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Subject: Husky 1 North Dry Ridge Phosphate Mine Objection

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References cited in this objection may be accessed at the following link:
https://app.box.com/s/0kol4pvv9y9g4nappe90gyuuohzotvcg

Pursuant to 36 CFR Part 218, Yellowstone to Uintas Connection (Y2U), Alliance for the Wild Rockies (AWR), Native Ecosystems Council (NEC), Snake River Waterkeeper (SRW) and Wildlands Defense (WD) are filing this Objection to the Final Environmental Impact Statement (FEIS) for the Husky 1 North Dry Ridge Phosphate Mine (H1NDR) and Draft Record of Decision (Draft ROD) Authorization of Off-lease Activities Husky 1 North Dry Ridge Phosphate Mine. The project is proposed for the Caribou-Targhee National Forest (CTNF) and the Idaho Falls District/Pocatello Field Office of the Bureau of Land Management (BLM). The Responsible Official for the CTNF is Forest Supervisor Mel Bolling. We have previously submitted scoping comments dated January 20, 2021 and comments on the DEIS for H1NDR dated December 1, 2021, including seven attachments. The information contained in these comments is included by reference.

Yellowstone to Uintas Connection is a 501c3 non-profit entity working to restore fish and wildlife habitat including the Regionally Significant Wildlife Corridor connecting the Greater Yellowstone Ecosystem to the Uintas Mountains and Southern Rockies through the application of science, education, and advocacy. Through the years Yellowstone to Uintas Connection and our members have observed the steady destruction and degradation of the natural character, water quality, and wildlife habitat integrity of the Regionally Significant Wildlife Corridor from human developments including energy development, mining, livestock grazing, motorized recreation, and logging on public and private land.

Alliance for the Wild Rockies is a 501c3 public interest organization whose mission is to secure the ecological integrity of the Wild Rockies Bioregion through citizen empowerment and the application of conservation biology, sustainable economic models, and environmental law. Alliance for the Wild Rockies is headquartered in Helena, Montana.

Native Ecosystems Council is a 501c3 public interest organization whose staff reviews Forest Service National Environmental Policy Act (NEPA) assessments of logging impacts on wildlife in Montana and Idaho. NEC is headquartered in Willow Creek, Montana.

Snake River Waterkeeper is a 501c3 public interest organization applying science and law to protect, restore and sustain the waters of the Snake River Basin. SRW is a member of the Waterkeeper Alliance, composed of more than 350 on-the-water advocates who patrol and protect more than 100,000 miles of rivers, lakes, and coastlines on 6 continents. SRW is headquartered in Boise, Idaho.

Wildlands Defense is a 501c3 public interest organization dedicated to protecting and improving the ecological and aesthetic qualities of the wildlands and wildlife communities of the western United States for present and future generations. WLD does so by fostering the natural enjoyment and appreciation for wildlands habitats and wildlife by means of legal and administrative advocacy, wildland and wildlife monitoring and scientific research, and by supporting and empowering active public engagement. Wildlands Defense has offices in Boise and Hailey, Idaho.

Our staff and members would be directly affected by this project and past and ongoing actions or inaction by the Forest Service (FS) and BLM, as well as the consequences of other connected and cumulative actions the FS and BLM have authorized on federal land. The H1NDR project would directly and significantly harm us and our members, who use the CTNF and aforementioned BLM lands for quiet recreation, enjoyment of the natural world, and other forest related activities. The proposed activities would adversely impact and harm the natural qualities of the project area and would further degrade the watersheds and wildlife habitat.

The Draft ROD states the Purpose and Need for the project. The purpose is to evaluate and respond to the MRP application, including the proposals to enlarge the existing leases and construct off-lease facilities on NFS lands. The need is to provide BLM with "recommendations for lease modifications, surface protection, and reclamation." The BLM need "is to identify and incorporate measures to promote orderly and efficient mining, encourage utilization of all known phosphate resources, and promote practices that avoid or minimize damage from this proposal to the environment and hazards to public health and safety." (DROD p2).

The selected alternative includes Special Use Authorizations (SUA), an amendment to the RFP, adjustment of term grazing permits, and a replacement route for a public access road. BLM will issue an additional 559 acres lease to accommodate the proposed open pits and overburden storage. The H1NDR mine includes two open pits with active mining over 13 years. Overburden will be placed into the open pits with one external overburden storage area (OSA). Overburden will be covered and revegetated. (DROD p2). Forest Road 134 will be rerouted. Stewart and Maybe Creeks will be realigned. (DROD p3).

INTRODUCTION

A recent Media Release[1] entitled "Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating'" from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services accompanies their latest Global Assessment report.[2] The Media Release states, "Nature is declining globally at rates unprecedented in human history - and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely…" IPBES Chair, Sir Robert Watson states, "The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health, and quality of life worldwide." The Global Assessment report is also the subject of an article in The Guardian entitled "Human society under urgent threat from loss of Earth's natural life."[3] Within this context, the FS and BLM continue with business as usual, deflecting around the obvious outcome of their actions that destroys the functionality of wildlife habitat and pollutes the environment in SE Idaho.

Whereas the H1NDR project itself would cause much harm, this is also in the context of other new and expanding mining proposals in SE Idaho. These include the Caldwell Canyon mine, the Dairy Syncline mine, the East Smoky Panel mine, Caldwell Canyon mine, and Rasmussen Valley Mine in addition to impacts from past mining and reclamation projects that occupy some 20,000 acres, ongoing livestock grazing, prescribed fire projects, roads, recreation, timber and forest management, and other planned actions. The history of phosphate mining in this region has left scarred landscapes and a toxic legacy with Superfund sites involving vast expenditures. Wildlife habitats are degraded and fragmented, water quality and fisheries permanently degraded.

Y2U DEIS COMMENTS

The Y2U DEIS Comments described the issues and failure of land management agencies to effectively address the pollution, habitat loss and other environmental impacts, without fully addressing the intent, goals, objectives, and monitoring included in Forest Plan and BLM land use plans. The issues raised in our DEIS comments included:

1. Failure to comply with NEPA, NFMA, FLPMA, CWA, CAA, and ESA. These included not taking a hard look, fully evaluating cumulative effects, evaluating reasonable alternatives, analyzing species viability and trend for special status species, habitat capability, and linkage habitat. There was no validated analysis of covers, caps, BMPs, EPMs, while continuing to allow water pollution above criteria. Habitat restoration and mitigation were minimal and do nothing to address the habitat fragmentation affecting many species. Monitoring plans did not include ongoing fish and wildlife monitoring, site specific air quality monitoring to address transport of PM and COPCs to adjacent soils, vegetation, and waters. The intent of BLM RMP

[1] IPBES. 2019. Media Release – IPBES Global Assessment Preview. https://ipbes net/news/ipbes-global-assessment-preview Accessed December 27, 2022

[2] IPBES, 2019: Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. https://doi.org/10.5281/zenodo.3831673

[3] Watts, J. 2019. Human society under urgent threat from loss of Earth's natural life. Guardian, May 6, 2019. https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report Accessed December 25, 2022

and CTNF RFP were not fulfilled.

2. Failed to effectively analyze the magnitude of the impact of climate change, phosphate mining, logging and "vegetation management", road density, recreation and domestic livestock grazing on forest structure, aspen regeneration, and overall forest health in the project area and cumulative effects area.

3. Viable alternatives would have included an alternative that specifically addresses climate change, phosphate mining, logging and "vegetation management", and livestock grazing impacts on forest stands, understory conditions and aspen recruitment, and the impact that climate change and livestock grazing have on overall forest resiliency. Additional components that should have been included would addresses the Regionally Significant Wildlife Corridor, ESA, special status species such as Grizzly bear, goshawk, Canada lynx and wolverine, or for that matter the native plant community and the impact that this project will have on these species. It should include mapping and identification of all roads, trails, open or closed, user created or not and a plan to close the illegal roads and trails, while also reducing the OMRD to within limits recognized in the Caribou National Forest Revised Forest Plan (CNF RFP) and the cited references regarding road density and impacts to wildlife. A list of points for alternatives and mitigation was provided.

4. Did not evaluate the Regionally Significant Wildlife Corridor and linkage habitat for characteristics needed by lynx and other special status species. The CNF RFP FEIS provides some basic principles for analyzing connectivity. There was no analysis of habitat and how it has been modified by activities in the CNF, and how that has affected capability for special status species to persist in adequate numbers for viability or to migrate between meta populations.

5. There was a lack of analysis of Canada lynx population data and habitat, compliance with the intent of the 2000 LCAS and more current FWS and USFS guidance and science on the habitat needs of lynx and their prey. We note that the Rule designating Critical Habitat did not limit consideration of lynx "where found" would "receive the Act's protections wherever they occur in the contiguous United States." We also cited the Rule listing lynx as Threatened, which concluded that lack of regulatory mechanisms for conservation of lynx and lynx habitat was the main factor threatening lynx in the contiguous US. This needs to be corrected by amending the CNF RFP to include historical and potential lynx habitat and migration corridors in SE Idaho. We provided additional analysis of the 2007 Lynx Assessment, published papers on their habitat, and historical accounts showing presence of lynx in SE Idaho. We reviewed lynx habitat characteristics and requested more information from the CNF on lynx. We received a response with an update on lynx status and a paper which the CNF now considers for its analysis. That paper illustrated high probability of lynx habitat in SE Idaho which corresponds to the Corridor and Linkage we have stressed in our comments.

6. Wolverine analysis was incomplete, needing formal consultation with FWS. Wolverine observations were cited in the CNF RFP FEIS showing security areas with buffers, areas above 8,000 feet were potential habitat. Climate-induced changes to snow cover and potential habitat make protections even more critical and analysis of cumulative impacts more important than ever. The Proposed Rule to list wolverine pointed out that climate change and other activities "cumulatively they could become significant when working in concert with climate change if they further suppress an already stressed population."

7. Movement corridors, habitat, security areas, fragmentation of potential wolverine habitat

was not analyzed. The CNF RFP FEIS mapped 10 occurrences of wolverines in the SE Idaho area. There should have been an analysis of effects with appropriate noise and human activity buffers, showing all past, present, and foreseeable activities, roads, trails, ATVs/OHVs and snowmobile activity, powerlines, pipelines, timber harvest areas, and mines.

8. The project must adhere to the principles in the Forest Plan Amendment for the Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests FEIS and Record of Decision at a minimum but include habitat analysis as described for lynx.

9. Loss of deer and elk winter range and forage will not be replaced. Seeding of native and nonnative grasses is not replacement of the native community that was present. Citing the Idaho Title 47 we note that reclamation should include "vegetation comparable to the vegetation that was growing in the area…prior to the exploration and mining operation." We have seen no analysis across the phosphate mining area proving the success of reclamation or documenting the current v historical communities and status of those reclaimed areas. A detailed mapping analysis should have been done to compare historical habitat to current habitat and factors fragmenting that habitat.

10. Sage grouse and migrant bird populations and habitat were not fully analyzed, and we noted leks in the SE Idaho area affected by phosphate mining are blinking out. Most leks are not monitored. Current defined sage grouse habitat was based on recent counts after most leks have declined significantly in attendance and some have become unoccupied. Connectivity to Utah and Wyoming populations was not evaluated. We provided recommendations from the NTT report for restoration, monitoring and restoration of habitat.

11. Climate change analysis did not determine the amount of carbon storage lost in the process of clearing vegetation and soils, and mining. The Forest Service Roadmap to Address Climate Change was cited, and its basic principles listed. These included connecting habitats and corridors, decreasing fragmentation and remove impediments to migration.

12. There was a lack of population trend and viability assessments for Management Indicator, Sensitive and Special Status Species.

13. We pointed out that BMPs "are assumed to be effective" but no evaluation of these assumptions was made, and there was no determination of their effectiveness from other projects.

14. Air Quality analysis relied upon BMPs, same argument as above. We included a photo showing dust emissions from haul roads that were supposed to have dust suppression. SE Idaho suffers particulate levels that can adversely affect health.

15. There was no analysis of the effect of mining activity occurring in faulted areas on earthquake activity or the rate of earthquakes in the area over time as related to the progression of mining.

16. There was not a pre-mining baseline for surface and groundwater quality for comparison to modeled outcomes. We pointed out the flaws in models used for ODAs such as Pole Canyon Creek in which it became a CERCLA site for selenium. Inspection of models on other projects reveal a wide range in the input parameter values to the point that there is no reliability. How have past models compared to actual outcomes? There was no wildlife monitoring of water sources that will be lost or rerouted. Water diversions dewater streams, sediments are degrading habitats and selenium is reducing spawning ability.

17. There was no analysis of motorized recreation impacts on wildlife. There was no data on

traffic levels and noise levels.

18. We included Attachment 1 which contained a summary of relevant Pocatello ARMP Goals, Objectives, Actions and outlined planning criteria which includes many provisions regarding wildlife. Consistency with the CNF RFP is required, the analysis should address all the provisions outlined.

19. We included Attachment 2 outlining Forest Plan Guidance and addressed each one with specific comments that have not been analyzed. We commented on each provision which should have been addressed.

20. We included Attachment 3 which outlined provisions of the Idaho State Title 47 regarding mining and requirements, Mining Law Considerations, FLPMA requirements related to mining, Forest Service regulations relating to mining, the Mineral Leasing Act of 1920, and its requirements pertinent to mining, including restoration and limiting environmental damage. Limitations on lease dimensions were also described. These all need to be addressed.

21. We included Attachment 4 which reviewed lynx habitat, timber harvest related factors, how habitat was defined by the 2007 NRLMD, LAUs and use of altered habitats by lynx, and definitions of lynx habitat per the USFWS.

22. Attachment 5 were our comments on the nearby North Maybe Mine East Mill Dump which described pollution issues in the region, BMPs and their efficacy, site risks, reclamation, alternatives, and provided detailed discussion of each. These were provided to supplement our comments on the DEIS and examples of analytical deficiencies from the adjacent project.

23. Attachment 6 was Dr. John Carter's declaration on the Caribou Targhee NF Prescribed Fire Restoration Project and described the Corridor and impacts upon it, connectivity for Canada lynx, flaws in the Landfire Model used to guide the project, demonstrating the gross assumptions going into the model and how once the output is derived, becoming fact. The declaration described Dr. Carter's history of habitat studies in the CNF, particularly the degradation of habitats by livestock grazing and the Forest Service's long-term awareness of the problem and its effects on plant community function.

REVIEW OF FEIS AND DROD, SPECIALIST REPORTS, AND BIOLOGICAL ASSESSMENT

We have reviewed the FEIS, ROD, BA, and Specialist Reports and find the analysis remains unvalidated and deflects around many of the real problems that exist. The issues we identified above and in our DEIS comments remain effectively unaddressed. The following paragraphs summarize some of our observations on the FEIS and accompanying documents.

1. FEIS (p19 – 21) describes cover designs. We have pointed out the past problem with covers and the lack of validation of designs. In our DEIS comments (p43) the example of Pole Canyon Creek at the Smoky Canyon mine was used. Groundwater models and cover designs were in place, yet Pole Canyon Creek became a CERCLA site. There are over a dozen CERCLA sites in the phosphate patch. Where are the comparisons and analysis of the proposed covers for Husky with past cover designs and failures at these other locations? Where is the model validation? A sensitivity analysis is not sufficient.

2. The FEIS (p35) describes that reclamation practices are to meet objectives in the ARMP, RFP and Idaho Title 47. Title 47 says "vegetation comparable to the vegetation that was growing on the area…prior to the exploration and mining operations." The removal of all forested vegetation and replacement with herbaceous vegetation does not meet the intent of Title 47. In addition, there is no analysis of past reclamation efforts and whether they were successful in meeting goals.

3. The FEIS (p36-37) describes an Alternative Cover that would include a flexible membrane over 315 acres and low permeability clay over 66 acres. With 1,146 acres of disturbance, this leaves the majority of the disturbed area with lowered protection and increased risk of contaminants entering surface and groundwater already subject to contamination from past mining.

4. The FEIS (p39) describes reclamation of the alternate stream routing for Stewart Creek. This would use a seed mix with "low potential for uptake of COPCs, wildlife habitat, livestock grazing, native plant emphasis, accommodating gathering needs of native people…". The seed mix will apparently not include replanting of riparian shrubs or trees as those are considered to have deep roots that can uptake COPCs. What is the existing or potential community along this reach of Stewart Creek? How does the predicted outcome after reclamation compare? How will that affect wildlife cover and use? Many seeps will be affected and the loss of their input to Stewart Creek and Maybe Creek needs to be quantified.

5. The FEIS (p48) dismisses an alternative to close roads and trails to provide security cover and ability for lynx and other wide-ranging species to migrate. The FEIS claims these actions do not meet the purpose and need and are more appropriate for a revision to the RFP. Yet, the FEIS proposes an RFP amendment and SUAs to accommodate the project. This is no valid rationale for eliminating the analysis or meeting scientifically valid criteria for habitat. A similar rationale (FEIS p49) was used to avoid addressing Climate Change impacts through mitigation by addressing livestock, vegetation management, logging, and other actions that if eliminated, could capture and store carbon to offset emissions and carbon loss generated in the mining process.

6. The FEIS (p63) tiers to the FEIS Rasmussen Valley Mine. Y2U also commented on the Rasmussen Valley Mine project. We hereby incorporate our Comments (11/1/15), Appeal (2/10/17) and Objection (10/23/16) on the Rasmussen Valley FEIS.

7. The FEIS Figure 16 (p64) provides a map of past, present, and reasonably foreseeable actions, but does not provide an analysis of cumulative effects on surface water, groundwater, habitat from those illustrated projects in addition to road density, timber projects, and other activities that fragment and degrade habitat. This would include suitable noise buffers around each. Noise buffers are not included in the analysis provided in the FEIS. Where is the map of open, closed, temporary, user created or illegal motorized roads and trails with suitable buffers (0.5, 1.0 miles) plus the other noise and disturbance producing activities? Table 13 (FEIS p65) lists projects totaling 19,313 acres. It doesn't include past, present, and foreseeable Forest projects such as timber harvest, prescribed fire, salvage.

8. FEIS (p69) discusses the historical contamination by the Maybe Canyon mines that has resulted in selenium and other contaminants being present in surface soil, vegetation, surface water, sediment and groundwater. There was no analysis of the pathways, mechanisms, source controls such as BMPs or EPMs and their role in this outcome. While an Arcadis (2021) report was cited, it was not available for public review. The FEIS (p69) mentions the many active and

inactive mines within Caribou County and that are not included in the H1NDR groundwater model domain. By only considering the Maybe, Dry Valley, and Champ mines, the model does not address the cumulative pollution by the phosphate industry in SE Idaho. FEIS Table 14 lists CERCLA remedial actions "Near H1NDR". There are 14 mine sites listed. This Table paints a picture of failure of pollution controls and validates our DEIS comments (p37) on BMPs never being validated while continuing to be relied upon. It is a clear illustration of the "illusion of technique" we cited.

9. FEIS (p75) notes that air quality monitoring for PM_{10} and SO_2 "are in compliance with standards". We have seen no data from site specific monitoring for particulates, which is of major concern since they contain the COPCs such as selenium. The monitoring plan outlined in the FEIS (pD-7) does not include air borne particulates and selenium, which is necessary to capture wind-blown emissions coming from open pits, overburden, haul roads and is needed to validate BMPs and engage in corrective action. We addressed the lack of site-specific data, relying on remote stations and showing that the AQI in SE Idaho is at an unhealthy level. These were in our DEIS comments (p38). Site-specific monitoring must be incorporated to ensure that soils and vegetation or surface waters are not contaminated by wind-blown dust and that BMPs are effective.

10. FEIS (p82) describes source term concentrations as a function of pore volume leached. These were used in the fate and transport model. We referenced our comments on the Smoky Canyon East DEIS regarding lack of a pre-mining baseline, lack of comparisons of surface water prior to mining, and we asked how Pole Canyon Creek became contaminated while all the BMPs, EPMs and cover design were in place for that project. Our concern remains the variability in input parameters for the fate and transport model and the lack of field, or in situ testing. For example, FEIS Table B-1 provides average, maximum and minimum concentrations (mg/kg) for each element. Selenium in Rex Chert had a minimum, average, and maximum concentration of 0.632, 2.71, and 60.0 respectively. The maximum is greater than 60 times the minimum and is over 20 times the average. When all the model inputs are considered, each has a range of values, making prediction very uncertain. Overburden covers should be designed for the worst-case scenario. We have seen no information other than proposing to use a membrane liner over a portion of the open pit or ODA that would demonstrate that the covers are certain to prevent exceedances over background or criteria. The model sensitivity analysis (FEIS Table 22, p101) looked at a few input variables and the resulting change in output. Certainly, lowering infiltration is critical and this level of uncertainty should result in use of the maximally protective cover design, which would include the membrane. Even this measure still leaves seleniferous materials in place to leach in future years once the membrane ages.

11. FEIS Figure 19 (p84) shows baseline exceedances for COPCs in monitoring wells. Then states (p85) that "The extent of historic plumes has not been fully investigated to the extent possible at this time. Although there is sufficient data to document exceedances and inform CERCLA actions; there is not enough data to fully define the nature and extent of all the historic impacts for use in a numeric model, nor has a source term been developed to represent the current condition." This statement emphasizes that the proponent and agency don't know enough to permit H1NDR at this time. To do otherwise is to perpetuate the role of both in expanding and continuing pollution while relying on CERCLA actions down the road to cure the problem that could be eliminated up front by an alternative to completely line all covers with a membrane and clay layers. In fact, we have reviewed CERCLA actions and most involve monitored natural attenuation and institutional controls that leave pollution in place. The

performance characteristics and designs of effective liner and underdrain systems should be readily available. It is a cost issue and the public is expected to have their public lands and waters polluted for centuries, effectively forever, because the agencies and proponents are not prepared to effectively control the contamination or spend the money to do so. As a further note, the FEIS (p86) states that "The groundwater model also does not include the naturally occurring, elevated levels or distribution of COPCs." This means that the agencies and proponent cannot determine the outcome, which based on past experience with the numerous CERCLA sites in the area, means these sites will continue to propagate. While the FEIS (p87) states that the USFS is investigating and remediating under CERCLA and gives some examples, it is clear there is insufficient information for the agencies and proponents to translate this into an overall analysis into each part of the ecosystem from soils and vegetation to wildlife, surface and groundwater, and air quality from wind-blown emissions. This limitation should cause the project to be delayed until answers are found.

