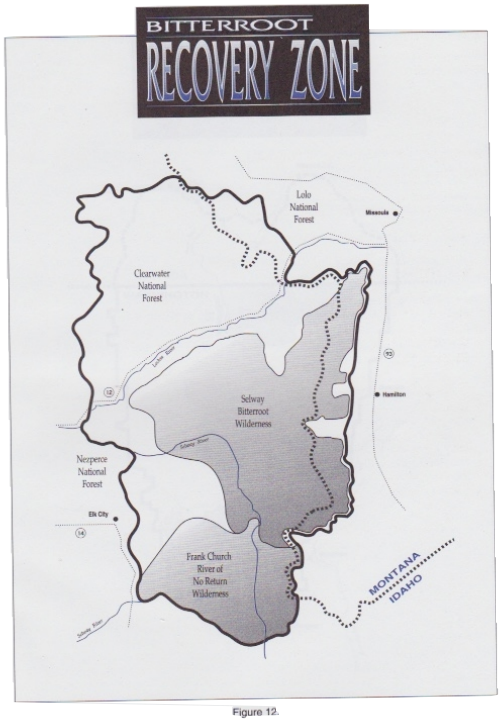

Figure 12.

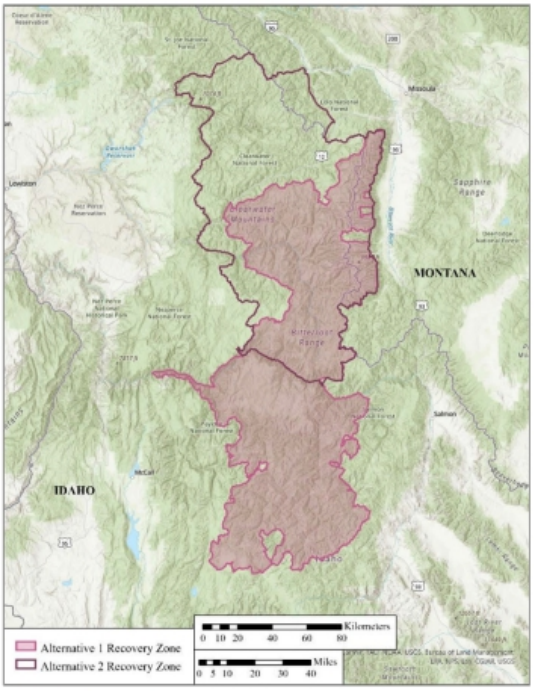

Figure 11. Map of the Bitterroot Ecosystem recovery zone as identified in the Final EIS under the preferred alternative, reintroduction, and alternative 2, natural recovery.

Figure 1. Alternative 1 and 2 Recovery Areas (U.S. Fish & Wildlife Service 2000).

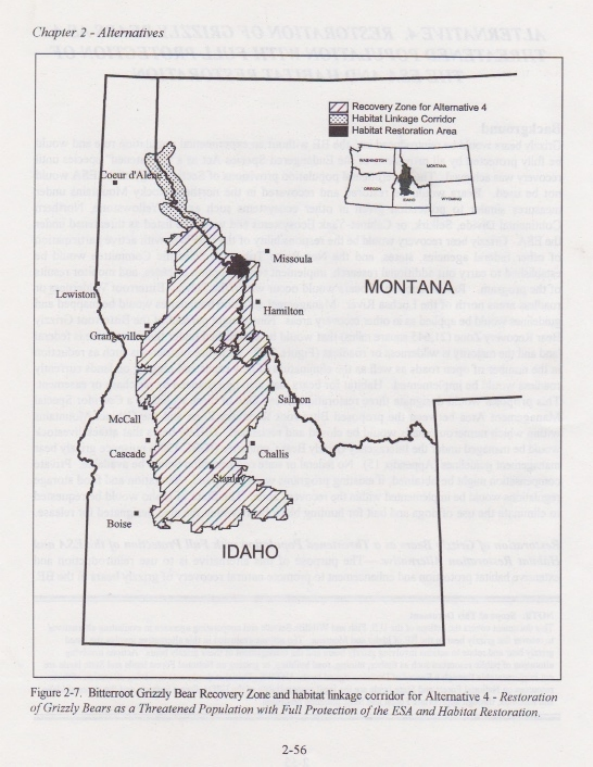

Figure 3. Alternative 4 Recovery Area. USFWS 2000.