12. FEIS Table 25 (p111) describes several streams as intermittent and provides some flow regimes with some stations being dry at times of the year. Table 47 (p176) describes numerous water developments and other infrastructure supporting livestock grazing. These include ponds, troughs, wells, a pipeline, and pumps. There is no analysis of the effect of these facilities and their water usage on the flow status of the streams, seeps, and springs in the Study Area (Figure 33 FEIS p112). In addition, watershed conditions such as loss of vegetative cover, soil compaction from trampling by livestock and other activities can affect recharge and release of water to the surface. The analysis is lacking in this regard and determining the effect of past mining and geologic displacement on these streams. What was the pre-mining condition of these streams, springs, and seeps? What was the fish and wildlife use?

13. The FEIS (p117) predicts through modeling there would be no flow impacts on water baseflows in streams, but also that 28 mapped seeps within 1,000 feet of the H1NDR pit could have reduced flow rates but would have no effect to stream flows. There was no description of the hydrogeology of these seeps and their relationship to the affected streams. It is just possible that pre-mining, these seeps could have contributed to stream flow and resulting in some ephemeral or intermittent reaches flowing. We have observed small spring/seep complexes feeding streams or expanded wetlands and significant wildlife use of those in many areas in SE Idaho and elsewhere.

14. FEIS (p119) indicates the groundwater modeling would allow a gradual and limited selenium discharge into the headwaters of Stewart, Maybe, and East Mill Creek and these would exceed the aquatic life standard. Some streams are out of compliance with surface water standards due to past mining and its ongoing impacts. These concentrations would reduce to undetectable after 50 years. Once again, this is dependent on models of uncertain reliability and covers/BMPs also of uncertain reliability. Then the FEIS notes that the Blackfoot River is adversely affected by selenium and this project represents a new source of loading to the Blackfoot River. "Reasonably foreseeable CERCLA remediation would reduce cumulative impacts." Here, the FEIS relies on future action under CERCLA, rather than certain prevention today which could be attainable with fully protective covers and effectiveness monitoring of BMPs on a regular basis. This goes to an inadequate alternative and analysis. We have looked into the cover designs used at various mines. These are compared in Table 1 below and demonstrate variations in an area with similar climatic inputs, soils, and ore characteristics. Clearly, these are just ideas, not proven and reliable methods.

15. Streams in the Study Area also suffer exceedances in sediment (FEIS Table 27 p115). Once again, BMPs and EPMs are used without a plan to evaluate their actual performance and application in practice, or to prove beforehand they actually are effective. Cumulative effects by livestock such as alteration of streambanks, removal of stabilizing vegetation, and loss of cover/increased evaporation/temperature are factors that are not considered. Relocated and reclaimed channels (FEIS p121) would be designed and constructed using prescriptions according to the 2003 (RFP?) and AIZ guidelines. There is no mapping of the historic, current, and reclaimed stream channels showing their sinuosity, channel cross sections, shrub, and tree cover so that the reclaimed streams can be equivalent to what was lost. This reliance on undefined design criteria and guidelines is inadequate to meet any hard look standard. Unfortunately, the referenced vegetation assessment by Arcadis (2020) (FEIS p125) was not available for review.

16. FEIS Table 29 (p126) summarizes acres of wetlands permanently lost. There are six presented totaling 0.16 acres. Previously we pointed out the 28 seeps that could be affected. Are we to assume these did not have associated wetlands? Were the wetland assessment methods unable to capture these? Where are the photos, maps, and documentation of these seeps and wetlands?

17. FEIS (p129) discusses alterations to streams. East Mill Creek is characterized as having additional flow added from seeps and the seep wetlands would be lost. Note that these inputs are not addressed in relation to stream flows or intermittent reaches we discuss above where their inputs are discounted without analysis. This loss is considered a "minor effect". The riparian vegetation lost includes aspen/mesic forb, barren, anchored log, mesic forb meadow, and conifer/mesic forb. This is considered a long term and minor effect, "but vegetation was characterized as heavily disturbed." What caused the disturbance? Livestock? Roads or trails? These "minor effects" add up when you consider the many seeps and wetlands affected. By writing them off one by one, the intent of a cumulative effects analysis is avoided. In addition to East Mill Creek, two miles of Upper Maybe Creek and 0.86 miles of Stewart Creek are permanently realigned with loss of the riparian communities. The loss is permanent. Degradation of water quality is "minimized through design features, BMPs, adherence to 2003 RFP standards, and implementation of a site-specific SWPPP." (FEIS p130). While surface water monitoring is included in the Draft Environmental Monitoring Plan (FEIS Appendix D), not all seeps/springs are monitored even though 28 seeps are identified as affected. It appears that Maybe Creek, Dry Valley Creek, and East Mill Creek are not monitored. There needs to be a more comprehensive monitoring program upstream and downstream of mine activities as well as the affected outflows from the mine and its associated facilities that can be used to evaluate BMPs and EPMs. There needs to be analysis of the effectiveness of BMPs across the mining area and it should be included in a report, so the public understands whether the protections are really working. Clearly, they are not based on the proliferation of CERCLA sites across the SE Idaho area. We can't get around the proliferation of contamination across the area (see the PAS and Idaho DEQ annual reports) and yet we don't see attribution and evaluations.

Table 1. Comparison of Cover Designs

Mine/Project	Description
Rasmussen Valley Mine	External overburden piles would not include Meade Peak materials and would be covered with 12" of GM. FEIS Rasmussen Valley Mine (2016) p2-31. Backfilling of the pit would be capped with a minimum of 36" of non-Meade Peak material and 24" of GM (FEIS p4-34).
Dairy Syncline Mine	Seleniferous overburden would be covered with 2' of low seleniferous chert, overlain with 2' of Dinwoody Formation or SLF and 1.5' of topsoil. FEIS Proposed Dairy Syncline Mine and Reclamation Plan (2019) p2-8.
East Smoky Canyon	FEIS Proposed East Smoky Panel Mine Project at Smoky Canyon Mine (2020). P2-9. All run-of-mine (ROM) overburden would receive a geologic store and release cover system consisting of chert, overlain by Dinwoody and/or Salt Lake Formation, and a topsoil layer. This would consist of 2'of chert overlain by 3' of Dinwoody and SLF and 16" of topsoil.
Caldwell Canyon Mine	FEIS Caldwell Canyon Mine and Reclamation Plan (2019) p13. The cover would consist of overburden material consisting of 2' of Rex Chert or limestone, then overlain with 4' of finer grained growth media consisting of alluvium and colluvium.
Husky 1 North Dry Ridge	FEIS Husky 1 North Dry RidgePhosphate Mine (2022). (p20). Store and release cover of 36" chert and/or limestone overlain with 20" of growth media. (p20). Low permeability clay cover would consist of 12" low permeability clay, overlain by 12" chert and/or limestone, with 20" of growth media over. (p20-21). There is also a membrane liner design with 6" subgrade (undefined), then the membrane, then 18" chert and/or limestone, overlain with 20" of growth media. (p21).

18. The FEIS Figure 41 (p133) illustrates fish bearing streams, but perennial tributaries such as Stewart, S. Stewart, Dry Valley, Maybe, and others are not shown as fish bearing streams. We note that Yellowstone Cutthroat Trout were documented in Stewart and Maybe Creeks in the past but not recently. This is a problem and an explanation as to why these fish no longer occur in their historical habitat needs to be explained. We have raised issues of water diversions, livestock alteration of streams, selenium and sediment pollution and their effects on spawning success. We don't see any detailed analysis of the history of these water bodies and their fisheries correlated with human activities in the watersheds. This needs to be done. It is illogical that the physical alteration of streams "would not cause loss or physical alteration of fish habitat because no fish-bearing streams would be realigned, crossed, or otherwise modified by H1NDR". (FEIS p139). The elimination of fish over time through human activities and pollution is likely why some streams and tributaries are no longer considered "fish-bearing" even though it is admitted they have been here. It would seem that a proper viability, flow, and habitat analysis is needed to address the apparently poor condition of the fishery in the Blackfoot River and its tributaries. We have visited the fish spawning facility on the Blackfoot, seen the sediment choked and algae covered substrate and are disturbed at the lack of analysis to explain why the YCT are unable to successfully reproduce here. On top of this, the FEIS (p140)

describes that the "Proposed Action could introduce sediment into surface water and selenium into groundwater and surface water, potentially affecting downstream surface water quality in 33.4 miles of fish-bearing stream (or 61% of the 55 miles of fish-bearing streams in the analysis area)." These are additive to the already degraded conditions in the area and not only affect the fish-bearing streams, but those that are considered non-fish bearing and would be made even more difficult for fish to re-occupy.

19. The Vegetation Study Area (VSA) (FEIS Figure 43, p144) is inadequate because of the need to characterize forested and other habitat types in relation to the Canada lynx linkage and potential wolverine habitat or movement. Later in this objection when we provide more detail on Canada lynx, we provide a map showing the linkage and connections to other places such as critical habitat in Wyoming, to the Bear River Range to the west, and both north and south to and from the Targhee NF. The linkage is not just the delineated lines, but the entirety of these ranger districts (Soda Springs and Montpelier). The VSA occurs in linkage habitat and therefore a complete analysis of the habitats in the linkage and connections to Lynx critical habitat must be carried out. The effects of roads, snowmachines, groomed trails, powerlines, pipelines, rail lines, mines, timber and vegetation projects on habitat security not only for lynx and wolverine, but for other animals such as deer and elk require a comprehensive evaluation across the phosphate patch. The use of "late seral" (FEIS p145) appears to avoid actually addressing the current and historical status of old growth in this linkage. The forested vegetation types should be defined, mapped, and analyzed for structure and canopy using the Hamilton definitions from the RFP. Similarly, the habitat for species such as goshawk, sage grouse, and migrant birds needs to be characterized over a sufficiently large cumulative effects area to assess habitat capability and viability. It is noted (FEIS p148) that the 486 forested acres removed from the Upper Blackfoot River HUC would reduce the "mature/late seral acres to 35,315, keeping the watershed at about 94% mature/late seral." Similarly for the Lanes Creek-Diamond Creek HUC the loss of 336 acres would keep the watershed at about 90% mature/late seral. There is no presentation of the fragmentation and degradation of the vegetation types by the cumulative past, present and foreseeable actions. There is no context to compare to the needs of the different species. We do know there is a loss of forested habitat that is permanent on 1,167 acres. What we don't know is how widespread this loss is across the phosphate patch, how much security habitat exists, how well connected it might be and what actions are causing the fragmentation because there has been no analysis with adequate buffers around mines, roads, and other infrastructure/activities.

20. The analysis for Canada lynx (FEIS p155) notes that the wildlife analysis area is not considered occupied habitat based on the National Lynx Survey and that the habitat linkage was analyzed in the 2003 RFP. The FEIS concludes that H1NDR is not located in any of the identified important pathways. The BA (p31) reflects this and also notes that snowshoe hare and red squirrels are present, but no population data is provided. Y2U has submitted a FOIA to the CNF for information on lynx habitat and snowshoe hare studies, but that has not been received in time for this objection. The map we provide in the Canada lynx discussion below illustrates that the H1NDR and other phosphate mines lie within the linkage which is not just the arrows, but the entirety of the Soda Springs and Montpelier RDs as described in Map 1 of the CNF RFP FEIS. This analysis ignores the history of lynx observations in SE Idaho and that, like sage grouse, only recent data is relied upon, long after the entirety of the linkage and the CNF itself is open to snowmobiles and has high road densities, mines, and other fragmentation. We do not see any explanation of why lynx are no longer is found in the area. They are just written off using these

convenient time periods and never by using a thorough analysis of its habitat and human actions. The lack of regulatory mechanisms has been blamed for degraded lynx habitat and populations[4] . We have reviewed the LCAS, SSA, NRLMD and found that there are no protections for lynx linkage today other than the provisions in the CNF RFP. This review and provisions are summarized below and are critical to the analysis needed for lynx and amending or adapting the criteria in the RFP so there are protections. It is imperative that the H1NDR analysis follow the connectivity analytical procedure found in the CNF RFP and its FEIS, which is also described.

21. Northern goshawk (FEIS p156) is described as having no known nests or territories in the wildlife analysis area (Figure 33 p112) which is 65,418 acres, or ten times the size of a goshawk home range of 6,000 acres. (Reynolds et al, 1992)[5]. In our comments on the DEIS (p35, 55) we pointed out the need for population trends, capability and suitability analyses, and viability assessments. If the FEIS statement is true, the question is why are there no goshawks in the analysis area? The CNF RFP (p3-30) provides, "Open roads in goshawk territories shall be given priority for closure to meet management prescription road density standards. First priority shall be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas." Goshawks and other special status species are not adequately monitored or analyzed.

22. Sage grouse (FEIS p157) are discounted because the H1NDR footprint is not in priority, general, or important habitat management areas and there is no suitable habitat present. The CNF RFP (p3-32) does say that management activities within ten miles of a lek "should be considered further for suitability as grouse habitat." The CNF further states guidelines for land birds (p3-33). "Stands of mature trees (including snags and dead-topped trees) should be maintained next to wet meadows. Where feasible, maintain 30 to 50 percent of the sagebrush habitat in a 5th code HUC in contiguous blocks greater than 320 acres to support sagebrush obligate species. (Page and Ritter, 1999). Practices which stabilize or increase native grass and forbs cover in sagebrush habitats with 5% to 25% sagebrush canopy cover should be implemented. (Page and Ritter, 1999). In sagebrush habitats, manage herbaceous cover to conceal nests through the first incubation period for ground and low shrub-nesting birds. It is assumed that proper use of rest-rotation or deferred-rotation grazing should meet these conditions, although not every year on every area (Idaho Partners in Flight 2000)." We have included by reference our comments on the Rasmussen Valley mine in which we showed that un-grazed habitat for sage grouse and migrant birds at the Blackfoot River HMA is excellent. In our comments on the H1NDR DEIS (p29 – 33) we described the failure to analyze lek trends and that only recent counts are used to delineate HMAs, thus eliminating leks that have been disturbed, suffered declines, or became unattended over time as mine footprints expand, snowmobiles roam the entire landscape and roads and recreation have proliferated. The period of record trends for all leks should be provided in an analysis with a habitat component explaining why trends are down and leks abandoned. We outline what the NTT report suggests for an analysis as a starting point. Our experience shows that sage grouse habitats are terribly

[4] DOI USFWS. 2000. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule. Fed. Register Vol. 65, No. 58.
[5] Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce, Jr., G. Goodwin, R. Smith, and E.L. Fisher. 1992. Management Recommendations for the Northern Goshawk in the Southwestern United States. Gen. Tech. Rep. GTR-RM-217, Fort Collins, Colorado. U.S. Department of Agriculture, Rocky Mountain Forest and Range Experiment Station. 90p.

depleted from livestock grazing and that was provided in (pp 116 – 128) of our DEIS comments.

23. The deer and elk analysis in the FEIS (pp158 – 159) is inadequate in that it fails to delineate migration corridors and important parturition areas, summer, and winter range. In our comments on the DEIS (p27 – 28), we pointed out the proposed reclamation was not consistent with Idaho Statute as regards being comparable to the vegetation removed. We provided a USFS map of winter range (Figure 11) which didn't define corridors, so this is a data gap that needs to be filled. The FEIS (p167) notes that the H1NDR in combination with the Maybe mines would remove habitat across a nearly 10-mile length of Dry Ridge and is "likely to alter migration patterns of deer" (without defining those migration routes). Elk migration corridors are described as "there are no major elk migration corridors in the big game analysis area". The FEIS is saying essentially that elk don't move around in the analysis area from winter to summer and perhaps the agencies and proponents are not prepared to document their movements. As we pointed out in our comments on the DEIS, "A hard look would require the areas shown in the Corridor (Figure 1) and Map 13 (CNF RFP p140) have a detailed GIS analysis as described above with appropriate noise and human activity buffers, showing all past, present, and foreseeable mining activities, roads, trails, ATV/OHV and snowmobile activity, powerlines, pipelines, timber harvest areas and security areas. Security areas should be compared to the recommended 30%. We further note that habitats important to deer and elk such as aspen, spruce/fir and riparian areas were described as being at high departure from PFC while most others were at moderate departure. (CNF RFP FEIS D-47).

24. The FEIS (p174) indicates the soil baseline survey found elevated levels of metals, including COPCs, but the soils report cited was not available for public review and there was no mapping or analysis of soil concentrations relative to past mining operations, with wind directions from those mines, or for that matter over and not over the Phosphoria formation, which the FEIS (p174) notes can have trace element concentrations that are higher in soils located directly over the formation. Since there is no air monitoring described for particulates and metals, this is a major omission that will allow increased deposition and concentration of COPC-bearing particulates from mining and road activities without detection. Once again, BMPs or EPMs which are invoked will provide a false sense of security while later on, another PAS or remedial action survey, if done properly, will no doubt find plumes of contamination from air borne pathways. This strategy of minimization of risk up front heartily relies on someone coming later and cleaning up the mess. Where's the proof any of this has worked at other mines and at the Maybe mines which are adjacent?

25. The FEIS (p176 – 183) analyzes losses in livestock grazing capacity. In the Range Specialists' Report Tentative Carrying Capacity, we find no evidence that the current condition and productivity of the plant communities on capable acres was determined in order to evaluate stocking rates. Tentative implies the Forest Service doesn't actually know. This is a problem as plant communities change over time, are heavily modified by livestock and relying on the broad estimates in the CNF RFP FEIS as the Range Specialist did may be convenient but is not accurate. In our DEIS comments (Carter Declaration Attachment 7) we pointed out the degraded conditions in the CNF due to livestock grazing, conditions the CNF has also identified going back to the 1990s. The absence of a true vegetation community survey on the ground to determine available forage makes this guesswork. On top of that, the forage consumption for a cow and calf underestimates their current forage demand at 1,080 lbs/month for an AUM. Dr. Carter reviewed cattle weights and forage demand and determined the best available information

is that a cow/calf pair consumes 50% more than this at 1,532 lb/month air dry weight.[6] Dr. Carter's declaration in our DEIS comments also described the Forest Service regional criteria for determining capable acres, which relies on knowing forage production. In addition, John Lott, soil scientist for the CNF analyzed the CNF Soil Survey[7] and found many areas much lower in production than predicted. That soil survey and analysis is unavailable on the CNF website today, but Lott analyzed suitability of soil types and Dr. Carter summarized them in a spreadsheet.[8] The CNF Soil Survey and Lott's Hierarchical Stratification report should be reviewed, and this FEIS, DROD and Range Specialist Report revised to reflect both the soil survey and Lott's analysis.

REGIONALLY SIGNFICANT WILDLIFE CORRIDOR

This issue was raised in our DEIS comments (p6 – 8) and above. The CNF Forest Plan FEIS (pD-5) summarizes the history/knowledge of this corridor.

> Most of the efforts to date to map corridors have focused on large-scale dispersal corridors generally from the Northern Rockies (Glacier NP) to the Greater Yellowstone Ecosystem. The USFWS, in efforts to conserve large carnivores in the Northern Rocky Mountains, has developed the concept of linkage zones. The linkage zone is an area between habitat fragments able to support both movement and low-density occupancy. The distinction between linkage zone and corridor is the width of habitat—that is the ability to support low density occupancy by species (Samson et al, 1997).
>
> Ruediger, et al, 2000 drafted a map titled "IGBC Wildlife Habitat Linkage in the Northern Rocky Mountains." This map also includes the northeastern portion of the Caribou in the mapped north-south linkage zone. Other agencies and groups have done mapping as well.
>
> In May 2000, a meeting was held with several state and federal agencies as well as other interested groups, to discuss developing common criteria to help identify linkages of highest importance (Ruediger, 2000). They recommended factors to consider when identifying wildlife habitat linkages; 1) consider all scales, 2) landforms and topography are important, mountain passes, river bottoms and major ridges are often natural movement corridors, 3) vegetation is important, many species use forested areas for cover, 4) quality of habitat is important, 5) areas with low road densities and low levels of human use are important, 6) need data and 7) maintain large intact blocks of habitat (Ruediger, 2000)
>
> The Wasatch-Cache National Forest in Utah looked at a north-south corridor passing through the Forest. They used McNab, et al, (1994) to identify Province M331 "Southern Rocky Mountain Steppe" as main north-south corridor

[6] Carter, J. 2016. Updating the Animal Unit Month. https://app.box.com/s/zx4xjekrfuht2aq12soruw0qfil8hogk
[7] Lott, J. undated. A Hierarchical Stratification of Ecosystems of the Caribou National Forest
[8] https://app.box.com/s/rl74bdzvnr1szuu4trxmtv47jdp10yel

> (Williams, Forest Biologist pers. comm.) Part of this province (M331) passes through part of the Caribou NF in the Caribou/Webster/Preuss subsections. This same area has been mapped as part of the Greater Yellowstone Ecosystem and was included on Ruediger's "IGBC Wildlife Habitat Linkages" map.

Despite the significance of this Regionally Significant Wildlife Corridor, the agencies continuously authorize management and other actions that degrade the natural qualities, without ever analyzing and disclosing the cumulative impacts of all these authorized projects on the values this Corridor represents. Although Corridor habitat will be altered and wildlife killed or harmed, the agencies' position is essentially that there is habitat elsewhere and populations will persist. But the FEIS does nothing to quantify this other habitat or maintain the function of the corridor or to support viable populations of fish and wildlife.

The CNF RFP (p2-2) states, "Some roadless areas act as refugia for declining, rare, and listed species. These species may not be able to maintain viable populations in other areas of the Forest where management activities are evident." The FS recognizes no quantitative, scientific, or otherwise meaningful thresholds for population viability. Schultz (2010)[9] concludes that "the lack of management thresholds allows small portions of habitat to be eliminated incrementally without any signal when the loss of habitat might constitute a significant cumulative impact." In the absence of meaningful thresholds of habitat loss and no monitoring of wildlife populations at the Forest level, projects will continue to degrade habitat across the broader landscape over time. (See also Schultz 2012.)[10]

The Forest Plan (RFP p1-4) states:

> The fish and wildlife resource regulation [36 CFR 219.19] is one part of the planning regulation to provide for viability within multiple use objectives. …Through 36 CFR 219.19 and other provisions of the planning regulations, Forest Plans provide for viability of vertebrate communities within multiple use objectives. The Forest Service uses the planning process and ongoing monitoring, evaluation and adjustment of fish, wildlife, and rare plant standards to prevent listing of species under the Endangered Species Act and avoid extirpation of species from its actions.

Traill et al., 2010[11] and Reed et al., 2003[12] are published, peer-reviewed scientific articles addressing how "minimum viable populations" can be estimated, and how they have been drastically underestimated in past. The FEIS fails to identify the best available science to make

[9]Schultz, C. 2010. Challenges in connecting cumulative effects analysis to effective wildlife conservation planning. BioScience 60:545–551.

[10] Schultz, C. A. 2012. The U.S. Forest Service's analysis of cumulative effects to wildlife: a study of legal standards, current practice, and ongoing challenges on a National Forest. Environmental Impact Assessment Review 32:74–81.

[11] Traill, L. W., B W. Brook, R. R. Frankham, and C. J.A. Bradshaw, 2010. Pragmatic population viability targets in a rapidly changing world. Biological Conservation 143 (2010) 28–34.

[12] Reed, David H., Julian J. O'Grady, Barry W. Brook, Jonathan D. Ballou, and Richard Frankham; 2003. Estimates of minimum viable population sizes for vertebrates and factors influencing those estimates. Biological Conservation 113 (2003) 23–34

quantitative minimum viable population determinations for wildlife species.

Traill et al., 2010 state:

> To ensure both long-term persistence and evolutionary potential, the required number of individuals in a population often greatly exceeds the targets proposed by conservation management. We critically review minimum population size requirements for species based on empirical and theoretical estimates made over the past few decades. This literature collectively shows that thousands (not hundreds) of individuals are required for a population to have an acceptable probability of riding-out environmental fluctuation and catastrophic events and ensuring the continuation of evolutionary processes. The evidence is clear, yet conservation policy does not appear to reflect these findings, with pragmatic concerns on feasibility over-riding biological risk assessment. As such, we argue that conservation biology faces a dilemma akin to those working on the physical basis of climate change, where scientific recommendations on carbon emission reductions are compromised by policy makers. There is no obvious resolution other than a more explicit acceptance of the trade-offs implied when population viability requirements are ignored. We recommend that conservation planners include demographic and genetic thresholds in their assessments and recognize implicit triage where these are not met.

Assuring viability of most wildlife species is a forest wide issue. The cumulative effects of carrying out multiple projects simultaneously across a national forest makes it imperative that population viability be assessed at least at the forest wide scale.[13] [14] Since the FS fails to include strong, science-based commitments to manage the habitat for all species of concern, the agency fails to comply with NFMA's diversity requirements. A large part of this failure is that of monitoring. The DEIS has little or no discussion of the results of Forest Plan Implementation monitoring (Forest Plan Chapter 5). This hampers our understanding of cumulative impacts—and renders impossible a proper cumulative effects analysis. The Forest Plan (RFP p1-4) states:

> **Monitoring and evaluation is an essential feature of the Plan.** This Plan adopts an adaptive approach to forest management. Adaptive management is based on the premise that we do not have enough knowledge to forecast outcomes with total accuracy for the life of the Plan. Project effects are monitored and evaluated against the direction in the Plan and in the context of the social environment at the time. Using this approach, the Forest can insure that trends in resource conditions and services provided are consistent with the general strategic intent of the Plan and the public.

Forest Plan (RFP p5-9 to p5-19) contains the Monitoring and Evaluation section. This describes

[13] Marcot BG and Murphy DD. 1992. Population viability analysis and management. In Szaro, R., ed. Biodiversity in Managed Landscapes: Theory and Practice. Proceedings of: Conference on Biodiversity in Managed Landscapes: Theory and Practice, 13-17 July, 1992, Sacramento, CA.

[14] Ruggiero LF, Hayward, G.D. and Squires, J.R., 1994a. Viability Analysis in Biological Evaluations: Concepts of Population Viability Analysis, Biological Population, and Ecological Scale. Conservation Biology, Vol. 8, No. 2, June 1994, pp. 364-372

the Forest Plan monitoring to do to validate the RFP assumptions, determine the effectiveness of standards and guidelines in meeting desired future conditions, and measure the rate of implementation of those standards and guidelines. This information will be compiled to validate the effectiveness of the RFP and ensure that it is the "living document" intended. It appears the CNF has not published a monitoring report since 2003.[15] The FEIS fails to disclose that this "essential feature of the plan" is broken, and what that means for understanding the cumulative impacts of management.

The Forest Plan (RFP p1-4) states, "The Forest Service uses the planning process and ongoing monitoring, evaluation and adjustment of fish, wildlife, and rare plant standards to prevent listing of species under the Endangered Species Act and avoid extirpation of species from its actions." The Revised Caribou Travel Plan ROD (pROD-13) notes, "Forest Plan monitoring involves both legally required monitoring activities and monitoring that is conducted based on the availability of funding and personnel." That the FS is unable to show that "legally required monitoring" has actually been conducted, or to disclose the evaluation of this monitoring, is troubling. The Revised Caribou Travel Plan ROD states: "Forest Plan monitoring that could indicate adverse impacts to forest resources from road and trail use include:

- Annual reviews of Best Management Practices and updating projects in the Forest's Watershed Improvement Needs Inventory are designed to protect water quality. (RFP 5-3)
- Riparian properly functioning condition will be reevaluated at the stream level by 2008 to determine rate of movement towards desired future conditions. (RFP 5-7)
- Fish habitat is monitored annually where needed to determine if conditions are outside of desired AIZ attributes. (RFP 5-13)
- Wildlife occurrences and territories are monitored to determine if management activities are providing adequate habitat to maintain populations of Management Indicator Species and to assist in recovery of listed species. (RFP 5-15).
- Condition surveys are conducted on system trails per national direction, these includes stream crossings and trails in riparian areas.
- Road and trail closure effectiveness will be monitored, as described in Chapter Two of the FEIS.

The FEIS violates NEPA in terms of failure to provide an explanation of how the project complies with Forest Plan direction, as we point out in another section of this objection. Because of the failure to monitor as the Forest Plan specifies, the FEIS lacks the foundation upon which a properly thorough cumulative effects analysis might be based. The FEIS also fails to consider best available science regarding road and other motorized route densities, and the toll they exact on the quality of wildlife habitat. This includes impeding or impairing migrations, causing otherwise suitable habitat to be avoided, and mortality from hunting, trapping, or vehicle collisions. Forest Service scientists[16] identify many of the highly adverse impacts of forest roads. Concerning road density impacts on fish populations, they note:

[15] Website citing 2002 – 2003 Caribou Monitoring and Evaluation Report. Accessed on 12/24/2022. https://www.fs.usda.gov/detail/ctnf/landmanagement/planning/?cid=fseprd1072393

[16] Gucinski, Hermann; Furniss, Michael J.; Ziemer, Robert R.; Brookes, Martha H. 2001. Forest roads: a synthesis of scientific information. Gen. Tech. Rep. PNW-GTR- 509. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103 p

> (I)ncreasing road densities and their attendant effects are associated with declines in the status of four non-anadromous salmonid species. These species are less likely to use highly roaded areas for spawning and rearing and, if found, are less likely to have strong populations. This consistent pattern is based on empirical analysis of 3,327 combinations of known species' status and subwatershed conditions, limited primarily to forested lands administered by the Forest Service and the Bureau of Land Management.

Scientific information from government studies conducted for the Interior Columbia Ecosystem Management Project strongly indicates the high negative correlation between road density and fish habitat conditions. USDA Forest Service & USDI Bureau of Land Management state[17]:

> High integrity (forests) contain the greatest proportion of high forest, aquatic, and hydrologic integrity of all …are dominated by wilderness and roadless areas [and] are the least altered by management. …Low integrity (forests have) likely been altered by past management …are extensively roaded and have little wilderness. (p108, 115 and 116).

They also state:[18] "Increasing Road density is correlated with declining aquatic habitat conditions and aquatic integrity. An intensive review of the literature concludes that increases in sedimentation [of streams] are unavoidable even using the most cautious roading methods." (p105).

Roads have well-documented, significant, and widespread ecological impacts across multiple scales, often far beyond the area of the road "footprint". Such impacts often create large and extensive departures from the natural conditions to which organisms are adapted, which increase with the extent and/or density of the road network.[19]

Wisdom, et al. (2000) state (emphasis added)[20]:

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[17]USDA Forest Service & USDI Bureau of Land Management, 1996a. Integrated Scientific Assessment For Ecosystem Management In The Interior Columbia Basin And Portions of The Klamath and Great Basins. Quigley, Thomas M.; Haynes, Richard W; Graham, Russell T. 1996. Disturbance and Forest Health in Oregon and Washington. Gen. Tech. Rep. PNW-GTR-382.
Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 310 p.

[18] USDA Forest Service & USDI Bureau of Land Management, 1996. Status of the Interior Columbia Basin, Summary of Scientific Findings. General Technical Report PNW-GTR-385 November 1996

[19]Carnefix, Gary and Chris Frissell, 2009. Aquatic and Other Environmental Impacts of Roads: The Case for Road Density as Indicator of Human Disturbance and Road-Density Reduction as Restoration Target; A Concise Review. Pacific Rivers Council Science Publication 09-001.Pacific Rivers Council; PMB 219, 48901 Highway 93, Suite A, Polson, MT 59860)

[20] Wisdom, Michael J.; Richard S. Holthausen; Barbara C. Wales; Christina D. Hargis; Victoria A. Saab; Danny C. Lee; Wendel J. Hann; Terrell D. Rich; Mary M. Rowland; Wally J. Murphy; and Michelle R. Eames. 2000. Source Habitats for Terrestrial Vertebrates of Focus in the Interior Columbia Basin: Broad-Scale Trends and Management Implications. General Technical Report PNW-GTR-485 United States Department of Agriculture Forest Service Pacific Northwest Research Station United States Department of the Interior Bureau of Land Management General Technical Report PNW-GTR-485. May 2000

> Our analysis also indicated that >70 percent of the 91 species are affected negatively by one or more factors associated with roads. Moreover, maps of the abundance of source habitats in relation to classes of road density suggested that road-associated factors hypothetically may reduce the potential to support persistent populations of terrestrial carnivores in many subbasins. Management implications of our summarized road effects include the potential to mitigate a diverse set of negative factors associated with roads.
>
> Comprehensive mitigation of road-associated factors would require a substantial reduction in the density of existing roads as well as effective control of road access in relation to management of livestock, timber, recreation, hunting, trapping, mineral development, and other human activities.
>
> ...Efforts to restore habitats without simultaneous efforts to reduce road density and control human disturbances will curtail the effectiveness of habitat restoration, or even contribute to its failure; this is because of the large number of species that are simultaneously affected by decline in habitat as well as by road-associated factors.

It is important to recognize the ongoing ecological damage of roads—regardless of the adequacy of maintenance funding:

> Undesirable consequences include adverse effects on hydrology and geomorphic features (such as debris slides and sedimentation), habitat fragmentation, predation, road kill, invasion by exotic species, dispersal of pathogens, degraded water quality and chemical contamination, degraded aquatic habitat, use conflicts, destructive human actions (for example, trash dumping, illegal hunting, fires), lost solitude, depressed local economies, loss of soil productivity, and decline in biodiversity. (Gucinski et al., 2001)

Roads influence many processes that affect aquatic ecosystems and fish: human behavior (poaching, debris removal, efficiency of access for logging, mining, or grazing, illegal species introductions), sediment delivery, and flow alterations.[21] (Also see: Gucinski et al. 2001; Wisdom et al., 2000; Pacific Rivers Council, 2010[22].) We also incorporate The Wilderness Society (2014)[23] which discusses best available science on the ecological impacts of roads.

The Forest Service's Travel Management Regulations (TMR) at 36 CFR **§** 212. At CFR **§** 212.5, Subpart A the TMR states:

> (b) Road system—(1) *Identification of road system.* For each national forest, national grassland, experimental forest, and any other units of the National Forest

[21] Trombulak SC and Frissell CA., 2000. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. Conservation Biology 14: 18-30.
[22] Pacific Rivers Council (Wright, B., and C. Frissell). 2010. Roads and Rivers II: An Assessment of National Forest Roads Analyses. Report for the Pacific Rivers Council, Portland, OR.
[23] The Wilderness Society, 2014. Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review. May 2014

> System (§ 212.1), the responsible official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible official must incorporate a science-based roads analysis at the appropriate scale and, to the degree practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

The "science-based roads analysis" required under Subpart A of the TMR is generally referred to as the "travel analysis process" (TAP). The Forest Service Washington Office, through a series of directive memoranda, instructed forests to use the Subpart A process to "maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns." These memoranda also outline core elements that must be included in each Travel Analysis Report (TAR). The Washington Office memorandum dated March 29, 2012[24] directed the following:

- A TAP must analyze all roads (maintenance levels 1 through 5)
- The Travel Analysis Report must include a map displaying roads that will inform the Minimum Road System pursuant to 36 C.F.R. § 212.5(b), and an explanation of the underlying analysis
- The TAP and Watershed Condition Framework process should inform one another so that they can be integrated and updated with new information or where conditions change.

The December 17, 2013 Washington Office memorandum[25] clarifies that by the September 30, 2015 deadline each forest must:

- Produce a Travel Analysis Report summarizing the travel analysis;
- Produce a list of roads *likely not needed for future use*
- Synthesize the results in a map displaying roads that are *likely needed* and *likely not needed in the future* that conforms to the provided template.

The TAP is intended to account for benefits and risks of each road, and especially to account for affordability. The TAP should account for the cost of maintaining roads to standard, including costs required to comply with Best Management Practices related to road maintenance. There is

[24] USDA Forest Service, 2012d. Travel Management, Implementation of 36 CFR, Part 202, Subpart A (36 CFR 212.5(b)). Memorandum to Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors. March 29, 2012

[25] USDA Forest Service, 2013. Travel Management Implementation. Memorandum to Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors.
December 17, 2013.

no evidence that the CTNF has complied and the existence of many user-created, temporary, or other non-OMRD roads and trails adds to the damage. The FEIS fails to consider noise impacts on both wildlife and those desiring quiet recreational activities.

Marble Mountain Audubon v. Rice (No. 90-15389, D.C. No. CV89-170-EJG, Sept. 13, 1990) interprets NEPA to require the agencies to consider biological corridors and to ensure their functionality. The standard for such a review is the same "hard look" NEPA requires of other environmental effects. This means those corridors within the analysis area and linkages with areas adjacent to the analysis area need to be examined, plus the value of the entire analysis area, as part of a larger corridor within or between ecosystems. Friends of the Bitterroot v. USFS (900 F. Supp. 1368, 1372 (D. Mont 1994)), and Oregon Natural Resources Council v. John Lowe [109 F.3d 521, 526 (9th Cir. 1997)] also highlight the importance of including corridors as an element of consideration for an agency decision. Therefore, the agencies are required to address how phosphate mining and other management activities affect the Regionally Significant Wildlife Corridor - a corridor that would normally function to promote genetic diversity and population stability of lynxes among far flung populations in the Rocky Mountains.

CANADA LYNX

Our DEIS comments (p8 – 21) went into detail on Canada lynx history in the area, the need for formal consultation under the ESA, the linkage habitat in SE Idaho, the CNF process for assessing connectivity and the need for a detailed analysis of the current state of this linkage and the effects of human activities on its ability to support lynx. We pointed out that after reviewing NEPA documents on numerous projects in the CTNF, we have seen no such analysis, just deflection around lynx history, presence, and habitat. We addressed failures in defining lynx habitat and prey base and where past analyses have been flawed. The rule designating critical habitat was cited, acknowledging that protection of lynx habitat extends beyond state boundaries to "where found", in this case SE Idaho. The 2017 SSA indicated that to date there has been no verification that the Northern Rockies Lynx Management Direction is conserving lynx. Our comments provided maps of this linkage habitat connecting the GYA to the Uinta Mountains. These were based on Forest Service analyses, the Bates and Jones "least cost path" analysis showing the corridor through SE Idaho into NE Utah and Colorado, and also including the map from Olson et al (2021)[26] which was recommended by the CTNF. That map showed habitat in SE Idaho with high probability, which overlays with the corridor maps we also included. We included a map of reintroduced lynx migrating from Colorado showing they used SE Idaho. We reviewed current science on lynx use of harvested or treated areas and the need for undisturbed mature forest and that the NRLMD is not based on the best available science. In the following discussion, we look at the agency documents purporting to provide for lynx.

The Programmatic Lynx BA. Canada lynx are native to the CTNF and BLM lands of the project area. Canada lynx were listed as a Threatened species under the Endangered Species Act (ESA). In December 1999, the Forest Service and Bureau of Land Management completed their "Biological Assessment of The Effects of National Forest Land and Resource Management Plans

[26] Olson, L., N. Bjornlie, G. Hanvey, J. Holbrook, J. Ivan, S. Jackson, B. Kertson, T. King, M. Lucid, D. Murray, R. Naney, J. Rohrer, A. Scully, D. Thornton, Z. Walker, and J. Squires. 2021. Improved prediction of Canada lynx distribution through regional model transferability and data efficiency. Ecology and Evolution 11: 1667-1690.

and Bureau Of Land Management Land Use Plans On Canada Lynx" (Programmatic Lynx BA).[27] The Programmatic Lynx BA concluded that the current programmatic land management plans "may affect, and are likely to adversely affect, the subject population of Canada lynx." The Lynx BA team recommended amending or revising Forest Plans to incorporate conservation measures that would reduce or eliminate the identified adverse effects on lynx. The Programmatic Lynx BA's determination means that Forest Plan implementation is a "taking" of lynx and makes Section 7 formal consultation on the land management plans (LMPs) mandatory, before actions such as the proposed project are approved. The Lynx BA "likely to adversely affect" conclusion was based on the rationale that land use plans within the Northern Rockies have inadequacies.

- Aggressive fire suppression may limit the availability of foraging habitat
- Allow levels of human access via forest roads that may risk incidental trapping, shooting, or access by competing carnivores.
- Weak in guidance for new or existing recreation developments.
- Allow mechanized and non-mechanized recreation that may pose a risk, by allowing compacted snow trails and plowed roads that facilitate competitors and predators.
- Weak direction for maintaining habitat connectivity.
- Weak in direction for coordinating management activities with adjacent ownerships to assure consistent management of lynx habitat across the landscape.
- Fail to provide monitoring of lynx, snowshoe hares, and their habitats, making the detection and assessment of adverse effects from other management activities difficult or impossible to attain.
- Forest management has resulted in a reduction of the area in which natural ecological processes were historically allowed to operate, thereby increasing the area potentially affected by known risk factors to lynx. The Plans have continued this trend. The Plans have also continued the process of fragmenting habitat and reducing its quality and quantity. Consequently, plans may risk adversely affecting lynx by potentially contributing to a reduction in the geographic range of the species.
- Plan revisions are needed to incorporate conservation measures included in the Canada Lynx Conservation Assessment and Strategy.[28] (See following paragraph for some risk factors identified in the LCAS).

The LCAS "was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States. The USDA Forest Service, USDI Bureau of Land Management, and USDI Fish and Wildlife Service initiated the Lynx Conservation Strategy Action Plan in spring of 1998." The LCAS was published shortly after the Canada lynx was listed as Threatened under the ESA. The H1NDR FEIS did not cite the LCAS, instead cited a later version which we will discuss below. Risk Factors from the LCAS (2000) include:

[27]USDA Forest Service and DOI Bureau of Land Management.1999. Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada lynx.

[28]Ruediger et al. 2000. Canada Lynx Conservation Assessment and Strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT. 142 pp.

- Timber harvest and pre-commercial thinning that reduce denning or foraging habitat or convert habitat to less desirable tree species.
- Fire exclusion changing the vegetation mosaic maintained by natural disturbance processes.
- Grazing by livestock that reduces forage for prey.
- Roads and winter recreation trails that facilitate access to historical lynx habitat by competitors.
- Incidental trapping and shooting.
- Predation.
- Being hit by vehicles.
- Obstructions to movement such as highways and private land developments.

Continued implementation of the LMPs constitutes a "taking" of the lynx. Such taking can only be authorized with an incidental take statement, issued as part of a Biological Opinion (B.O.) during of Section 7 consultation. The agencies must incorporate terms and conditions from a programmatic B.O. into LMP amendments or revision before projects affecting lynx habitat, such as this one, can be authorized.

Northern Rockies Lynx Management Direction

We reviewed the Northern Rockies Lynx Management Direction (NRLMD).[29] This direction "applies to mapped lynx habitat on National Forest System land presently occupied by lynx, as defined by the Amended Lynx Conservation Agreement (CA)[30] between the Forest Service and FWS…When National Forests are designing management actions in unoccupied mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat." (NRMLD p1). [Emphasis added]. The FEIS for the NRLMD provided a map for the Northern Rockies Lynx Planning Area which is inserted as Figure 1.

The CA provided this, "As recommended in the LCAS, appropriate actions, including research, administrative studies, or monitoring, will be taken to verify the effectiveness of the lynx conservation measures." (CA p7). We have seen none of these monitoring or other studies that have addressed effectiveness of lynx conservation measures, and none were reported or analyzed in the H1NDR FEIS, ROD, or BA. In the NRMLD (p3) there is reference to a FWS "Clarification of Findings" in a Remand Notice which basically explains away most forest activities as impacting lynx or lynx habitat, i.e. a "threat" to lynx. The NRMLD puts it this way:

> After the LCAS was issued the FWS published a Clarification of Findings in the Federal Register (FEIS, Vol. 1, Appendix P), commonly referred to as the Remand Notice. In the Remand Notice the FWS states, "We found no evidence that some activities, such as forest roads, pose a threat to lynx. Some of the activities suggested, such as mining and grazing, were not specifically addressed

[29] USDA Forest Service. 2007. National Forests in Montana, and parts of Idaho, Wyoming, and Utah. Northern Rockies Lynx Management Direction Record of Decision.
[30] USDA Forest Service and USDOI Fish and Wildlife Service. 2006. Canada Lynx Conservation Agreement. USFS Agreement #OO-MU-11015600-0 13.

> [in the Remand Notice] because we have no information to indicate they pose threats to lynx" (p. 40083).
>
> Further on in the Remand Notice they state, "Because no evidence has been provided that packed snowtrails facilitate competition to a level that negatively affects lynx, we do not consider packed snowtrails to be a threat to lynx at this time" (p. 40098).
>
> In regards to timber harvest the FWS states, "Timber harvesting can be beneficial, benign, or detrimental to lynx depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site. Forest practices in lynx habitat that result in or retain a dense understory provide good snowshoe hare habitat that in turn provides good foraging habitat for lynx" (p. 40083).
>
> These findings by FWS narrow the focus from the concerns first published in the LCAS (discussed above) about what management direction is needed to maintain or improve Canada lynx habitat. We considered this information in the development of the selected alternative, and in our decision.