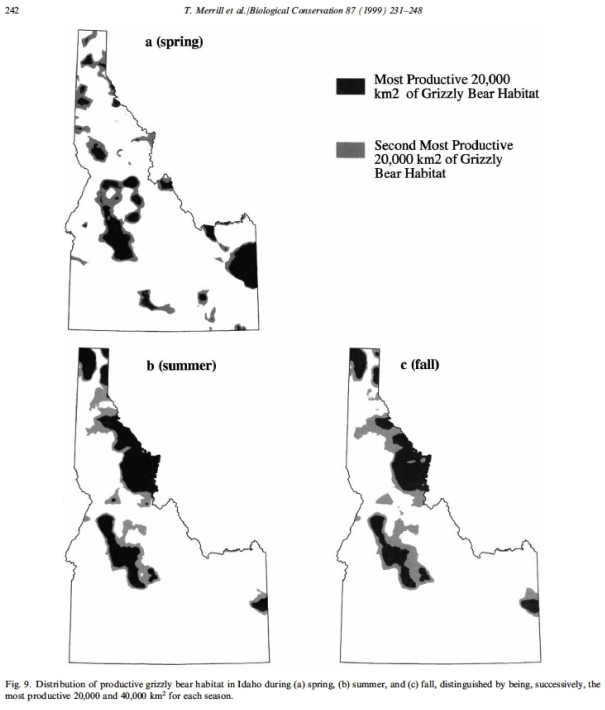

Figure 4. Highest Quality Spring, Summer & Fall Grizzly Bear Habitat, Merrill, et al. (1999)

The recommended management standards for connectivity areas are consistent with Proctor, et al. (2019) and the NCDE Conservation Strategy which defines secure core as areas 500 meters from motorized routes and at least 10km^2 and this is applied to National Forest lands in the NCDE Primary Conservation Area (Ake, Flathead National Forest 2023). Proctor et al. recommended minimum secure core ≥ 10 km^2.

Proctor, et al. (2019) recommended that: "*… in populations with moderate habitat quality and close to human settlements, road densities near 0.6 km/km^2 with >60% secure habitat (i.e., >500 m from an open road) are meaningful thresholds that, if not exceeded, may allow female grizzly bears to have sustainable survival rates.*" We recommended the Amendment 19 level of 68% both because it is >60% as Proctor recommended and it was derived from scientific data within our study area.

Claim- we disregarded smaller core areas

We did not disregard smaller areas, we recommended these be enlarged and connected through motorized access management to come within the definitions in Proctor, et al. (2019). All secure habitat at least 10 km^2 was reported. Primary tenets of conservation biology are that bigger is better than smaller and connected is better than unconnected. This applies to wide-ranging, low-density species like grizzly bears. For example, *"In the 48 contiguous states,*

observed average annual adult female home ranges vary from 130 to 358 kilometers-squared." (https://www.fws.gov/species/grizzly-bear-ursus-arctos-horribilis). Thus, connectivity areas with larger secure core are more likely to accommodate residential occupancy by female grizzly bears.

Our den sample comes from a mixed-use landscape with Wilderness, roadless areas and a larger area of high road density landscapes with timber management activity and motorized recreation. Of the 362 dens, the vast majority were located within secure areas >40 km^2. We did not just report 10 km^2 and 40 km^2 areas. We reported results for areas from 10-40 km^2 and those >40 km^2. This provides an indication as to whether a connectivity area has primarily smaller and scattered secure core compared to connectivity areas that have larger and more contiguous secure core necessary for female occupancy and demographic activity.