So, in one fell swoop, FWS and then the USFS thru the NRMLD adopted guidance that removes the majority of Forest Service actions or permitted activities from consideration. We are to believe that lack of evidence is proof these activities have no impact on lynx or their habitat. Yet, the scientists who published the Science Report used as the basis for the NRLMD (see below) had determined these activities adversely affect lynx and lynx habitat. What we have observed is a gradual easing of requirements and population status of lynx over the years. Absence of lynx in SE Idaho is a foregone conclusion if you manage them out of existence by denying their presence thru history then deny impacts from logging, snowmobiles across the landscape, off road vehicles speeding thru forest roads, and that "mining and grazing, because they were not specifically addressed … because we have no information to indicate they pose threats to lynx." In the paragraph cited above both agencies have relieved themselves of most responsibility to maintain or restore lynx and connectivity. Just consider mining and the 20,000 acres of disturbance described in the H1NDR FEIS in which all vegetation is removed and not restored to the condition that existed prior to mining. This is timber removal but is not an impact?

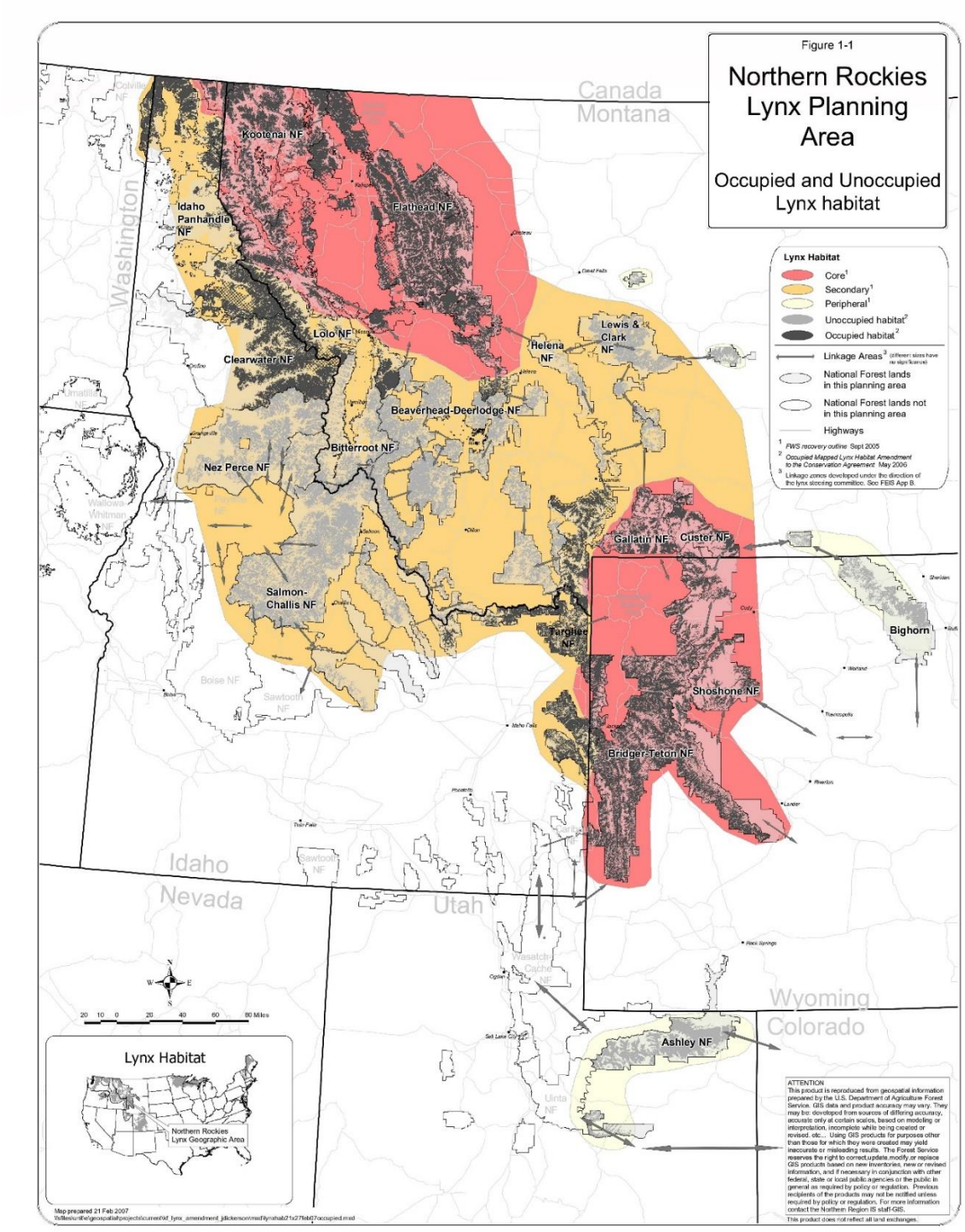

Figure 1. Map of Lynx Habitats from the FEIS for the NRLMD

Further in the NRLMD there are clarifying statements such as that standards and guidelines only apply to occupied habitat, while it can be considered for unoccupied habitats. (NRLMD p6). Regarding vegetation management direction it "conserves the most important component of lynx habitat: a mosaic of early, mature, and late successional stage forests, with high levels of horizontal cover and structure. (NRLMD p21). The objectives, standards and guidelines do not "apply to linkage areas". (NRLMD Att 1 p2). Livestock grazing "may reduce or eliminate foraging habitat in areas that grow quaking aspen and willow in riparian areas….These localized changes in habitat may affect individual lynx; however, no information indicates grazing poses a threat to overall lynx populations…" (NRLMD p21). Livestock management objectives and guidelines do not apply to linkage areas. (NRLMD Att 1 p5). Over snow recreation "Emphasizes not expanding snow compacting human uses into non-compacted areas. Guideline G11 'discourages the expansion of designated over-the-snow routes and play areas into uncompacted areas.'" "An alternative to drop all direction limiting snow compaction was not developed in detail because there is evidence competing predators use packed trails, suggesting a potential effect on individual lynx. (NRLMD p23). Mineral and Energy Standard does not apply to linkage habitat. (NRMLD Att1 p5).

As these statements make clear, lynx habitat, including linkage areas have virtually no protections, standards, or guidelines under the NRLMD. While it does acknowledge that there is evidence of lynx competitors using packed snow trails it does not address landscape level snow machine access and use such as occurs in 97% of the CNF. The Olson paper cited in the H1NDR BA acknowledges that lynx avoid areas of ski resort development and they altered their behavior to spend less time in areas of motorized recreation or used them at night when there was less use. (BA p41). So, human activity, roads, ohvs, and mines are not an impact? The Conservation Agreement (CA) addresses its scientific basis as:

> In March of 1998, an interagency lynx coordination effort was initiated in response to the emerging awareness of the uncertain status of lynx populations and habitat in the conterminous United States and the onset of the listing process. The U.S. Fish and Wildlife Service (FWS), USDA Forest Service (FS), Bureau of Land Management (BLM), and the National Park Service (NPS) have participated in this effort. Three products important to the conservation of lynx on federally managed lands have been produced through this effort: (1) "The Scientific Basis for Lynx Conservation" (Ruggiero et. al. 2000)[31], hereafter referred to as the "Science Report"; the Lynx Conservation Assessment and Strategy (LCAS); and this Lynx Conservation Agreement (CA). Several States within the range of the lynx have contributed to this effort through interactions with participants and review of draft products.
>
> The Science Report, prepared by an international team of experts in lynx biology and ecology, is a compendium and interpretation of current scientific knowledge about the Canada lynx, its primary prey and habitat relationships. This document

[31] Ruggiero, Leonard F.; Aubry, Keith B.; Buskirk, Steven W.; Koehler, Gary M.; Krebs, Charles J.;McKelvey, Kevin S.; Squires, John R. 2000.. Ecology and conservation of lynx in the United States. General Technical Report RMRS-GTR-30WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Available at:http://www.fs fed.us/rm/pubs/rmrs_gtr030.html

> serves as an important scientific reference for the various lynx activities of the cooperating Federal Agencies.
>
> The LCAS builds upon this scientific base and identifies the risks to the species that may occur as a result of federal land management. It recommends conservation measures that could be taken to remove or minimize the identified risks. It was developed to provide a consistent and effective approach to conservation of Canada lynx on federal lands in the conterminous United States.

The LCAS and Science Report constituted the best available knowledge and were incorporated into the CA. The Science Report (p12) addressed uncertainty by suggesting that "the burden of proof be shifted so that uncertainty favors, or at least is not destructive to conservation…". As we pointed out above, the LCAS identified risk factors, which are now excluded by the NRLMD and Remand Notice which have arbitrarily discounted nearly all activities as affecting lynx and lynx habitat. Lack of regulatory mechanisms was identified as a cause in the listing notice (FR Vol 65 No 58 p16052) stated as,

> The contiguous U.S. Distinct Population Segment of the lynx is threatened by the inadequacy of existing regulatory mechanisms. Current U.S. Forest Service Land and Resource Management Plans include programs, practices, and activities within the authority and jurisdiction of Federal land management agencies that may threaten lynx or lynx habitat. The lack of protection for lynx in these Plans render them inadequate to protect the species.

The Science Report addresses fragmentation as "reduction of total area, increased isolation of patches, and reduced connectedness among patches or natural vegetation…" (SR p84). "habitat fragmentation is the most serious threat to biological diversity and is the primary cause of the present extinction crisis." (SR p85). "rare species associated with wilderness, such as the lynx, generally are considered most susceptible to fragmentation." (SR p86). "generalist predators tend to dominate the predator guild in fragmented landscapes." (SR p86). Coyotes and lynxes are separated by snow conditions, but "this separation may break down where human modifications to the environment increase access by coyotes to deep snow areas. Such modifications include expanded forest openings throughout the range of lynx in which snow may be drifted, and increased snowmobile use in western mountains. Recreational snowmobile use has expanded dramatically in the United States in the past 25 years, with hundreds of thousands of km of trails (>19,000 km of groomed trails in Maine alone) within the pre-settlement range of the lynx…" (SR p94). "Fragmentation of habitats occupied by lynx (including increased openings, higher road densities, exurban residential development, and wider use of snowmobiles and devices that compact snow in areas with deep, soft snow) is a plausible mechanism for the questionable conservation status of the lynx in the contiguous United States.

The USFWS published a species status assessment (SSA)[32] for Canada lynx in 2017. The SSA also recognized the lack of regulatory mechanisms was the reason for listing. (SSA p1). It stated:

[32] U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (Lynx canadensis)

> Factors affecting lynx that were evaluated in the SSA "include the adequacy of existing regulatory mechanisms (the factor for which the DPS was listed); climate change, vegetation management, wildland fire management, and habitat loss and fragmentation (the factors considered by the Interagency Lynx Biology Team [ILBT] to have the potential to exert population-level effects on the DPS); and other factors that could influence the continued ability of particular geographic units to support resident lynx. (SSA p3).
>
> The lack of regulations protecting lynx habitat from potential threats on Federal lands at the time of listing has been largely addressed by formal and binding amendments or revisions to most Federal land management plans within the DPS range. Although uncertainty remains about the efficacy of this improved regulatory framework, Federal lands are now being managed specifically to protect and restore lynx habitats, with the goal of supporting continued lynx presence on these lands. (SSA p231).

This last statement is incredibly dismissive of the main cause of lynx habitat degradation, lack of adequate regulation, and instead, dismisses almost all actions that the Science Report acknowledged adversely affect lynx and lynx habitat. We searched online for evidence that the CNF has adopted the NRLMD or provided any Forest Plan amendments for lynx protection. There were none to be found. Y2U sent a letter to Mel Bolling, Forest Supervisor of the Caribou Targhee NF requesting updated analysis of the lynx status in the CTNF, including its historical occurrence, migration corridors and connections between habitats. The letter outlined our desired analysis and mapping to include human fragmentation and historical lynx habitat use.[33] The response from Mr. Bolling explained the current situation in the CTNF.[34]

Mr. Bolling explained some of the history of the lynx listing, the Science Report, LCAS and the 2013 revision of the LCAS which is now considered the primary guidance for land management agencies. His letter pointed out that the Targhee NF RFP was amended by the NRLMD in 2007. A National Lynx Survey was conducted on both the Forests in 1999 and determined that the Targhee NF met criteria for management as an occupied forest, but the Caribou did not. Therefore, the Caribou NF was not subject to the NRLMD and "No LAU's or lynx habitat is mapped on the Caribou due to the designation of the Caribou NF as an unoccupied forest in 2002." (p2). The conservation measures in the CNF RFP were "deemed sufficient: by the USFWS through consultation on the RFP Biological Assessment to address threats to Canada lynx and provide regulatory mechanisms to ensure the continued persistence of Canada lynx on the Caribou National Forest." Under this arrangement, therefore it appears that the provisions of the RFP would be central to analysis of lynx habitat because other protections are dismissed due to an arbitrarily determined occupancy status. The H1NDR FEIS, ROD and BA did not analyze

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Contiguous United States Distinct Population Segment. Version 1.0, October, 2017. Lakewood, Colorado.

[33] Carter, J., Garrity, M., Johnson, S., and Fite, K. 2021. Request for Response on Lynx Analysis in the CTNF. Letter on behalf of Yellowstone to Uintas Connection, Native Ecosystems Council, Alliance for the Wild Rockies, and Wildlands Defense. Dated August 15, 2021.

[34] Bolling, M. 2021. Response to letter requesting information on Canada lynx. Dated September 13, 2021.

these provisions, provide data or maps to assess habitat or the linkage as shown in the FEIS for the RFP. The 2013 LCAS procedures should have been included as well.

Mr. Bolling's response included reference to a paper by Olson et al (2021)[35] which used lynx observations in the west, climate, and human induced factors to model lynx habitat. Using lynx GPS and tracking data from Idaho, Wyoming, Montana, Washington, and British Columbia, the study found that lynx habitat is made up of a complex array of environmental conditions, not primarily vegetation type and elevations as currently mapped. They included an index of summer vegetation production, percentage of tree cover, road density and night light intensity as indices of anthropogenic influences. One confounding issue is their assumption of boreal forest soil pH as a factor due to the wetter conditions in boreal forests. However, we know lynx use a variety of forested types and this factor might disqualify habitats unnecessarily. The model provides insight and a basis for more detailed analysis of lynx potential habitat and its fragmentation within the linkage in SE Idaho in the CTNF. We have included the Olson et al map from that paper as Figure 2 below. It illustrates a high probability of suitable lynx habitat in SE Idaho and the CNF, which overlays with the corridor maps we have provided.

[35] Olson et al. 2021. Improved prediction of Canada lynx distribution through regional model transferability and data efficiency. Ecology and Evolution 11:1667 – 1690.

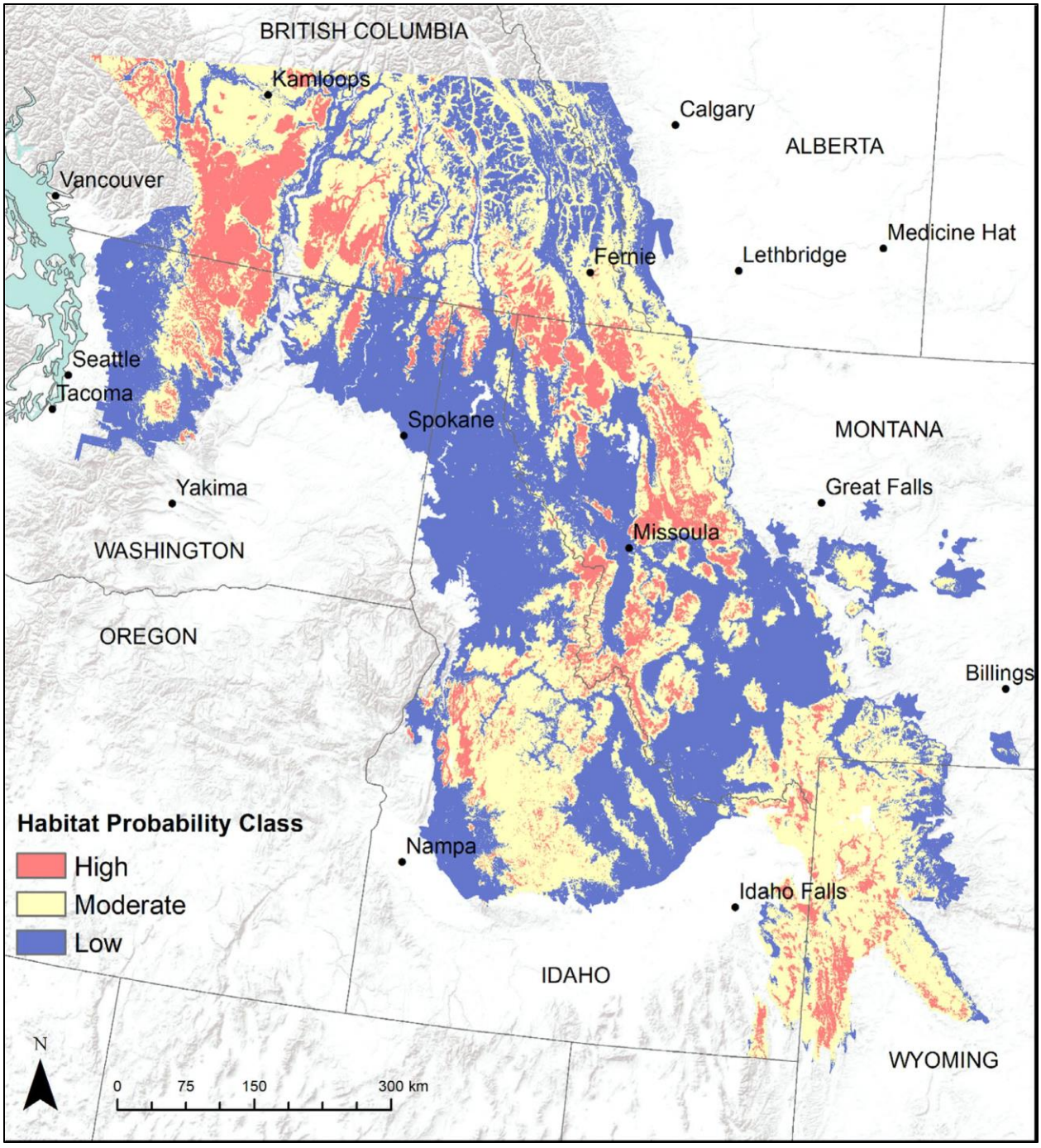

Figure 2. Prediction of Canada Lynx Habitat Probability from Olson et al 2021.

The 2013 LCAS. We reviewed the 2013 LCAS[36] which was cited in the H1NDR BA. It emphasizes protection of core areas which support persistent lynx populations and "less stringent protection and greater flexibility in secondary/peripheral areas…" (p2). The only conservation measures provided for these peripheral areas were for vegetation management, which are general and unenforceable statements such as "Vegetation treatments should be designed with consideration of historical landscape patterns and disturbance processes. Design timber harvest, planting, and thinning to include some representation of young densely stocked regenerating stands in the mosaic for snowshoe hare production areas" (p95). The 2013 LCAS provided conservation measures for core areas and stated that projects "must be consistent with the management direction contained in the forest plan." (p89). This would mean for H1NDR the analysis would be consistent with the CNF RFP and its FEIS. Conservation measures for core areas included (only examples cited, for full list see the LCAS):

- Delineate LAUs (p89)
- Vegetation management (includes several measures including landscape evaluation to identify opportunities for adaptation to climate change). (p89)
- Wildland fire management (p93)
- Habitat fragmentation (promote or retain large contiguous blocks of lynx habitat, identify linkage areas to maintain connectivity, minimize large scale development, and others (p93)
- Recreation management (direct recreational activities away from identified linkage areas (p94).
- Minerals and energy (locate facilities and roads outside of lynx habitat and linkage areas where possible) (p95)
- Backcountry roads and trails (Avoid road reconstruction and upgrades that substantially increase speeds) (p95).
- Livestock grazing (manage in riparian areas to maintain snowshoe hares) (p95).

We have included Figure 3.1 from the 2013 LCAS here as Figure 3. That map does not show any linkage or peripheral habitat. While it refers to the USFWS Recovery outline, there is no analysis of how to recover lynx. The 2013 LCAS does address factors that compromise lynx habitat and movement under the umbrella of "anthropogenic influences"(p68). It admits that not every human activity has been examined, but groups the activities into two tiers that can negatively affect lynx populations and habitat. The specialization of lynx on snowshoe hares and lynx "low densities and in small populations throughout their range in the contiguous United States .. increase their susceptibility to local extirpations." (p68). First tier factors include climate change, vegetation management, wildland fire and habitat fragmentation "can directly effect (sic) both snowshoe hare and lynx population dynamics." (p68).

"Federal agencies have amended or revised land management plans across much of the range of the lynx to provide direction to conserve lynx and lynx habitat. Thus the impacts of anthropogenic influences have been substantially reduced." (LCAS p68). As enumerated in our

[36] Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, MT. 128 pp.

comments on H1NDR and in this objection, the Caribou NF has not demonstrated that its RFP has "conserved lynx and lynx habitat" or reduced "anthropogenic influences".

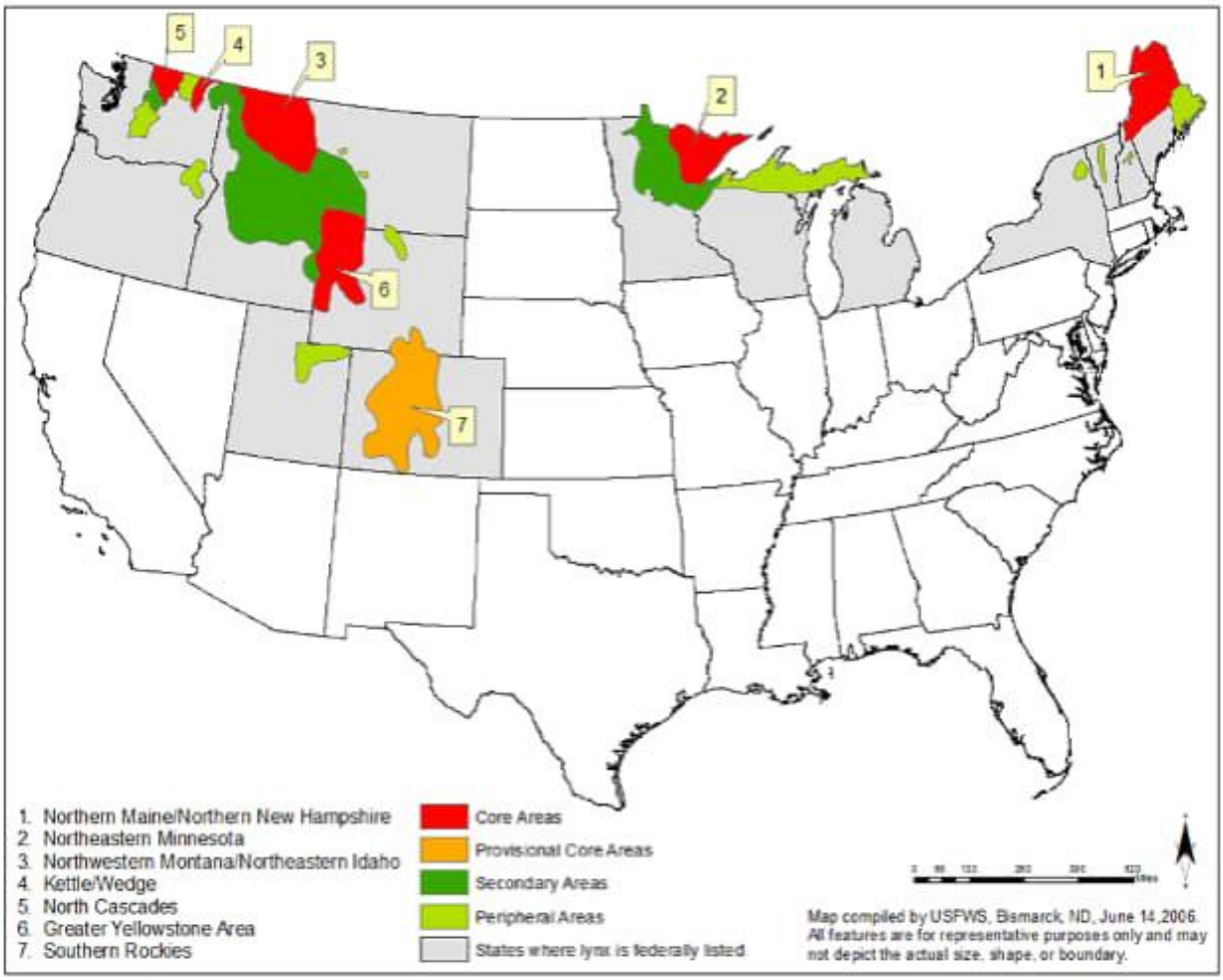

Figure 3. "Areas identified as core, secondary, and peripheral as depicted in the Canada Lynx Recovery Outline across the states where the lynx is listed (U.S. Fish and Wildlife Service 2005)

The 2013 LCAS describes how these factors affect lynx and lynx habitat. Climate change is a factor which is overriding other impacts and can cause shifts in distribution, changes in snowshoe hare cycles, reduction in lynx habitat and population, among other outcomes. (LCAS p69). Vegetation management alters stand structure, composition and arrangement and occurs across the range of the lynx. (LCAS p71). Wildland fire management can result in similar alterations. (LCAS p76). Habitat fragmentation, "accentuates the viability risk inherent in a small population and increases its vulnerability to local extirpation." (LCAS p76). Examples of fragmentation include, "removal of forest cover, development of highways and associated infrastructure, and intensive minerals or energy development…" (LCAS p77). Vehicle collisions are a factor in mortality.

The second tier of anthropogenic influences include incidental trapping with rates of trapping "positively related to average pelt value and appeared additive to nontrapping mortality." (LCAS p79). It "can occur in areas where regulated trapping for other species…overlaps with lynx habitats." (LCAS p79). "No conservation measures to address incidental trapping are included … because trapping is regulated by the states." (LCAS p80). Idaho allows trapping of numerous species, hound pursuit and with snowmobile access and groomed trails, winter access is available throughout the CNF. This effect is not considered.

Recreation is noted to be increasing with millions of participants. The data reported in the LCAS is pre-2009. (LCAS p80). Recreation effects include habitat loss from construction of developed areas, disturbance from human presence with examples of den abandonment, use of compacted trails in the snow by competitors. (LCAS p80). Minerals and energy development "could affect lynx habitat by changing or eliminating the native vegetation and contributing to habitat fragmentation. … development of associated roads, powerlines, and pipelines.. could also result in a loss of lynx habitat and contribute to fragmentation." (LCAS p83).

An illegal shooting example from Colorado is provided, showing over 14% of introduced lynx were shot in the first 10 years. (LCAS p84). Forest/backcountry roads and trails with low vehicular or snowmobile traffic "had little effect on lynx seasonal resource-selection patterns" and lynx traveled on roads "unplowed during winter". "Squires et al (2008) reported that lynx denned farther from all roads compared to random expectation. … occupy dens in early May when many forest roads are still impassable… snowmobiles no longer use the roads because of intermittent and unpredictable availablity of sufficient snow.". Finally, "fewer roads were located in denning habitat and higher road density occurred along forest edges and in managed stands, which lynx avoided…." (LCAS p84)

Regarding livestock grazing, LCAS (p85) notes the summer diet of snowshoe hares is dominated by herbaceous food including "forbs, grasses, and shrubs". Then claims that "The habitats used by snowshoe hare that are most likely to be affected by livestock grazing are riparian willow and aspen communities." The conclusion is that grazing by domestic livestock is "unlikely to reduce the snowshoe hare prey base…"

By laying out these first and second tier anthropogenic effects for core areas, the LCAS inadvertently explains why lynx may not be found today where they existed in earlier times. Lynx have "low densities and in small populations throughout their range in the contiguous United States .. increase their susceptibility to local extirpations." (LCAS p68). Almost every anthropogenic activity does have an adverse effect on lynx and lynx habitat as described in the preceding paragraphs. Data we have collected in SE Idaho on traffic and snowmobile use on a forest access road that passes through Kiesha's Preserve illustrates the current state of affairs. This was cited in our comments on the DEIS (p46 – 51). The study showed summer traffic of over 300 vehicles per day and in winter, large groups of snowmobiles using the groomed access road generating noise levels over 100 dBC. Today's forest roads are not low volume low speed as we have observed, they are more like motocross and snowcross trails where high speed adrenaline rules. We can find no monitoring or analysis of this activity to comply with the RFP and Travel Management Plan in the CNF. Lack of current data enables the CNF to deny impacts.

Lynx Observations The 2013 LCAS briefly describes lynx occurrences in the Northern Rockies. In Wyoming, lynx is a species of "greatest conservation concern" and "has been documented historically and currently in western Wyoming…" In Idaho lynx "are classified as an S1 species of greatest conservation need." Most of the 35 verified records in Idaho came from north of the Snake River with 2 from Caribou and Bonneville Counties along the Wyoming border. Recent snow tracking surveys have detected no lynx. (LCAS p57). Two lynxes were captured in traps in 2012 and 2013, one was released alive and the other was shot due to being misidentified as a bobcat. In Utah, the LCAS reports only a few historical records from the early 1900s with later records all from northwestern Utah near the borders with Wyoming and Idaho. (LCAS p58).

These reports of verified records were referenced to McKelvey et al (2000)[37]. They used "written accounts, trapping records, and spatially referenced occurrence data…" (p207). They limited consideration of trapping records due to lack of constant effort and confusion with bobcats and where high reliability is needed, "we used a subset of these data we call 'verified records'". Verified records were those "only if it was represented by a museum specimen, or a written account in which a lynx was either in someone's possession or observed closely….neither tracks nor sighting reports were considered to be a verified record." (p209).

We have extracted McKelvey's data from Table 8.1 of their chapter and summarized the percent of observations that are "verified". An extremely low percentage of total spatially referenced occurrences were "verified". (Table 2). So, hundreds to thousands of observations are not counted when determining lynx historical occupancy. Are we to believe they were all wrong? An example of this comes from a BLM report.[38] Of interest is an account by Harold Wadley, who was a Forester working for the U.S. Forest Service in Idaho and in the Uinta Mountains in Utah. Harold worked in the Uinta Mountains in 1957 and 1958. He used dogs and traveled by snowshoe to track and tree lynx. His records show he treed 20 Canada lynx in those two years. Harold encountered Canada lynx along the entire north slope of the Uinta Mountains. He estimated that there were 15 Canada lynx on the north slope of the Uinta Mountains between the West Fork of the Bear River and the Little East Fork of the Black Fork River. This essentially was the area within his ranger district. Was his report even considered? No. Do we just discount this as unreliable? After all, Harold worked for the U.S. Forest Service and knew lynx as do most trappers are likely to be able to do. In the following paragraphs, we use an example of how one should approach these arguments surrounding whether lynx ever resided in the Uinta Mountains that was provided by Dr. Kirk Robinson on one of our joint efforts to address domestic sheep grazing in the Uinta Mountains of Northwest Utah.[39]

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[37] McKelvey, K.S., K.B. Aubry, and Y.K. Ortega. 2000. History and distribution of lynx in the contiguous United States. Pages 207-264. Chapter 8. In Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires (Tech Eds). Ecology and conservation of lynx in the United States. Univ. Press of Colorado. Boulder, CO. 480 p.

[38] Lewis, L. and Wenger, C.R. 1998. Idaho's Canada Lynx: Pieces of the Puzzle. Idaho Bureau of Land Management Technical Bulletin No. 98 - 11 in cooperation with the U.S. Forest Service.

[39] Coalition comments on the High Uintas Domestic Sheep Analysis Project. 2019. Provided to the Uinta Wasatch Cache National Forest. August 5, 2019. Access at: https://app.box.com/s/797x21rggtx1t6yayr0gi9kpbouis4sr

Table 2. Spatially Referenced Occurrence Data from McElvey et al 2000.

State and time span	Total Spatially Referenced Occurrences	Verified Records	Verified as Percent of Total
Colorado 1878 - 1974	196 Total/96 Reliable Physical	17	8.6
Utah 1916 - 1991	27 Total/11 Reliable Physical	10	37.0
Montana 1887 - 1999	1,542 Total/588 Reliable*	84	5.5
Wyoming 1856 - 1991	361 Total/83 Reliable Physical	30	8.3

*Note that trapping records showed 3,012 reported between 1950 - 1997

Dr. Robinson's logical analysis examines the use of verified vs reliable accounts, or observations. He puts it this way:

> There may have only been 10 verified records of lynx occurrence in the Uintas in the 20th century, but there have been an additional 17 reliable reports of lynx in Utah in the 20th century, based on physical remains (including photographs), visual sightings and track identifications, plus another 10 of unknown reliability. The total number of records is 37. Most of these lynx occurrences were on the north slope of the Uintas, in or near the West Fork of Blacks Fork. Even if we discount the 10 reports of unknown reliability, we still have 17 reliable reports and 10 verified records of lynx, for a total of 27, most of which located the lynx in the Uintas! In other words, the historical evidence indicates a minimum of 10-37 lynxes in the Uinta Mountains over the last 103 years (not counting dispersers from Colorado). Thus, there can be little doubt that the actual number of "sightings" was greater than 10. 30 would be much more probable.
>
> Why arbitrarily exclude the "reliable" sightings? What does "reliable" mean if you can't rely on what is reliable? Yet the FS chooses not to rely on them for the purpose of the DEIS—a decision that would seem to be based not so much on a desire for accuracy as a desire to minimize the presence of lynx in Utah in order to make room for Alternative 2.
>
> At this point we should ask ourselves how many records—verified records, if you like—it would take to establish that there was a resident population of lynxes in the Uintas during some part of the 20th century. Does anyone have even the slightest clue? Of course not. And the reason is that there are no empirical data for establishing a baseline on which to base a prediction. Surely all we can reliably say is that the more records (verified + reliable), the higher the probability. Thus,

> this premise commits the fallacy of begging the question by presupposing what is to be proved.

As we review the table 8.1 from McKelvey, it is apparent that most historical observations and accounts are dismissed out of hand and have become the basis of today's claims by FWS and the Forest Service that there are not (and perhaps never were) resident lynx in Utah and Idaho, or Colorado for that matter even though the reintroduced population survives there today.

McKelvey et al (2000) described lynx records in Idaho, totaling 73 records. Some records such as reported in Lewis and Wenger (1998), are not included. The following are extracted from McElvey et al:

> From 1874 – 1917, there are 22 museum specimens from areas north of the Snake River Plain. In 1939 and 1940 specimens were collected in central Idaho in Valley County and Idaho County. In 1954 and 1955 specimens were located from Bonner and Shoshone Counties. Other verified records include one from Shoshone County in 1901, one from Boundary County in 1919, one from Idaho County in 1936, one from northwest Idaho in 1939, one from Clearwater County in1942, five from Caribou County in 1947, two from Bonneville County in 1955. (p225 - 226)

> There are 35 verified records from 1960 to 1991: four from 1962 to 1969, 18 from 1970 to 1979, 10 from 1982 to 1989, and three from 1990 to 1991; there are no verified records of lynx in Idaho since 1991 (Anonymous 1999, unpublished). Although most of these records are from the northern and central regions of Idaho where lynx occurred historically, six are from counties in the Snake River Plain, in areas where forest types occupied by lynx are absent or very fragmentary in extent (see "Lynx Associations with Broad Cover Types"). These include records from Blaine, Butte, Jerome, and Twin Falls Counties in 1972; one from Blaine County in 1984; and one from Power County in 1990. (p227).

The Lewis and Wenger (1998) report provided numerous accounts of lynx and lynx tracks in Idaho. They noted that little is known about Canada lynx in Idaho and that "the lack of Canada lynx studies…only adds to the puzzling nature of the species". It was based on interviews with individuals "familiar with Canada lynx habitat and local fauna in general." (pi). These were individuals documented by IDFG as "having harvested Canada lynx". While the report covers several areas of Idaho, it also includes Eastern Idaho accounts by 18 individuals. These are provided here for the SE Idaho area. They included accounts from residents in Island Park, St. Anthony, Rexburg, Georgetown, Ashton, Preston, Swan Valley, Paris, Montpelier, and Alta Wy. The reports included those who observed lynx in Georgetown Canyon, Tincup Creek, and Henry's Fork, many of whom killed lynx or observed their tracks. The report paints a broad picture of lynx across much of Eastern Idaho as well as other areas of the state. Here is one from Oliver Peterson of Montpelier who was trapping prior to the 1960s and 70s when lynx sightings were claimed to be due to movement from Canada due to hare cycle lows. It appears very convenient today to claim there were never resident lynx in these areas.

> Oliver Peterson, Montpelier, ID —Oliver began trapping in 1945 and did most of his trapping in the 1950s and 1960s. During a one-week period in 1947 or 1948, he caught five Canada lynx ten miles northeast of Soda Springs. He trapped four Canada lynx in the 1950s and 1960s, one in the same area where he caught the five Canada lynx. He caught three Canada lynx farther east near Georgetown. Except for one Canada lynx trapped near timberline, the remaining Canada lynx were caught in areas with a mosaic of aspen, conifer, and mountain brush. (p8). He speculated that during those years there were no snowmobiles and atvs and that the demise of lynx was due to increased access and by snowmobiles, atvs, and the lack of snowshoe hares. Traplines were accessed by snowshoe or skis and now (the 1990s) there is "intensive snowmobile and atv use". He believed this was a primary factor in the demise of lynx since the 1970s. (p17).

Lewis and Wenger also provide insight into lynx prey, in particular jackrabbits. The interviews provided information on lynx prey including jackrabbits, grouse, red squirrels, voles in addition to snowshoe hares indicating the use of alternate prey appears greater than in Canada and Alaska. The authors suggest scenarios relating lynx behavior to jackrabbit populations by lynx following jackrabbits into shrub steppe far from typical coniferous forest habitats and end up near other habitats occupied by snowshoe hares and/or may exploit jackrabbit population highs without leaving traditional habitats resulting from jackrabbits dispersing into those habitats.

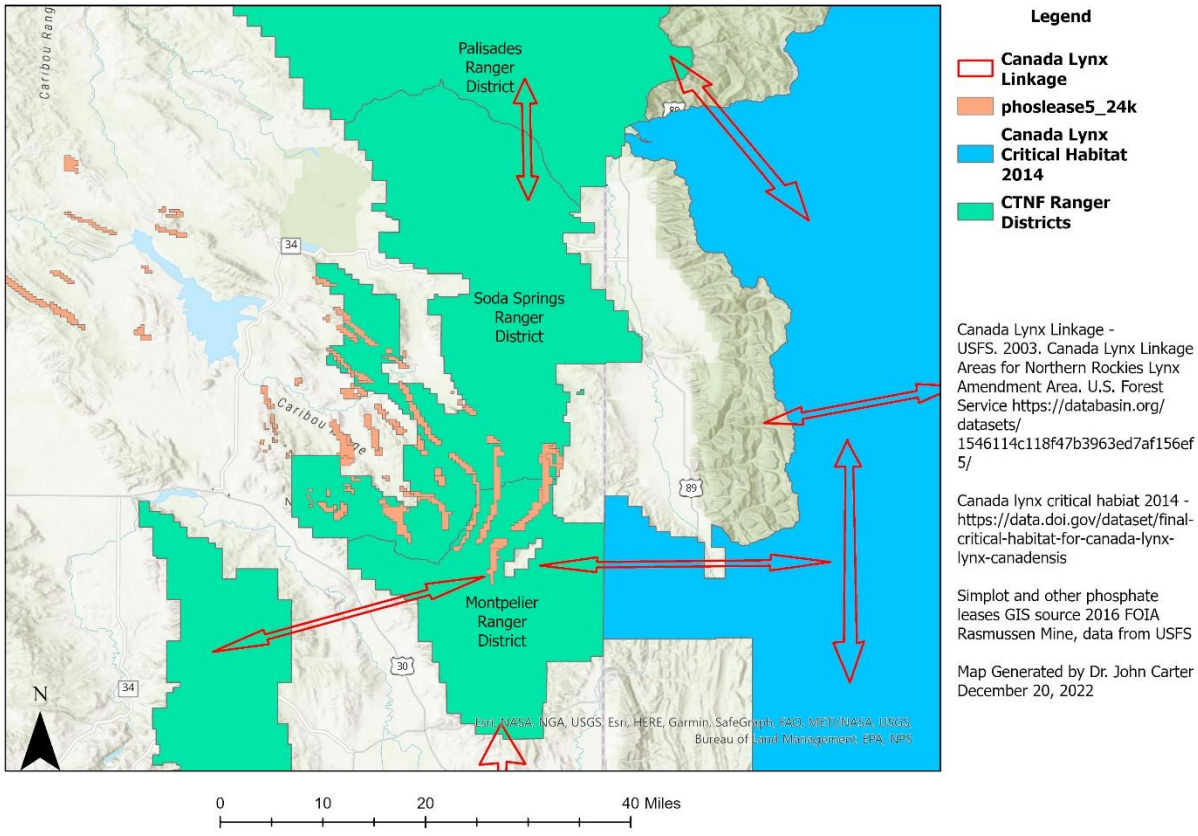
They also discuss livestock grazing, noting that studies show that livestock reduce forage availability, that elk and livestock eat many of the same species as do black-tailed jackrabbits and reduce forage to the point it limits jackrabbit densities. "Grazing of the same areas by both species may have cumulative effects on both snowshoe hare and jackrabbit habitats." (p17). "Utilization of forage by both elk and livestock may thus have a significant impact on hare habitats. This may be particularly true in the southern-most portions of the Canada lynx range where grazing becomes a more dominant use. (p18).

In conclusion, Lewis and Wenger state, "there is no 'smoking gun' factor in the decline of Canada lynx in Idaho. Many variables appear to limit Canada lynx numbers in this state. The most important of these appear to be timber harvest practices; high numbers of coyotes, mountain lions, and elk; increasing motorized and nonmotorized recreational use; incidental trapping; and reduced numbers of alternate prey, including species that are not documented as Canada lynx prey in existing research. These include jackrabbits, beavers, and porcupines."

Lynx, the ESA and Forest Service Manual The ESA promulgated regulations at 50 CFR § 402.12 delineate the purpose of a BA as "evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat…" It describes the contents as "discretionary" and depend on the nature of the federal action with consideration for including (1) results of on-site inspections; (2) views of recognized experts; (3) review of the literature; (4) analysis of the effects of the action on species and habitat, including cumulative effects and the results of related studies; and (5) analysis of alternate actions considered by the Federal agency. The H1NBR BA only based its brief analysis on the proposed action, not the suite of alternatives contained in the FEIS and included minimal analysis. The intent of the ESA was avoided and if one applies the NEPA standard for a "hard look" or "cumulative effects" to this aspect of the

analysis, the analysis will fail. “Discretionary” cannot be used to avoid taking a hard look in the analysis. This project, combined with other projects that are listed in the FEIS for H1NBR in addition to roads, timber harvest, recreation, occurs within a linkage area connecting to critical habitat for lynx immediately east of the project. Figure 4 illustrates this and shows some of the phosphate leases in the linkage for illustration. The loss of this connection due to habitat fragmentation means the loss of the genetic connection between the critical habitat and other peripheral habitat such as in the Uinta Mountains which then connect to the current Colorado population. How can regulations or land use plans be effective when they are “discretionary” for the project proponents?

Figure 4. Canada Lynx Critical Habitat, Phosphate Lease Locations, Linkage Area including Soda Springs and Montpelier Ranger Districts Based on FEIS for 2003 Caribou Revised Forest Plan



The Forest Service Manual[40] cites the ESA as “the Act directs federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats.” (FSM 2670.11). The FSM (2679.12) cites

[40] USDA Forest Service. 2005. Forest Service Manual National Headquarters (WO) Washington DC. FSM 2600 – Wildlife, Fish, and Sensitive Plan Habitat Management Chapter 2670 – Threatened, Endangered and Sensitive Plants and Animals (September 23,2005).

Departmental Regulation 9500-4 as (1) "Manage 'habitats for all existing native and desired nonnative plants, fish and wildlife species in order to maintain at least viable populations of such species.'" (2) "Conduct activities and programs 'to assist in the identification and recovery of threatened and endangered plant and animal species.'" (3) "Avoid actions 'which may cause a species to become threatened or endangered'". The CNF provided guidance in its RFP FEIS to address this connectivity but has ignored its own guidance in approving this project. How can the H1NDR FEIS, ROD and BA dismiss impacts to Canada lynx without actually conducting an analysis? The current analysis certainly does not "ensure" that actions do not further endanger or adversely modify habitat. Only in the Orwellian world of today's Forest Service could total destruction of habitat not be considered an "adverse" impact.