Claim- Conservation Strategy standards are just recommendations-

Allen, et al. seem to be unaware that the standards in the NCDE and GYE Conservation Strategies were amended into National Forest Plans and are judicially enforceable and not simply recommendations. For example, for Zone 1 habitats the NCDE Amendment to the Lolo National Forest Plan is NCDE-LNF Zone 1-STD-01, K-13-4:7323. The CYE and SE do not have Conservation Strategies but do have access management amendments to the Forest Plans and there are identified areas called BORZ (Bears Outside Recovery Areas).

Claim- we relied primarily on non-peer reviewed papers

We did not primarily rely on non-peer reviewed papers. Our road data effects on grizzly bears and recommendations all come from peer-reviewed papers, Pigeon et al. (2014) Journal of Mammalogy; Proctor et al (2019) Ursus; Boulanger and Stenhouse (2014) PLoS ONE. Other cited papers were published in the Journal of Wildlife Management, Wildlife Society Bulletin, Wildlife Society Monographs, Journal of Applied Ecology, Journal of Mammalogy, Biological Conservation, Ecological Applications, Canadian Field Naturalist, Landscape Ecology, Environment and Ecology Research, Mammal Study, Global Ecology and Biogeography, Canadian Journal of Zoology, Ecological Modelling, Ecosphere, Journal of Biogeography, Behavioral Ecology and Sociobiology, International Conference on Bear Research and Management and more. We cited to professional agency and research institute reports and scientific books that are the source of much of the data on grizzly bears. This is common practice as these reports are often the best or only available information.

Accusation- "The authors' seem to have designed their models to underestimate denning habitat across wide areas. "

We vigorously object with the accusation of purposefully tweaking model design to underestimate denning habitat. The purpose of our study was to document denning habitat,

not hide it. In fact, we revealed that: "The model may slightly overestimate denning suitability in the highest elevations of the Selway-Bitterroot Wilderness and Glacier National Park unless there is a relative abundance of natural cave-like openings. This is because LANDFIRE EVT did not have classifications for alpine fell-fields or alpine bedrock and scree."

Claim– "*If their map of habitat showed the combined high and medium categories, which account for 82% of dens, then modeled denning habitat would appear to be widespread and abundant. Furthermore, as their data suggest, some denning occurs in the low and non-denning habitat categories*."

The preceding quote exemplifies the nonsensical and superficial critique of the paper. Our maps (Figure 8A-D) show the categories of no denning, low, medium and high probability. All habitat is not equal in quality and security and pretending it is would indeed result in denning habitat being everywhere, thus minimizing management impact by artificially reducing the percentage of denning habitat impacted. Denning habitat is not everywhere and it is not all of equal quality or probability of selection. We reported that medium and high categories comprise just 19.3% of the study area. Some grizzlies select sites closer to roads and low elevations but it is a minority and in some cases was related to whether it was an inexperienced orphaned or recently weaned bear. While we did not cite it because it was a coastal rather than interior population, Crupi et al. (2020) used a very similar RSF approach with similar variables and delineated low, moderate and high probability denning areas based on verified den sites and they documented denning habitat avoidance due to motorized disturbance.

The purpose of our study was to inform management. While 7.5% of dens were in our non-denning category, this low number does not give rise to being a priority consideration in management planning as much as the medium and high categories do.

Allen, et al. speculate without evidence using terms like "abundant" and "widespread" instead of requesting the data and using quantitative analysis to back up their claims. When does denning habitat become limiting with increasing roadbuilding, logging and recreational activities? Pigeon, et al. (2014) show this at varying road densities. Areas avoided because of open roads lower the availability of denning habitat that would otherwise be available if the areas were roadless or low road density. 71% of our dens were in protected secure areas with just 18% in suboptimal habitats, not the 46% claimed in the critique. 82.1% were in Moderate-High.