FSM 2670.31 provides additional guidance for T&E species. (1) "Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats." (2) "Establish, through the Forest planning process, objectives for habitat management and/or recovery of populations." (4) "Avoid all adverse impacts on threatened and endangered species and their habitats, except when it is possible to compensate adverse effects totally through alternatives identified in a biological opinion." (6) "Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate." Once again, the CNF has not placed top priority on conservation and recovery, has not established meaningful objectives with enforceable standards for lynx habitat, has not designated LAUs with standards to protect lynx or wolverine preferred habitats and linkages, has ignored the effect of this linkage area on the adjacent critical habitat, thus compromising the integrity of that critical habitat and what remains of the core population in the DPS. The CNF by allowing snowmobile use on 97% of the Forest is not preventing harm or harassment of lynx, wolverine or other species which are affected by snowmobile use and the associated trapping, shooting and harassment. We have witnessed multiple snowmobiles trespassing on Kiesha's Preserve chasing and harassing a coyote and deer in an effort to "whack" the coyote and at other times, releasing dogs carried in their sleds to chase mountain lions while trespassing.

The FSM 2670.5 provides definitions of terms that are useful in interpreting the efficacy of the agency analysis. An **adverse effect** includes "Any action that directly alters, modifies, or destroys, critical or essential habitats or renders occupied habitat unsuitable for use by a listed species, or that otherwise affects its productivity, survival, or mortality." **Essential habitat** is defined as "Those areas designated by a regional forester as possessing the same characteristics as critical habitat without having been declared as critical habitat by the Secretary of the Interior or Commerce. The term includes habitats necessary to meet recovery objectives for endangered, threatened, and proposed species and those necessary to maintain viable populations of sensitive species." A **viable population** is defined as "A population that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area." The CNF has not designated Essential Habitat, but it has designated linkage for lynx. The H1NDR FEIS, ROD and BA have not identified recovery objectives or evaluated how the project leads to recovery of lynx, The analysis we have provided shows actions by the Forest Service have had an "adverse effect" as demonstrated by the lack of lynx observations and

presence in SE Idaho. Given the lack of lynx observations in the recent decades, it is apparent that human activity is occurring in such a manner that lynx populations are being affected. Otherwise, why are lynx not being found today?

FSM 2671.44 describes determination of the effects on listed species. Biological evaluations are to "conduct and document the program and activities review necessary to ensure that any action … is not likely to jeopardize the continued existence of any listed or proposed species or to result in the destruction or adverse modification of critical or proposed critical habitat." Internal "biological expertise" and "informal consultation" are to be used to reach "supportable determinations of effect". Finally, "Consider effects on suitable unoccupied habitat essential to recovery of the species when doing the biological evaluation." The FEIS, BA and DROD have failed to analyze the linkage, or "suitable unoccupied habitat" and address its current vs historical condition as delineated in the CNF RFP FEIS.

The lack of adequate regulatory mechanisms to protect lynx habitat and connectivity has been implicated as a central issue for lynx being able to maintain populations.[41] (FR p16052). The FSM described above makes the point that the Forest Service should establish through planning, objectives for habitat management and/or recovery of populations and prescribe measures to prevent adverse modification of habitat essential to the conservation of T&E species. This remains to be done and for this reason alone, the H1NDR should be delayed.

Caribou NF Direction for Canada Lynx. The Caribou RFP FEIS laid out a process for addressing connectivity. We have reviewed the RFP for standards or objectives relating to lynx and its habitat. Overall, these are quite generic and not specific to the habitat of lynx. The direction specified to maintain linkages for Canada lynx is found in (1) Vegetation Desired Future Conditions, (2) Vegetation Goals 1 – 4, (3) Vegetation Standard 2, (4) Wildlife Goals 2, 3, and 5, (5) Vegetation Goal 7, (6)Lands Objective 1, and (7) Lands Standard 1. (RFP 3-28) We reviewed each of these for specifics regarding lynx habitat. They are summarized below:

1. **Vegetation DFC** (RFP 3-17) to retain diversity of structure and composition, 30 – 40% of conifers in mature and old classes (FEIS notes this will not be attained), functional corridors are present, aspen managed to 20 – 30% mature and old, non-forested vegetation within site potential and within HRV, restoration of native shrub communities accomplished, woodland types are multi aged with balanced shrub/herbaceous understory and within HRV.

2. Vegetation Goals 1 – 4, 7 (RFP p3-17 – 3-18) to have diverse forested and non-forested ecosystems within HRV and/or restored through time, aspen managed to reduce or halt decline, forested ecosystems moving towards a balance of age and size classes in each forested type on a watershed or landscape scale, sage-steppe and mountain brush moving towards a balance of age, canopy cover, and size class on a watershed or landscape scale and within HRV, biodiversity maintained or enhanced.

[41]DOI USFWS. 2000. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule. Fed. Register Vol. 65, No. 58.

3. Vegetation Standard 2 (RFP 3- 19) "In each 5th code HUC which has the ecological capability to produce forested vegetation, the combination of mature and old age classes (including old growth) shall be at least 20 percent of the forested acres. At least 15 percent of all the forested acres in the HUC are to meet or be actively managed to attain old growth characteristics."

4. Wildlife Objective (RFP 3-24) "The Forest provides habitat that contributes to state wildlife management plans; Forest management contributes to the recovery of federally listed threatened, endangered, and proposed species and provides for conditions, which help preclude sensitive species from being proposed for federal listing."

5. Wildlife Goals 2, 3, and 5 (RFP 3-24) states that wildlife biodiversity is maintained or enhanced by managing for vegetation and plant communities within their HRV, maintain multiple vegetation layers in woody riparian habitats, maintain, and "where necessary and feasible, provide for habitat connectivity across forested and non-forested landscapes."

6. Lands Objective 1 (RFP 3-8) "Identify land adjustments and rights-of-way to improve management, public access, and/or wildlife connectivity annually."

7. Lands Standard 1 (RFP 3-9) "Priority shall be given to acquiring lands having special importance or unique characteristics such as riparian areas, historic sites, habitat for federally listed species, recreation sites, etc."

There is no specific direction and no enforceable standards regarding lynx habitat and linkage (which the Forest Plan itself mapped). The FEIS, DROD and BA have not analyzed these provisions and revealed how they have been applied across the affected watersheds and landscape where lynx formerly have been found, or in the linkage shown in the RFP FEIS. The H1NDR FEIS analysis did not use the guidance in the RFP FEIS on connectivity and how to analyze it. It did not analyze the risk factors described in the LCAS and the combined impact of all the various uses and projects on this linkage area. A review of IRAs in the CNF finds they are rarely different in management than other forest lands, with many user-created roads and trails, past timber harvest, mining, and livestock grazing. For example in our comments on the Dairy Syncline DEIS (p43) we cited the Idaho roadless rule description of the Huckelberry Basin IRA which was to be fragmented for a tailings pond.[42] "Remoteness and solitude rate as low, because of development." .. "Manageability of the area is considered poor, due to road intrusions and timber harvest activities." (Idaho roadless rule FEIS C5-46). This is typical of the characterization of IRAs under the Idaho Roadless Rule. So, if IRAs are fragmented by all these activities, where are the intact habitats for lynx and other special status species? A thorough review of the science on lynx habitat characteristics needed for recovery and connectivity should be completed and used to compare current conditions in the CTNF to those needed for lynx.

[42] USDA. 2008. Roadless Area Conservation National Forest System Lands in Idaho Final Environmental Impact Statement Appendix C.

WOLVERINE

Our DEIS comments (p21 - 24) addressed wolverine, provided information on recent studies that analyzed snow cover and wolverine habitat, provided maps of wolverine distribution modeled by FWS, and movement corridors by IDFG. The modeled habitat and corridor maps overlay nicely with the SE Idaho corridor we have described above. We insisted that:

> The CTNF must provide a more detailed mapping, capability and suitability analysis for wolverine habitat integrating the above information on the Corridor and current conditions (security cover, snow cover, elevation, mines, roads, timber projects and other fragmenting or habitat degrading activities as well as the current rate of occurrence) for wolverine. A "hard look" must be conducted of habitat fragmentation, corridor functionality, vegetation treatments, road density, ATV/OHV and snowmobile activity, trapping and other human activity as well as livestock grazing and the associated impact on wolverine. That look must also include all ESA and Forest Plan requirements and intent as well as embody the best available science applicable to wolverine.

The CTNF must analyze its own CNF RFP provisions related to wolverine and revisit ESA consultation. Our comments have already stressed the need for connectivity, while all potential denning habitats need identification according to the best science such as Copeland (2010) cited in our comments. Below, we summarize some of the science that is available to the CTNF and should be considered in its analysis.

Wolverines use habitat ranging from Douglas-fir and lodgepole pine forest to subalpine whitebark pine forest.[43] A study in British Columbia found that wolverines use habitats as diverse as tundra and old-growth forest.[44] Wolverines are also known to use mid- to low-elevation Douglas-fir forests in the winter.[45] Wolverine range in the U.S. had contracted substantially by the mid- 1900s and extirpations are likely due to human-caused mortality and low to nonexistent immigration rates.[46] "Increased human development (e.g. houses, cabins, settlements and roads) and activity (e.g. recreation and husbandry) in once remote areas may thus cause reduced ability of wolverines to perform their daily activities unimpeded, making the habitat less optimal or causing wolverines to avoid the disturbed area."[47] "Many wolverine populations appear to be relatively small and isolated. Accordingly, empirical information on the landscape features that facilitate or impede immigration and emigration is critical for the

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[43] Copeland, Jeffrey P., James M. Peek, Craig R. Groves, Wayne E. Melquist, Kevin S. Mckelvey, Gregory W. Mcdaniel, Clinton D. Long, Charles E. Harris, 2007. Seasonal Habitat Associations of the Wolverine in Central Idaho. Journal of Wildlife Management 71(7):2201–2212; 2007.

[44] Lofroth, E.C., 1997. Northern wolverine project: wolverine ecology in logged and unlogged plateau and foothill landscapes. Wildlife Branch, Victoria, British Columbia, May 7, 1997.

[45] USDA Forest Service, 1993. Wolverine habitat guidelines for the Malheur National Forest. Prepared by Richard Haines, Malheur National Forest; Reviewed by Robert Naney, USFS Region 6, June 1993

[46] Aubry, Keith B. Kevin S. McKelvey, and Jeffrey P. Copeland, 2007. Distribution and Broadscale Habitat Relations of the Wolverine in the Contiguous United States. Journal of Wildlife Management 71(7):2147–2158; 2007

[47] May, R., Landa, A., van Dijk, J., Linnell, J.D.C. and Andersen, R. 2006. Impact of infrastructure on habitat selection of wolverines Gulo gulo. Wildl.Biol.12:285-295. doi:10.2981/0909-6396 (2006) 12[285:IOIOHS] 2.0. CO;2.

conservation of this species."[48] Ruggiero et al., 1999 state:

> 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 managers 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.

Ruggiero, et al. (2007) state:

> Roads result in direct mortality to wolverines by providing access for trappers (Krebs et al., 2007). Trapping was identified as the dominant factor affecting wolverine survival in a Montana study (Squires et al. 2007). Female wolverines avoid roads and recently logged areas, and respond negatively to human activities (Krebs et al., 2007)

"Over most of its distribution, the primary mortality factor for the wolverines is trapping."[49] Those authors also state, "Transient wolverines likely play a key role in the maintenance of spatial organization and the colonization of vacant habitat. Factors that affect movements by transients may be important to population and distributional dynamics." The presence of roads can be directly implicated in human-caused mortality (trapping) of this species. Trapping was identified as the dominant factor affecting wolverine survival in a Montana study.[50] Minimizing disturbance in general wolverine linkage areas by limiting development.[51] "Human use, including winter recreation and the presence of roads, reduced habitat value for wolverines in our studies."[52] "…roads, regardless of traffic volume, reduce the quality of wolverine habitats and that higher-traffic roads might be most deleterious. We suggest that wildlife behavior near roads should be viewed as a continuum and that accurate modeling of behavior when near roads requires quantification of both movement and habitat selection. Mitigating the effects of roads on wolverines would require clustering roads, road closures, or access management."[53]

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[48] Ruggiero, Leonard F.; 2007. Scientific Independence: A Key to Credibility. From ECO-Report 2007: Bitterroot Ecosystem Management Research Project, Rocky Mountain Research Station, 800 E. Beckwith St., Missoula, MT 59801.

[49] Ruggiero, Leonard F., Keith B. Aubry, Steven W. Buskirk, L. Jack Lyon, and William J. Zielinski. 1994. The Scientific Basis for Conserving Forest Carnivores in the Western United States: American Marten, Fisher, Lynx, and Wolverine. Pacific Southwest Research Station, USDA Forest Service. General Technical Report RM-254 September 1994.

[50] Squires John R., Jeffrey P. Copeland, Todd J. Ulizio, Michael K. Schwartz, Leonard F. Ruggiero, 2007. Sources and Patterns of Wolverine Mortality in Western Montana. Journal of Wildlife Management 71(7):2213–2220; 2007.

[51] Squires, J., L. Ruggiero, J. Kolbe, and N. DeCesare. 2006a. Lynx ecology in the Intermountain West: research program summary, summer 2006. USDA Forest Service, Rocky Mountain Research Station, Missoula, Montana.

[52] Krebs John, Eric C. Lofroth, Ian Parfitt, 2007. Multiscale Habitat Use by Wolverines in British Columbia, Canada. Journal of Wildlife Management 71(7):2180–2192; 2007

[53] Scrafford, Matthew A., Tal Avgar, Rick Heeres and Mark S. Boyce, 2018. Roads elicit negative movement and habitat-selection responses by wolverines. Behavioral Ecology, Published: 08 February 2018.

Wisdom et al. (2000) state, citing numerous studies:

> Carnivorous mammals such as marten, fisher, lynx, and wolverine are vulnerable to over- trapping (Bailey and others 1986, Banci 1994, Coulter 1966, Fortin and Cantin 1994, Hodgman and others 1994, Hornocker and Hash 1981, Jones 1991, Parker and others 1983, Thompson 1994, Witmer and others 1998), and over-trapping can be facilitated by road access (Bailey and others 1986, Hodgman and others 1994, Terra-Berns and others 1997, Witmer and others 1998).

Snow-tracking and radio telemetry in Montana indicated that wolverines avoided recent clearcuts and burns. Disturbances that could affect wolverine are heli-skiing, snowmobiles, backcountry skiing, logging, hunting, and summer recreation. Human disturbance near natal denning habitat resulted in immediate den abandonment but not kit abandonment. [54] [55] Given the uncertain status of wolverine within the United States and elsewhere, there is growing concern regarding the potential negative effects of winter recreation on wolverine and particularly in areas potentially used by female wolverine for reproductive denning.[56] [57] [58] [59]

Wisdom et al. (2000) offered the following strategies:

- Provide large areas with low road density and minimal human disturbance for wolverine and lynx, especially where populations are known to occur. Manage human activities and road access to minimize human disturbance in areas of known populations.
- Manage wolverine and lynx in a metapopulation context and provide adequate links among existing populations.
- Reduce human disturbances, particularly in areas with known or high potential for wolverine natal den sites (subalpine talus cirques).

Land management plans include no such scientifically based direction for wolverine habitat protection. Y2U, in concert with other organizations has submitted comments for the current FWS Species Status Assessment for wolverine.[60] Our comments show the contraction of

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[54] Copeland, J.P. 1996. Biology of the Wolverine in Central Idaho. U of Idaho. 276p.
[55] Hornocker, M.G. and Hash, H.S. 1981. Ecology of the wolverine in northwestern Montana. Can. J. Zool. 59: 1286-1301.
[56] Rowland, MM., Wisdom, MJ, Johnson, DH, Wales, BC, Copeland, JP and Edelmann, FB. 2003. Evaluation of landscape models for wolverines in the interior Northwest, United States of America. J. Mammal. 84:92-105. doi: 10.1644/1545 1542 (2003) 084<0092:EOLMFW>2.0.CO;2.
[57] May, R., Landa, A., vanDijk, J., Linnell, J.D.C. and Andersen, R. 2006. Impact of infrastructure on habitat selection of wolverines Gulo gulo. Wildl.Biol.12:285-295. doi:10.2981/0909-6396 (2006) 12[285:IOIOHS] 2.0. CO;2.
[58] Copeland, Jeffrey P., James M. Peek, Craig R. Groves, Wayne E. Melquist, Kevin S. Mckelvey, Gregory W. Mcdaniel, Clinton D. Long, Charles E. Harris, 2007. Seasonal Habitat Associations of the Wolverine in Central Idaho. Journal of Wildlife Management 71(7):2201–2212; 2007.
[59] Krebs John, Eric C. Lofroth, Ian Parfitt, 2007. Multiscale Habitat Use by Wolverines in British Columbia, Canada. Journal of Wildlife Management 71(7):2180–2192; 2007
[60] Comment to Fish and Wildlife Service for new information to update the Species Status Assessment for the North American Wolverine. Submitted by Friends of the Clearwater et al. December 21,2022. https://app.box.com/s/6yv8uk58hupx1q3hvngk64iz5kuf2ixi

wolverine range in the last century. (Figure 5). There are currently no adequate strategies in place to protect wolverines and in the absence of ESA listing, none is anticipated. Forest Plans are inadequate in providing those protections, yet 94% of wolverine habitat in the contiguous U.S. is in federal ownership. Forest Plans are reviewed and their provisions with loopholes illustrated. The same plight exists for wolverine as for lynx, there are essentially no enforceable Forest Plan provisions while activities such as winter recreation are key stressors and can cause den abandonment. Our comments also point out the lack of consideration of connectivity between national forests, across larger landscapes, and between subpopulations in Forest Plans.

Further, IRAs lack adequate protection and there are many issues involving State vs Federal land and wildlife management that are pointed out in those comments. IRAs in Idaho are compromised. A recent legal analysis has also pointed out the problem of "ecological and political blindness" involved in this state vs fed management scenario.[61] Forest Service deference to this "phantom sovereignty of state wildlife management policies results in threats to rare species such as wolverine. For example, in the SSA comments (p16) a recent Complaint filed in the U.S. District Court of Idaho identifies regressive policies recently enacted by the State of Idaho targeting gray wolf populations. "While targeting wolves, the additional trapping and snaring will exacerbate the ongoing trapping of grizzly bears and Canada lynx …which are protected under the Endangered Species Act …and whose habitat overlaps with gray wolves."[62] Those SSA Comments include a brief with statements of facts that was filed in the U.S. District Court of Montana in 2021 and provide a full discussion of wolverine status and need for action.

[61]Nie, M., C. Barns, J. Haber, J. Joly, K. Pitt, and S. Zellmer, 2017. Fish and Wildlife Management on Federal Lands: Debunking State Supremacy. Environmental Law, 47, no. 4 (2017).
[62] U.S. District Court of Idaho Case 2:21-cv-00479-DCN.

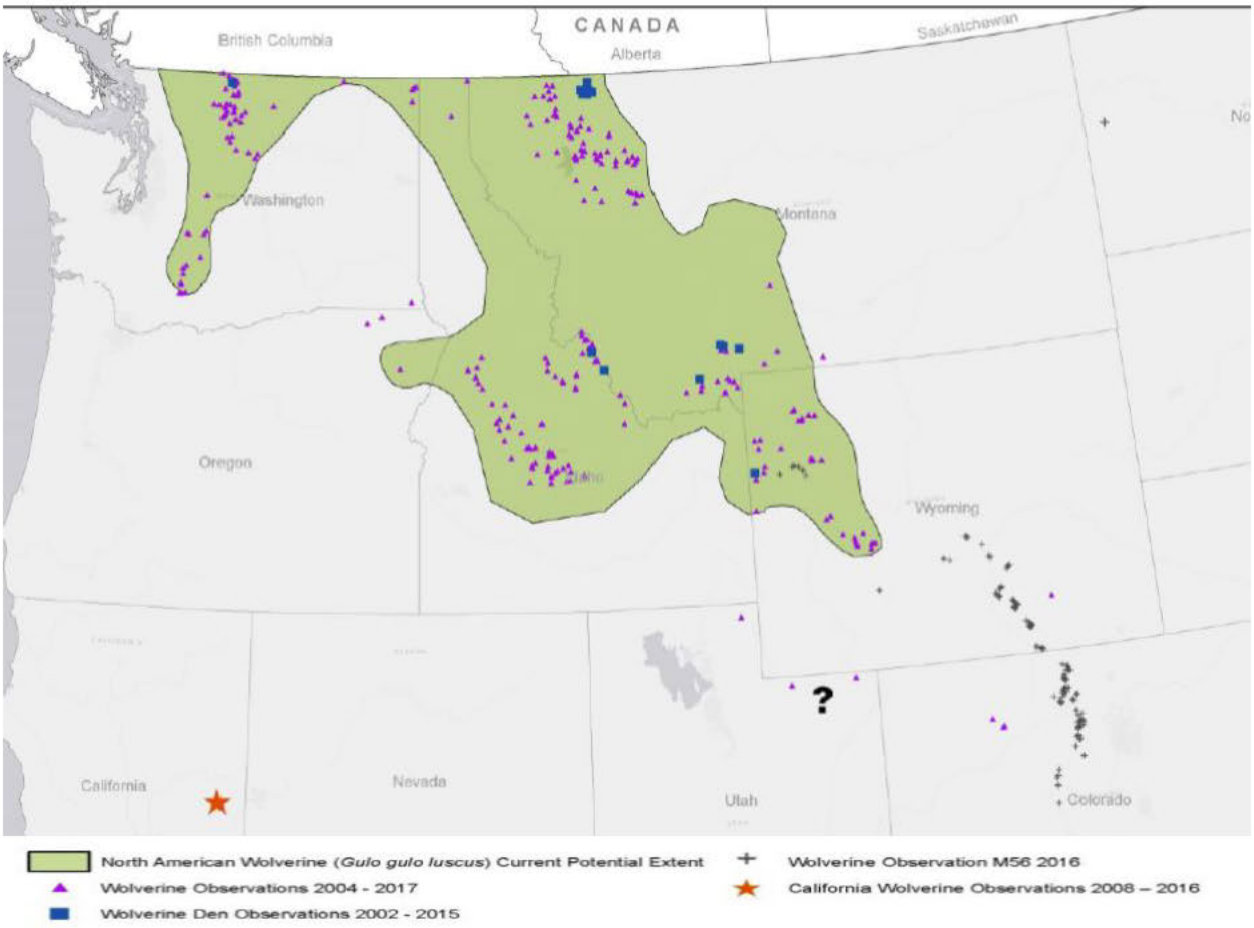

Figure 5 . Change in Wolverine Observations over time

SAGE GROUSE

Our DEIS comments (p29 – 33) note the agencies' failure to take a hard look at direct, indirect, and cumulative impacts on sage grouse, and present a science-based discussion on the species. We also discussed sharp-tail grouse (DEIS comment p63). These deficiencies make it impossible for the public or agencies to conduct an informed assessment of how potential development combined with other actions have and will affect population status and recovery efforts for the Eastern Idaho greater sage-grouse or sharp-tailed grouse populations.

Cumulative impacts of management on the long-term persistence of the regional sage grouse population are not properly analyzed. With government planning in process that subverts the direction adopted largely to prevent listing of the sage grouse under the ESA, the FS is obligated to take a much harder look on these cumulative effects and the value of project area habitat as providing key peripheral populations and connectivity between higher quality habitats. There is no assurance of maintaining viability of the sage grouse population in Eastern Idaho and its connectivity to populations in Utah and Wyoming without addressing the habitat quality and fragmentation.

BLM and the Forest Service continue to amend land use plans relating to sage grouse, which is evidence that current land use plans are inadequate.[63] This state of flux requires that both agencies conduct a detailed analysis of the past and current status and occupancy by sage grouse and their habitat quality, irrespective of arbitrarily designated HMAs which did not consider historical occupancy, but instead truncated the record so past declines and lost leks are no longer considered. Lack of monitoring was also a justification for eliminating leks. This is a poor situation when habitat degradation and population declines are just discounted as if they never occurred. Our DEIS comments provided a map of leks in SE Idaho and our analysis of lek counts at those leks showed a decline across the SE Idaho area that appears concomitant with the expansion of mining and recreation. We also incorporate the Declaration of John Carter in Case No. 1:16-cv-00083-BLW.

NORTHERN GOSHAWK, MIS, AND SPECIAL STATUS SPECIES

These were discussed in our DEIS comments (p35 – 37). With the loss of nearly 1,000 acres of forested habitat at H1NDR and approximately 20,000 acres due to mining across the phosphate patch, and the lack of finding of goshawk in the wildlife survey for H1NDR, it is critical that the question of the absence of goshawk be answered. There is no population data and trend, no viability analysis and thus, the status remains in question, but the evidence in this current FEIS analysis is that they have been eliminated. One of the major omissions of the phosphate mining effort in SE Idaho is the lack of annual and ongoing monitoring of wildlife. One-time studies don't tell us what the pre-mining baseline was, and don't answer the question as to the effects of each individual mine.

Dr. Carter has worked for the mining and other industries over the decades. Project monitoring included a baseline, then evaluation of that baseline to design long term monitoring which was to

[63] https://eplanning.blm.gov/eplanning-ui/project/2016719/510

be done on an annual basis for impact detection and correction. An example of this is a paper from 1983 regarding the oil shale development in the Uinta Basin in which baseline data lead to a monitoring and detection plan.[64] It seems these basic principles of adaptive management and impact detection have been lost when it comes to fish and wildlife and are minimally applied to surface and ground water. They are not applied at all to air quality for these phosphate mines.

The H1NDR FEIS doesn't provide any indication of the adequacy of surveys. The FS must utilize goshawk survey methodology consistent with the best available science. For example, the recent and comprehensive protocol, "Northern Goshawk Inventory and Monitoring Technical Guide"[65] The USDA Forest Service also states:[66]

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

Much scientific information discusses the impacts of cumulative management actions such as logging on the goshawk. For example, best available science implicates management impacts in a roughly 6,000-acre northern goshawk foraging area or the post-fledging area (PFA). Reynolds et al. 1992 goshawk guidelines recommend ratios of (20%/20%/20%) each in the mid-aged forest, mature forest, and old forest Vegetative Structural Stage (VSS) classes for PFAs and foraging areas. Reynolds et al. 1992 calls for 100% in VSS classes 5 & 6 and 0% in VSS classes 1-4 in nest areas. They also address livestock grazing and set utilization limits of 20% on average in goshawk foraging areas. [67]

In relation to forest cover, after partial harvesting over extensive locales around nest buffers, re-occupancy decreased by an estimated 90% and nestling production decreased by an estimated 97%. Decreases were probably due to increased competition from open-forest raptors, as well as

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[64] Carter, J. and Lamarra, V. 1983. Environmental Management – A data based ecosystem approach from the Oil Shale Industry. J. Env. Mgt. 17:17 – 34. https://app.box.com/s/43ja7cnwybzohywftv3my4zky3gw9xya

[65] Woodbridge, B. and C.D. Hargis, 2006. Northern goshawk inventory and monitoring technical guide. Gen. Tech. Rep. WO-71. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.

[66] USDA Forest Service, 2000b. Expert interview summary for the Black Hills National Forest Land and Resource Management Plan Amendment. USDA Forest Service, Black Hills National Forest, Hwy 385 North – R.R. 2, Box 200 Custer, South Dakota 57730 (605-673-9200). October,
2000.

[67] Reynolds, R. T., R. T. Graham, M. H. Reiser, R. L. Bassett, P. L. Kennedy, D. A. Boyce, Jr., G. Goodwin, R. Smith, and E. L. Fischer. 1992. Management recommendations for the Northern goshawk in the southwestern United States. Rocky Mountain Forest and range Experiment Station and Southwest Region Forest Service. US Dept. of Agriculture, Gen. Tech. Rpt. RM-217.

changes in hunting habitat and prey abundance.[68] In another study, all goshawk nests examined in their study area were found in stands whose average diameter of overstory trees was over 12.2 inches and all nest stands had ≥ 70% overstory tree canopy. They described their findings as being similar to those described by Hayward and Escano (1989), who reported that nesting habitat "may be described as mature to overmature conifer forest with a closed canopy (75-85% cover)…."[69]

While these relate to timber manipulations, it has to be noted that with mining, it is a matter of total removal of canopy over thousands of acres plus all the past, present and future actions that remove cover and fragment habitat over the goshawk foraging areas that must be analyzed to explain the current status of goshawk and other special status species and then put in place mitigations such as road closures to restore habitat structure and function, with ongoing monitoring to determine status/recovery.

BIG GAME

This issue was raised in our DEIS comments (p27 – 28). We mapped winter range in the Corridor. Earlier in this objection we have discussed the need for determining and evaluating migration routes. We have also described the CNF RFP FEIS process for assessing connectivity. That process includes assessing historic patterns of vegetation and connectivity; assess current patterns and relative connectivity including human disturbance and barriers; compare historic and current patterns and relative connectivity to determine if animal movement opportunities have been significantly interrupted; consider measures to restore these. Little in the FEIS approaches an adequate analysis of such factors. The Forest Plan FEIS (p3-238 – 3-239) states:

> Thomas (2000) studied elk from the Tex Creek winter range. He found high fidelity to summer ranges. Sixty to sixty-five percent of the elk wintering in Tex Creek summered south of McCoy Creek, and most of the mature bulls summered in this area. Large contiguous blocks of habitat characterize Unit 66a. Almost one-half of the elk marked in this study summer in the largely non-motorized block between Bald Mountain and Tincup Mountain.
>
> Zones 66a and 76 are managed to provide trophy bull elk and for semi-primitive hunt experience. Of special concern within the Diamond Creek Zone is the area from Diamond Creek north to Tincup where cross-country travel is currently allowed. Overall, the zone is still meeting state population goals but concerns remain over increasing motorized use in the area and what effects it could have on the bull elk using this part of the zone. Elk population objectives have been raised to maintain the trophy bull elk hunt in this zone.
>
> Summer habitat effectiveness is defined as the percent of available habitat that is usable by elk from late green-up to hunting season. Factors that influence

[68] Crocker-Bedford, D.C. 1990. Goshawk reproduction and forest management. Wildlife Society Bulletin; v. 18, no. 3, pp. 262-269.
[69] Moser, Brian W. and Edward O. Garton 2009. Short-Term Effects of Timber Harvest and Weather on Northern Goshawk Reproduction in Northern Idaho. J. Raptor Res. 43(1):1–10

summer habitat effectiveness include: roads, special features, such as wet sites, riparian areas, movement corridors; cover; domestic livestock; and land ownership patterns (Christensen et at 1993). The presence and use of motorized roads is the major impact on habitat effectiveness (Christensen et at 1993). This analysis also includes motorized trails in the calculation of open motorized route densities (OMRD) (See Appendix D.) For areas intended to benefit summer habitat range and retain high use, habitat effectiveness should be greater than seventy percent (70%) or more. This roughly equates to an open route density of 0.7 miles per square mile (mi/mi^2). For areas where big game is primary resource consideration habitat effectiveness should be fifty percent 50% or greater. This roughly equates to an open route density of 1.9 mi/mi^2.

The four areas that are not meeting State of Idaho big game population objectives are listed below Based on Christensen et at OMRDs less than 0.7 mi/mi^2 would improve summer habitat effectiveness and benefit big game.

We note that the CNF RFP FEIS p3-239) arbitrarily claims that in spite of the Christiansen et al conclusion of 70% habitat effectiveness, a 50% recommendation was made. This resulted in making road density of 1.9 $miles/mi^2$ acceptable, effectively ensuring no areas would be considered to exceed OMRD criteria. This is another example of manipulating baselines to accept degraded conditions rather than correct them. Table 3.73 in the CNF RFP FEIS shows the Diamond Creek geographic area has only 16% security habitat. That was at the time the FEIS was produced and did not count non system roads. A current analysis of habitat security and effectiveness should be conducted across the phosphate patch, watershed by watershed and overall. A Forest Service guide for managing elk habitats and populations provides agency guidance including an elk vulnerability model for determining habitat effectiveness based on open road density; quality, quantity and distribution of cover, forage, and security areas; and livestock use. An elk vulnerability model is used to estimate effects of access and hunter management across elk management units.[70]

Hillis et al. (1991) emphasize the importance of a "valid analysis unit" when measuring elk security, in order to be biologically meaningful.[71] They stated that analysis unit boundaries should be defined by the elk herd home range, and more specifically, by the local herd home-range during the hunting season; typically the hunting season elk herd home range would include the transitional range and at least the upper edge of winter range. They also include numerous references to the requirement of hiding cover in security, in addition to the definition of security in the abstract that each security area must be a nonlinear block of hiding cover.

The H1NDR FEIS, BA and DROD have failed to fully evaluate security habitat/fragmentation and the science of habitat needs.

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[70] Servheen, G., S. Blair, D. Davis, M. Gratson, K. Leidenfrost, B. Stotts, J. White, and J. Bell. 1997. Interagency Guidelines for Evaluating and Managing Elk Habitats and Populations in Central Idaho. Wildlife Bulletin No. 11, Idaho Dept. of Fish and Game. 75p.

[71] Hillis, J. Michael; Thompson, Michael J.; Canfield, Jodie E.; Lyon, L. Jack; Marcum, C. Les; Dolan, Patricia M.; McCleerey, David W. 1991. Defining elk security: the Hillis paradigm. In: Christensen, A. G.; Lyon, L. J.; Lonner, T. N., comps. Proceedings: elk vulnerability symposium; 1991 April 10-12; Bozeman, MT. Bozeman, MT: Montana State University: 38-54.

CLIMATE CHANGE AND CARBON SEQUESTRATION

Our comments on the DEIS (p34 – 35) note a lack of analysis and disclosure of carbon budget, greenhouse gas emissions, carbon sequestration, and climate adaptation. Federal courts have recently ruled against government failures to analyze and disclose cumulative effects relating to climate change. Along with construction and operation of mining activities which remove topsoil and its associated carbon, remove vegetation and its associated carbon, the cumulative effects include:

- Livestock forage consumption and emissions, and associated loss of carbon sequestration in soils
- Loss of carbon storage by timber harvest and thinning across an appropriate cumulative analysis area
- GHG emissions from vehicles, including recreational vehicles and traffic as well as mining related emissions.

The FEIS, ROD and BA fail to address the USFWS National Fish, Wildlife and Plants Climate Adaptation Strategy which describes climate change effects and emphasizes conservation of habitats and reduction of non-climate stressors to help fish and wildlife adapt.[72] As mentioned in our DEIS comments (p34), in recognition of the current and coming changes to climate with longer, drier periods and drought, the FS has implemented a Roadmap to address climate change (USDA Forest Service, 2010b).[73] This roadmap provides guidance, including, but not limited to:

- Assess vulnerability of species and ecosystems to climate change
- Restore resilience
- Promote carbon sequestration
- Connect habitats, restore important corridors for fish and wildlife, decrease fragmentation and remove impediments to species migration.

Yet the agencies fail to cite or adhere to these principles in the FEIS. The agencies approve project after project that further reduces the ability of the land to sequester carbon as an ecosystem service. The agencies are steeped in denial of the consequences of climate change, and of their role in helping to bring it on. Project team members should familiarize themselves with the most recent reports from the Intergovernmental Panel on Climate Change.[74]

A landmark report from the United Nations' scientific panel on climate change paints a much darker picture of the immediate consequences of climate change than previously thought and says that avoiding the damage requires transforming the world economy at a speed and scale that has "no documented historic precedent." The report, issued in 2018 by the Intergovernmental Panel on Climate Change, a group of scientists convened by the United Nations to guide world leaders, describes a world of worsening food shortages and wildfires, and a mass die-off of coral reefs as soon as 2040 - a period well within the lifetime of much of the global population.

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[72] https://toolkit.climate.gov/tool/national-fish-wildlife-and-plants-climate-adaptation-strategy Accessed December 27, 2022

[73] USDA. 2010. National Roadmap for Responding to Climate Change. 30p. www fs.fed.us/climatechange/pdf/roadmap.pdf Accessed December 27, 2022

[74] https://www.ipcc.ch/ Accessed December 27, 2022

The report "is quite a shock, and quite concerning," said Bill Hare, an author of previous I.P.C.C. reports and a physicist with Climate Analytics, a nonprofit organization.[75] "We were not aware of this just a few years ago." The report was the first to be commissioned by world leaders under the Paris agreement, the 2015 pact by nations to fight global warming. The authors found that if greenhouse gas emissions continue at the current rate, the atmosphere will warm up by as much as 2.7 degrees Fahrenheit (1.5 degrees Celsius) above preindustrial levels by 2040, inundating coastlines and intensifying droughts and poverty. Previous work had focused on estimating the damage if average temperatures were to rise by a larger number, 3.6 degrees Fahrenheit (2 degrees Celsius), because that was the threshold scientists previously considered for the most severe effects of climate change. The new report, however, shows that many of those effects will come much sooner at the 2.7- degree mark. The Committee of Scientists (1999) recognize the importance of forests for their contribution to sustainability and contributing to global carbon cycles.[76]

How can this national forest be considered "suitable" for activities that contribute to - rather than reduce—the greatest threat to the Earth's biosphere? The present level of CO2 in Earth's atmosphere is already dangerous and not sustainable under any definition of the word. It is clear that the management of the planet's forests is a nexus for addressing this huge crisis of our times. Yet the FEIS fails to even fully disclose the amount of GHG emissions created by land use plans, project implementation, or to consider the best available science on the topic. The FEIS fails to provide comprehensive estimates of the total amount of CO2 or other greenhouse gas emissions caused by agency management actions and policies—forest wide, regionally, or nationally.

It is feasible to quantify CO2 and other greenhouse gas emissions from several other common human activities related to forest management and recreational uses. These include emissions associated with machines used for logging and associated activities, vehicle use for administrative actions, recreational motor vehicles, and most emissions associated with livestock grazing.

As an example, off-road vehicles in California currently emit more than 230,000 metric tons - or 5000 million pounds - of carbon dioxide into the atmosphere each year.[77] This is equivalent to the emissions created by burning 500,000 barrels of oil. The 26 million gallons of gasoline consumed by off-road vehicles each year in California is equivalent to the amount of gasoline used by 1.5 million car trips from San Francisco to Los Angeles. Off-road vehicles emit considerably more pollution than automobiles. According to the California Air Resources Board, off-road motorcycles and all-terrain vehicles produce 118 times as much smog-forming pollutants as do modern automobiles on a per-mile basis. Emissions from current off-road vehicle use statewide are equivalent to the carbon dioxide emissions from 42,000 passenger vehicles driven for an entire year or the electricity used to power 30,500 homes for one year.

[75] https://climateanalytics.org/ Accessed December 27, 2022
[76] Committee of Scientists, 1999. Sustaining the People's Lands. Recommendations for Stewardship of the National Forests and Grasslands into the Next Century. March 15, 1999.
[77] Kassar, Chris and Paul Spitler, 2008. Fuel to Burn: The Climate and Public Health Implications of Off-road Vehicle Pollution in California. A Center for Biological Diversity report, May 2008.

The amount of fossil fuel being consumed by snowmobiles in Montana was determined by the State Parks and U of Montana.[78] The study finds that resident snowmobilers burn 3.3 million gallons of gas in their snowmobiles each year and a similar amount of fuel to transport themselves and their snowmobiles to and from their destination. Non-residents annually burn one million gallons of gas in snowmobiles and about twice that in related transportation. So that adds up to 9.6 million gallons of fuel consumed in the pursuit of snowmobiling each year in Montana alone. Multiply that by 20 pounds of carbon dioxide per gallon of gas (diesel pickups emit 22 pounds per gallon) and snowmobiling releases 192 million pounds (96 thousand tons) of climate-warming CO2 per year into the atmosphere.

Nitrous oxide, a by-product generated by the microbial breakdown of nitrogen in livestock manure, is a potent greenhouse gas. Also, the digestion of organic materials by livestock is a large source of methane emission—another greenhouse gas. Methane is a far more potent substance than CO2 causing climate change. "Livestock producers, which include meat and dairy farming, account for about 15 percent of greenhouse gas emissions around the world. That's more than all the world's exhaust-belching cars, buses, boats, and trains combined."[79] "the recent rapid rise in global methane concentrations is predominantly biogenic—most likely from agriculture—with smaller contributions from fossil fuel use and possibly wetlands. …Methane mitigation offers rapid climate benefits and economic, health and agricultural co-benefits that are highly complementary to CO2 mitigation."[80]

Kutsch et al. (2010) provide an integrated view of the current and emerging methods and concepts applied in soil carbon research. They use a standardized protocol for measuring soil CO2 efflux, designed to improve future assessments of regional and global patterns of soil carbon dynamics.

The authors state:

> Excluding carbonate rocks, soils represent the largest terrestrial stock of carbon, holding approximately 1,500 Pg (10^{15} g) C in the top metre. This is approximately twice the amount held in the atmosphere and thrice the amount held in terrestrial vegetation. Soils, and soil organic carbon in particular, currently receive much attention in terms of the role they can play in mitigating the effects of elevated atmospheric carbon dioxide (CO2) and associated global warming. Protecting soil carbon stocks and the process of soil carbon sequestration, or flux of carbon into the soil, have become integral parts of managing the global carbon balance. This has been mainly because many of the factors affecting the flow of carbon into and out of the soil are affected directly by land-management practices.[81]

[78] Sylvester, J.T. 2014. Montana Recreation Off-Highway Vehicles – Fuel use and spending patterns 2013. Prepared for: Montana State Parks. Prepared by: Bureau of Business and Economics Research, University of Montana.. 30p.
[79] Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities. Food and Agriculture Organization of the United Nations (FAO), Rome.
[80] Saunois M., R. B. Jackson, P. Bousquet, B. Poulter and J. G. Canadell; 2016a. The growing role of methane in anthropogenic climate change. EDITORIAL Environ. Res. Lett. v11 (2016) 120207.
[81] Kutsch, Werner L. Michael Bahn and Andreas Heinemeyer, Editors, 2010. Soil Carbon Dynamics: An Integrated Methodology. Cambridge University Press 978-0-521-86561-6.

BEST MANAGEMENT PRACTICES

This issue was raised in our DEIS comments (p37 - 38). We questioned reliance on these as we don't see monitoring to determine if they actually produce the claimed result. There is no analysis of prior NEPA processes that provide actual monitoring data and evaluations.

BMPs are "largely procedural, describing the steps to be taken in determining how a site will be managed," but they lack "practical in-stream criteria for regulation of sedimentation from forestry activities." The selection and implementation of BMPs are often "defined as what is practicable in view of 'technological, economic, and institutional consideration." The ultimate effectiveness of the BMPs are therefore impacted by the individual land manager's "value system" and the perceived benefit of protecting the resource values as opposed to the costs of operations. [82] There is a lack of reliable data showing that BMPs are cumulatively effective in protecting aquatic resources from damage.[83] Mere reliance on BMPs in lieu of limiting or avoiding activities that cause aquatic damage serves to increase aquatic damage.[84] Even activities implemented with somewhat effective BMPs still often contribute negative cumulative effects (Ziemer et al. 1991[85], Rhodes et al. 1994[86], Espinosa et al. 1997[87], Beschta et al. 2004[88]).

In analyses of case histories of resource degradation by typical land management (logging, grazing, mining, roads) several of these researchers have concluded that BMPs actually increase watershed and stream damage because they encourage heavy levels of resource extraction under the false premise that resources can be protected by BMPs (Rhodes et al., 1994; Espinosa et al., 1997).

When considering how effective BMPs are at controlling non-point pollution on roads, both the rate of implementation of the practice, and the effectiveness of the practice should be considered. The Forest Service tracks the rate of implementation and the relative effectiveness of BMPs from in-house audits. This information is summarized in the National BMP Monitoring Summary Report[89] with the most recent data being the fiscal years 2013-2014. The rating categories for

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[82] Endicott, D. 2008. National Level Assessment of Water Quality Impairment Related to Forest Roads and Their Prevention by Best Management Practices. Final Report by Great Lakes Environmental Center for U.S. EPA.
[83] Ziemer, R.R., and Lisle, T.E., 1993. Evaluating sediment production by activities related to forest uses--A Northwest Perspective. Proceedings: Technical Workshop on Sediments, Feb., 1992, Corvallis, Oregon. pp. 71-74
[84] Espinosa, F.A., Rhodes, J.J. and McCullough, D.A. 1997. The failure of existing plans to protect salmon habitat on the Clearwater National Forest in Idaho. J. Env. Management 49(2):205-230.
[85] Ziemer, R. R., J. Lewis, T. E. Lisle, and R. M. Rice. 1991b. Long-term sedimentation effects of different patterns of timber harvesting. In: Proceedings Symposium on Sediment and Stream Water Quality in a Changing Environment: Trends and Explanation, pp. 143-150. International Association of Hydrological Sciences Publication no. 203. Wallingford, UK.
[86] Rhodes, J.J., Espinosa, F.A., and Huntington, C., in process. Watershed and Aquatic Habitat Response to the 95-96 Storm and Flood in the Tucannon Basin, Washington and the Lochsa Basin, Idaho. Final Report to Bonneville Power Administration, Portland, Or.
[87] Espinosa, F.A., Rhodes, J.J. and McCullough, D.A. 1997. The failure of existing plans to protect salmon habitat on the Clearwater National Forest in Idaho. J. Env. Management 49(2):205-230.
[88] Beschta, Robert L., Jonathan J. Rhodes, J. Boone Kauffman, Robert E. Gresswell, G. Wayne Minshall, James R. Karr, David A. Perry, F. Richard Hauer and Christopher A. Frissell. 2004. Postfire Management on Forested Public Lands of the Western United States. Conservation Biology, Vol. 18, No. 4, August 2004, Pages 957-967.
[89] Carlson J., Edwards, P., Ellsworth, T., and Eberle, M. 2015. National Best Management Practices Monitoring Summary Report. Program Phase-In Period Fiscal Years 2013 – 2014. USDA Forest Service. 42p.

implementation are "fully implemented," "mostly implemented," "marginally implemented," "not implemented," and "no BMPs." "No BMPs" represents a failure to consider BMPs in the planning process. More than a hundred evaluations on roads were conducted in FY2014. Of these evaluations, only about one third of the road BMPs were found to be "fully implemented" (p 12). The monitoring audit also rated the relative effectiveness of the BMP. The rating categories for effectiveness are "effective," "mostly effective," "marginally effective," and "not effective." "Effective" indicates no adverse impacts to water from project or activities were evident. When treated roads were evaluated for effectiveness, almost half of the road BMPs were scored as either "marginally effective" or "not effective".