Insinuation- that "visual" inspection was inappropriate

Visual inspection is part of ground-truthing the models. We draped our model results over the actual landscape and the Forest Service commonly applies the same approach in EAs and EISs. We also visually inspected all 362 den locations as a check of the LANDFIRE EVT vegetative

cover types. Other models were important, just not the best. We reported results for the top 3 models out of 16, far more models than the average paper considers. The top 3 models had very close AUC scores. We did not select the model developed with principal components algorithm because the PCA based model had a lower AUC and we needed to discuss independent variables in the study and we were concerned about possible information loss leading to generalization.

Clarity-

NCDE standards state that secure core cannot have gated roads, only roads permanently closed to motorized access by raised berms or other means. Administrative motorized use of gated roads is allowed for a certain number of trips per season without it affecting open road density calculations. We did buffer each side of roads to 500m for our security calculations as per the practice in the NCDE and numerous grizzly bear studies. For the secure core habitat, we used a 500 m vector buffer of the roads linear featureclass. Furthermore, rasterizing a straight road segment to an 8.74 m raster would expand the vector line dataset about 4.35 m on each side.

Female grizzly bears also have long term memory of where disturbances have occurred and avoid roads even after they are closed to motorized use (Mace & Waller 1997).

Paper of record-

The peer-reviewed, published paper of record is Bader and Sieracki, NWN 103(3). Going back to a previous report is irrelevant. A fundamental purpose of the peer review process is to ask questions and make recommendations and based on satisfactory response, are accepted for publication. The peer review process improved the final manuscript and maps.

Assumption that roads are closed by snow during den selection and construction-

The grizzly bear denning literature is clear that den site selection and construction most often begins weeks before final den entry which is prompted by heavy snowfalls that hide and seal the entrance (Craighead & Craighead 1972, Servheen and Klaver 1983). Therefore, the roads in the study area are not closed by snow during den selection and are used by rifle hunters. With climate change many upper elevation forest roads are remaining snow free later into the season and this trend is likely to increase.

Limiting factor-

We found and reported denning habitat is not likely to be a limiting factor on population restoration in the Bitterroot. One of the study purposes was to determine if there is adequate denning habitat for a recovering population within the core area as well as in key connectivity

areas between the NCDE, CYE and BE. It is intuitive there would be denning habitat in the Bitterroot as there were many grizzly bears there historically. There is no research that we found showing a threshold where denning habitat becomes limiting at the population level.

Poor site selection and den abandonment-

We reviewed 50+ papers. There is evidence of poor den site selection with negative consequences although site selection and den construction can be improved with experience (Jonkel 1987). Non-sturdy roofs can leak or collapse. Bears that abandon dens mid-winter with cubs have significant cub mortality. Bears which have to move to a new den mid-winter generally select poorer sites than one planned ahead in the Fall.

Raster surfaces-

We have a continuous raster surface available for classification changes. The Medium and High classifications encompassed 82% of the dens. The data is available upon request.

Road impact results-

Had our results been inconsistent with the scientific literature that would indeed have been a problem. We found most dens were located away from roads and within secure core areas or adjacent to secure areas, very consistent to the results of others reported in Linnell et al. (2000) of bears selecting sites 1-2 km away from roads. The 362 dens had a mean distance from roads of 1.96 km. Our results were very similar to Pigeon et al. who estimated that den selection probability declines by 70% at road density of 1.2km/km^2 and demonstrated that the relative probability of den selection decreased rapidly to almost zero at a road density of 2 km/km^2. This does suggest that some grizzly populations might totally avoid areas because of the lack of denning habitat in a region with high road densities that could affect persistence. See the graphs in Pigeon et al. (2014).

To suggest as Allen, et al. do that there is no relationship between grizzly bear denning habitat and roads and secure core is ignorant. Throughout the critique, the authors seem to be unaware of nearly four decades of research on road effects on grizzly bear habitat use, mortality and fitness. This research comes from agency and university scientists. We have every right to point out where we think management standards and practices are not effective enough based upon scientific data. Allen, et al. seem far more concerned

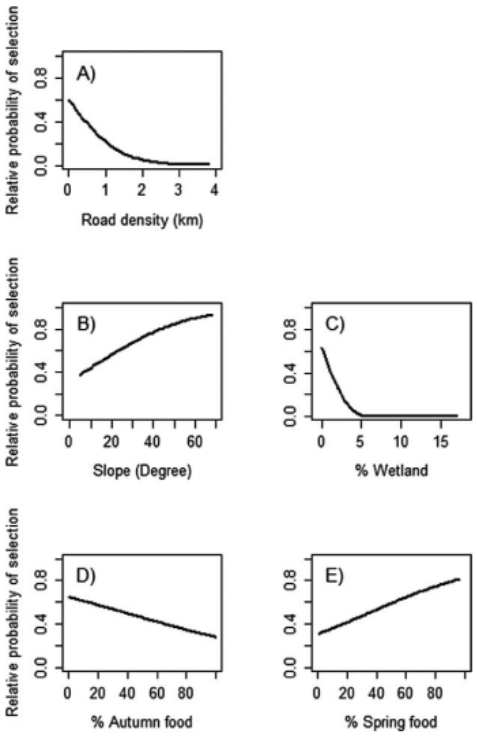

FIG. 2.—Relative probability of den selection of the most-supported multivariate model (Table 7) of den selection by male and female grizzly bears (*Ursus arctos*) in the boreal forest and Rocky Mountain of Alberta, Canada, between 2000 and 2011. A) Road density (km^2) at the 0.6-km scale, B) slope (degree), C) percent wetland at the 9.6-km scale, D) percent autumn food at the 0.15-km scale, and E) percent spring food at the 9.6-km scale. Each predictor variable is plotted within its observed range while other variables are held constant at their respective mean.

about the recommendations than the scientific findings. This shows management bias and apparent defensiveness.

"*The authors also used an unprojected coordinate system for their data layers, which can lead to measurement errors such as distances between road features and dens. This undermines the interpretation and credibility of several of the selected variables in the top three models.*"

We disagree with the above statement that the use of unprojected coordinate systems leads to measurement errors. The terminology unprojected coordinate system should properly be called a geographic coordinate system. Since geographic coordinates were used in MAXENT we created a latitude bias file created with the Marine Geospatial Ecology Toolset (MGET, Roberts and others 2010) to compensate for the very small difference in raster cell area as latitude increases.

For other analysis and maps, datasets were projected to a coordinate system that encompassed UTM Zone 11 and 12. We would hope that Allen, et al. know what a world file is for png rasters. Other programs such as MAXENT in ArcGIS Pro use chordal distances. For ArcGIS Pro use of geographic coordinates, ESRI recommends projecting data when the latitude is greater than 30 degrees in the study area. Our study area spans about 4.5 degrees of latitude.

"*These include suggestions to maintain all currently secure habitat or to apply former NCDE management standards for secure habitat in connectivity areas, and to impose management standards on winter recreationists. "*

The term "impose" represents bias. Scientific findings show grizzly bears are disturbed within their dens and sometimes abandon dens in areas of high use winter activities (Linnell et al. 2000) and denning grizzly bears have been killed by snowmobile caused avalanches. We have rebutted the critique of recommending road management above.

Roads database-

The critique claims that some roads considered open in our analysis had been closed when we submitted the manuscript without providing even one specific example. We used the U.S. Forest Service National Roads Database which was the best available data source across our study area as of 2021. Researchers use the best available data, not what they wish they had. Many researchers use Forest Service data because of its broad geographic scope making it a data source for large analysis areas like ours. It is ironic for the Forest Service to accuse the researchers of using inaccurate data when we used their official roads database. Changes in road management subsequent to when we submitted our paper (June 24, 2021) cannot be a basis for critiquing the paper.

Moreover, any inclusion of a road that had been closed but had not yet been reflected in the National Roads Database was likely balanced by illegal motorized use of roads and trails closed to the public which was not factored into our models. Our analysis was not intended to validate USFWS and USFS methods but to objectively model denning habitat.

In summary, the decision that our peer-reviewed, published research paper is not the best available science nor should it be used is arbitrary and capricious and an abuse of agency discretion.

Mike Bader
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