A recent technical report by the Forest Service entitled, "Effectiveness of Best Management Practices that Have Application to Forest Roads: A Literature Synthesis", summarized research and monitoring on the effectiveness of different BMP treatments.[90] They found that while several studies have found some road BMPs are effective at reducing delivery of sediment to streams, the degree of each treatment has not been rigorously evaluated. Few road BMPS have been evaluated under a variety of conditions, and much more research is needed to determine the site-specific suitability of different BMPs.

Another study cites several reasons for why BMPs may not be as effective as commonly represented. Most watershed-scale studies are short-term and do not account for variation over time, sediment measurements taken at the mouth of a watershed do not account for in-channel sediment storage and lag times, and it is impossible to measure the impact of individual BMPs when taken at the watershed scale. When individual BMPs are examined, there is rarely broad-scale testing in different geologic, topographic, physiological, and climatic conditions. Finally, in some instances, a single study is used to justify the use of a BMP across multiple states without adequate testing.[91]

Climate change will further put into question the effectiveness of many road BMPs (Edwards et al., 2016). While the impacts of climate will vary from region to region, more extreme weather is expected across the country which will increase the frequency of flooding, soil erosion, stream channel erosion, and variability of streamflow.[92] BMPs designed to limit erosion and stream sediment for current weather conditions may not be effective in the future. Edwards et al., 2016 state, "More-intense events, more frequent events, and longer duration events that accompany climate change may demonstrate that BMPs perform even more poorly in these situations. Research is urgently needed to identify BMP weaknesses under extreme events so that refinements, modifications, and development of BMPs do not lag behind the need."

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[90] Edwards, P.J., F. Wood, and R. L. Quinlivan. 2016. Effectiveness of best management practices that have application to forest roads: a literature synthesis. General Technical Report NRS-163. Parsons, WV: U.S. Department of Agriculture, Forest Service, Northern Research Station. 171 p.

[91] Edwards, P.J., F. Wood, and R. L. Quinlivan. 2016. Effectiveness of best management practices that have application to forest roads: a literature synthesis. General Technical Report NRS-163. Parsons, WV: U.S. Department of Agriculture, Forest Service, Northern Research Station. 171 p.

[92] Furniss, Michael J.; Staab, Brian P.; Hazelhurst, Sherry; Clifton, Cathrine F.; Roby, Kenneth B.; Ilhadrt, Bonnie L.; Larry, Elizabeth B.; Todd, Albert H.; Reid, Leslie M.; Hines, Sarah J.; Bennett, Karen A.; Luce, Charles H.; Edwards, Pamela J. 2010. Water, climate change, and forests: watershed stewardship for a changing climate. Gen. Tech. Rep. PNW-GTR-812. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 75 p.

Comprehensive monitoring of the effectiveness of BMPs in achieving water quality standards does not demonstrate that the BMPs are protecting water quality, nor does it undermine the abundant evidence that stormwater infrastructure along roads continues to deposit large quantities of sediment into rivers and streams. Even as new information becomes available about BMP effectiveness, many states do not update their BMPs, and some states have retained BMPs that have been discredited for some time. BMPs are "largely procedural, describing the steps to be taken in determining how a site will be managed," but they lack "practical in-stream criteria for regulation of sedimentation from forestry activities." The selection and implementation of BMPs are often "defined as what is practicable in view of 'technological, economic, and institutional consideration.'" The ultimate effectiveness of the BMPs are therefore impacted by the individual land manager's "value system" and the perceived benefit of protecting the resource values as opposed to the costs of operations.[93]

As we have pointed out the proposed monitoring provided in the H1NDR FEIS doesn't ensure BMPs will prevent pollution from project actions from exceeding levels inconsistent with the Clean Water Act and other laws and regulations, state and federal. As we have also pointed out, the presence of CERCLA sites across the phosphate patch is evidence these BMPs and EPMs have suffered catastrophic failure.

SCIENTIFIC INTEGRITY

Validity of modeling utilized by agency analyses was discussed in our DEIS comments (p43 – 44). We reiterate that the presence of contaminated surface, groundwater, soil, and vegetation throughout the phosphate patch is prima facie evidence that models and BMPs are not working and cannot be relied upon.

The FEIS does not disclose the statistical reliability of the data the agencies relied upon for the analyses. Since "an instrument's data must be reliable if they are valid". [94] This means data input to a model must accurately measure that aspect of the world it is claimed to measure, or else the data is invalid for use by that model. Also, "if available data are poor quality or fail to adequately describe variables critical to the habitat requirements of a species, then only poor quality outputs will result. Thus, obtaining quality input data is paramount in modeling activities."[95] "Although the presence of sampling error in habitat attribute data gathered in the field is well known, the measurement error associated with remotely sensed data and other GIS databases may not be as widely appreciated."[96] Huck (2000) states:

[93] Endicott, D. 2008. National Level Assessment of Water Quality Impairments Related to Forest Roads and Their Prevention by Best Management Practices – Final Report (Prepared for the U.S. Environmental Protection Agency, Office of Water, Office of Wastewater Management Permits Division) (Contract No. EP-C-05-066, Task Order 002).
[94] Huck, Schuyler W., 2000. Reading Statistics and Research (3rd Edition). New York: Longman, 2000.
[95] Beck, Jeffrey L., and Lowell H. Suring. 2011. Wildlife-Habitat Relationships Models: Description and Evaluation of Existing Frameworks. Chapter 10 in Millspaugh, Joshua & Frank R. Thompson (Editors), 2011. Models for Planning Wildlife Conservation in Large Landscapes. Academic Press.
[96] Larson, Michael A., Joshua J. Millspaugh, and Frank R. Thompson. 2011. A Review of Methods for Quantifying, Wildlife Habitat in Large Landscapes. Chapter 9 in Millspaugh, Joshua & Frank
R. Thompson (Editors), 2011. Models for Planning Wildlife Conservation in Large Landscapes. Academic Press.

> The basic idea of reliability is summed up by the word consistency. Researchers can and do evaluate the reliability of their instruments from different perspectives, but the basic question that cuts across these various perspectives (and techniques) is always the same: "To what extent can we say the data are consistent?" …(T)he notion of consistency is at the heart of the matter in each case.
>
> …(R)eliability is conceptually and computationally connected to the data produced by the use of a measuring instrument, not to the measuring instrument as it sits on the shelf.

During litigation of a timber sale on the Kootenai National Forest (CV-02-200-M-LBE, Federal Defendants Response to Motion for Preliminary Injunction), the FS criticized a report provided by plaintiffs, stating "(Its) purported 'statistical analysis' reports no confidence intervals, standard deviations or standard errors in association with its conclusions." As Huck (2000) states, the issue of "standard deviations or standard errors" that the Forest Service raised in the context of that litigation relates to the reliability of the data, which in turn depends upon how well-trained the data-gatherers are with their measuring tools and measuring methodology. In other words, different measurements of the same phenomenon must result in numbers that are very similar to result in small "standard deviations or standard errors" and thus high reliability coefficients, which in turn provide the public and decisionmakers with an idea of how confident they can be in the conclusions drawn from the data. The U.S. Department of Agriculture Office of the Chief Information Officer provides guidance on accuracy of information and integrity of data.[97]

The next level of scientific integrity is the notion of "validity." So even if data input to its models are reliable, a question remains of the analysis and modeling methodology validity. In other words, are the models scientifically appropriate for the uses for which the agencies are utilizing them? As Huck (2000) explains, the degree of "content validity," or accuracy of the model or methodology is established by utilizing other experts. This, in turn, demonstrates the necessity for utilizing the peer review process. The FEIS does not disclose the limitations of all models the analyses rely upon, which begins to address model validity. Model results can be no better than the data fed into them, which is why data reliability is important. The Ninth Circuit Court of Appeals has declared that agencies must disclose the limitations of their models in order to comply with NEPA. The FEIS fails to adequately address such limitations. The FEIS uses models without any real indication as to how much they truly reflect reality.

In the Clear Creek Integrated Restoration Project FEIS[98], the Nez Perce-Clearwater NF defines "model" as "a theoretical projection in detail of a possible system of natural resource relationships. A simulation based on an empirical calculation to set potential or outputs of a proposed action or actions." (FEIS at G-14.) "Empirical - 1. a. Relying on or derived from observation or experiment: empirical results that supported the hypothesis. b. Verifiable or provable by means of observation or experiment: empirical laws. 2. Guided by practical experience and not theory, especially in medicine."[99]

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[97] USDA Office of Chief Information Officer https://www.usda.gov/ocio Accessed December 28, 2022
[98] https://www.fs.usda.gov/detail/nezperceclearwater/news-events/?cid=FSEPRD486741
[99] https://www.thefreedictionary.com/empirical Accessed December 28, 2022

So, models are "theoretical" in nature and the agency implies that they are somehow based in data, observation or experiment that support the hypotheses of the models. "Any approach to ecological modelling has little merit if the predictions cannot be, or are not, assessed for their accuracy using independent data."[100] This corresponds directly to the concept of "validity" as discussed by Huck (2000): "(A) measuring instrument is valid to the extent that it measures what it purports to measure."

However, there is no evidence that the agencies have performed validation of any the models for the way they were used. There is no documentation of someone using observation or experiment to support the model hypotheses. Dr. Carter worked in the oil shale and mining industry and notes that processed shale experiments were carried out by the oil industry to actually measure the performance of covers thru direct experimentation in model disposal sites. We have seen no such experimentation or model validation for the SE Idaho phosphate industry. This results in these designs being experiments, or trial and error, as demonstrated by the lack of monitoring of BMPs and EPMs, model validation, and the resulting contamination and loss of habitat.

As Huck, (2000) explains, the degree of "content validity," or accuracy of the model or methodology is established by utilizing other experts. This, in turn, demonstrates the necessity for utilizing the peer review process. The validity of the various models utilized in the FEIS's analyses have, by and large, not been established for how they were utilized. No studies are cited which establishes their content validity, and no independent expert peer review process of the models has occurred.

Regarding use of the HEA process to predict habitat values for mitigation, we have not seen any monitoring sufficient to model the habitat use by wildlife in the phosphate patch. The mines do not provide annual monitoring data for wildlife populations using different habitats. The example above for the 28 seeps that will be lost or reduced did not provide any wildlife data for the use of those seeps, data that we collect at Kiesha's Preserve using trail cameras.

Habitat models are developed to satisfy a variety of objectives. A basic objective of most habitat models is to predict some aspect of a wildlife population (e.g., presence, density, survival), so assessing predictive ability is a critical component of model validation. This requires wildlife-use data that are independent of those from which the model was developed. It is informative not only to evaluate model predictions with new observations from the original study site but also to evaluate predictions in new geographic areas.[101]

A forest plan monitoring and evaluation report for the Idaho Panhandle National Forest provides an example of the agency acknowledging the problems of data that is old and incomplete, leading to the limitation of models typically used for wildlife analyses for old- growth wildlife habitats: "Habitat modeling based on the timber stand database has its limitations: the data are,

[100] Verbyla, D.L. & Litaitis, J.A. (1989) Resampling methods for evaluating classification accuracy of wildlife habitat models. Environmental Management 13: 783–7.
[101] Larson, Michael A., Joshua J. Millspaugh, and Frank R. Thompson. 2011. A Review of Methods for Quantifying, Wildlife Habitat in Large Landscapes. Chapter 9 in Millspaugh, Joshua & Frank R. Thompson (Editors), 2011. Models for Planning Wildlife Conservation in Large Landscapes. Academic Press.

on average, 15 years old; canopy closure estimates are inaccurate; and data do not exist for the abundance or distribution of snags or down woody material…" In this case, the expert believed the data were unreliable, so the usefulness or applicability of the model - its validity - is limited.[102] "It is important to realize that all models greatly simplify complex processes and that the numbers generated by these models should be interpreted in light of field observations and professional judgement." (pIII-77.)[103] Beck and Suring, 2011[104] state:

> Developers of frameworks have consistently attained scientific credibility through published manuscripts describing the development or applications of models developed within their frameworks, but a major weakness for many frameworks continues to be a lack of validation. Model validation is critical so that models developed within any framework can be used with confidence. Therefore, we recommend that models be validated through independent field study or by reserving some data used in model development.

Leonard Ruggiero, a scientist from the research branch of the FS recognized a fundamental need to demonstrate the proper use of scientific information, in order to overcome issues of decision-making integrity that arise from bureaucratic inertia and political influence.[105] Ruggiero, 2007 and Sullivan et al., 2006[106] provide a commentary on the scientific integrity and agency use and misuse of science.

The USDA Committee of Scientists recommend "independent scientific review of proposed conservation strategies…"[107] The interpretation of scientific information in the FEIS analyses we cite is problematic as we discussed throughout our comments and this objection. A big problem is that scientific information we cited was ignored or dismissed without discussion. The Committee of Scientists recommend that to ensure the development of scientifically credible conservation strategies, the Committee recommends a process that includes (1) scientific involvement in the selection of focal species, in the development of measures of species viability and ecological integrity, and in the definition of key elements of conservation strategies; (2) independent scientific review of proposed conservation strategies before plans are published; (3) scientific involvement in designing monitoring protocols and adaptive management; and (4) a

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[102] USDA Forest Service, 2000c. Forest Plan Monitoring and Evaluation Report for 1998. Idaho Panhandle National Forests

[103] USDA Forest Service, 1994. Savant Sage Final Environmental Impact Statement, Idaho Panhandle National Forests

[104] Beck, Jeffrey L., and Lowell H. Suring. 2011. Wildlife-Habitat Relationships Models: Description and Evaluation of Existing Frameworks. Chapter 10 in Millspaugh, Joshua & Frank R. Thompson (Editors), 2011. Models for Planning Wildlife Conservation in Large Landscapes. Academic Press.

[105] Ruggiero, Leonard F.; 2007. Scientific Independence: A Key to Credibility. From ECO-Report 2007: Bitterroot Ecosystem Management Research Project, Rocky Mountain Research Station, 800 E. Beckwith St., Missoula, MT 59801.

[106]Sullivan, Patrick J.; James M. Acheson; Paul L. Angermeier; Tony Faast; Jean Flemma; Cynthia M. Jones; E. Eric Knudsen; Thomas J. Minello; David H. Secor; Robert Wunderlich; Brooke A. Zanetell; 2006. Defining and Implementing Best Available Science for Fisheries and Environmental Policy, and Management. American Fisheries Society, Bethesda, Maryland; Estuarine Research Federation, Port Republic, Maryland. September 2006

[107] USDA. 1999. Sustaining the People's Lands. Recommendations for Stewardship of the National Forests and Grasslands into the next century. Committee of Scientists. March 15,1999.

national scientific committee to advise the Chief of the Forest Service on scientific issues in assessment and planning.

The FS prepared Guldin et al. (2003)[108] which:

> ...outlines a process called the science consistency review, which can be used to evaluate the use of scientific information in land management decisions. Developed with specific reference to land management decisions in the U.S. Department of Agriculture Forest Service, the process involves assembling a team of reviewers under a review administrator to constructively criticize draft analysis and decision documents. Reviews are then forwarded to the responsible official, whose team of technical experts may revise the draft documents in response to reviewer concerns. The process is designed to proceed iteratively until reviewers are satisfied that key elements are consistent with available scientific information.

Sorry to say, none of the above has been observed in the NEPA process for H1NDR.

GENERAL FAILURES OF LAW AND REGULATION

Throughout our comments and this objection, we have pointed out problems and failures within the DEIS, FEIS, DROD and BA as well as the CNF RFP and the Pocatello ARMP. What appears to us is that the project proponents (agencies included) have managed the Forest and public lands into a situation where there are almost no constraints on development with disastrous results for plants, animals, water quality, air quality, soils, vegetation, and quiet environments. This is a total failure of the regulations to actually control pollution and environmental degradation.

NEPA: We have outlined many failures of the agencies to take the requisite "hard look" ranging from reliance on BMPs, EPMs, and models without validation monitoring to no monitoring of population viability, trends in populations and habitat condition, connectivity, and security habitat. Unproven covers for overburden are put in place. Questionable models are used for evaluating surface and groundwater conditions, and HEAs. Cumulative effects analyses are incomplete, limited in scope and extent, and do not capture the effects of the habitat degradation across the phosphate patch and to the Regionally Significant Corridor or linkage habitat. There is a lack of effective alternatives to eliminate the intentional pollution of surface and groundwater, restore habitat, reduce road density, and truly mitigate mining impacts. Impact to groundwater from all the active and inactive mines in the phosphate mining region is not addressed in a comprehensive manner, and with surface waters already admittedly polluted with beneficial uses not being served, proper consideration of further incremental impacts should lead to denial of a permit. There was no alternative that would tap into the huge profits to conduct landscape restoration in this region, necessary because of the well-recognized destruction by other mines and developments. The agencies fail to properly specify mitigation or, where it was

[108] Guldin, James M., David Cawrse, Russell Graham, Miles Hemstrom, Linda Joyce, Steve Kessler, Ranotta McNair, George Peterson, Charles G. Shaw, Peter Stine, Mark Twery, Jeffrey Walter. 2003b. Science Consistency Reviews: A Primer for Application. United States Department of Agriculture Forest Service FS-771, September 2003.

prescribed, analyze its effectiveness. Costs are externalized and only a model (HEA) of supposed values lost from the directly disturbed areas is considered, or monetary compensation to the Army Corps of Engineers is used for destroyed wetlands, which do not appear to have been completely identified in area or extent (28 dewatered or destroyed springs/seeps). These do not mitigate the site-specific impacts.

NFMA: The mining activities would impede the attainment of all applicable ecological Forest Plan goals, objectives, and desired conditions. Forest Plan commitments are not addressed as described in detail in our DEIS comments Attachment 2 (commitments made re the 2003 Revised Forest Plan of the Caribou National Forest). There is inadequate assurance of viability and assessment of population trends for Threatened and Proposed species, Sensitive and other special status species, migratory birds, habitat capability and suitability. The Revised Caribou Forest Plan fully incorporates the 1982 NFMA planning regulations regarding viability, including monitoring of management indicator species population trends in relation to habitat changes.

We note the ongoing approval of project after project in SE Idaho while the ongoing damage from previously approved actions such as roads, livestock grazing, motorized recreation, and stream diversions continue as if there is no limit to the ability of the system to absorb them. There is no consideration of habitat connectivity between wildlife populations/subpopulations, or restoration of habitat fragmentation and habitat capability in order to provide for viable populations of at-risk species. There is no analysis of wildlife populations, habitat and trends following initiation of mining.

The project is so inconsistent with the CNF RFP that amendments and Special Use Authorizations are needed. This is a typical situation for each of the mines we have reviewed. Land Use Plans are ineffective.

FLPMA: FLPMA (as well as NFMA) incorporates language from the Multiple Use and Sustained Yield Act stating: "…coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." 43 USC 1702(c).

The agencies fail to demonstrate how the project is consistent with BLM's Pocatello Resource Management Plan requirement to provide for a "balanced combination of resource protection and resource use that would provide benefits for the broadest range of public uses." We included Attachment 1 to our DEIS comments outlining numerous provisions of the ARMP which remain unaddressed. For example, whereas mining invokes loss of attributes such as productive topsoil, the RMP includes:

> Goal GE-3. Provide for proper nutrient cycling, hydrological cycling and energy flow consistent with multiple use management and sustained productivity.
> Objective GE-3.1. Restore or improve the public lands adversely affected by major surface disturbance resulting from activities such as but not limited to mineral and

energy development, wildland fire, and ROW development.

Violations of the BLM's Plan are invoked since groundwater and surface water pollution will continue for decades to centuries or permanently. And there is no analysis of the lost values (given the permanent adverse effects) of the public and private lands to present and future generations for their inherent benefits including water supply, fish and wildlife, and recreation. The agencies also do not address or incorporate the results of required land management plan implementation monitoring, which invokes violations of NEPA (cumulative effects and/or analysis and disclosure of important relevant facts) as well as violations of NFMA and FLMPA.

CWA: We have pointed out in this objection and our DEIS comments the numerous flaws in project design and monitoring that will perpetuate surface and groundwater pollution by COPCs and sediment, destruction and dewatering of streams, springs, riparian and wetland habitats. In many cases these losses will be permanent with no assurance that BMPs, EPMs will provide protection and mitigation. The FEIS doesn't provide an analysis explaining why, in nearby waters pollution has occurred from toxic mine waste beyond the levels predicted in NEPA documents while proposing covers that will inherently result in continued pollution. Mitigation methods set in the FEIS cannot be trusted to protect water quality.

CAA: There is no site-specific baseline for PM and COPCs, while reliance is placed on BMPs and EPMs that are not monitored to determine their effectiveness. There is no site-specific monitoring of PM and COPC emissions to validate that BMPs and EPMs work or that models suffice.

ESA: The intent of the ESA is set aside due to agency "discretion" and lack of enforceable standards to protect and restore habitat for Canada lynx and proposed American wolverine. The FWS consultation is essentially rubber stamping a Biological Assessment that did not analyze the actual reasons why lynx and wolverine are no longer found in SE Idaho. Population observations are manipulated to make it appear that SE Idaho and the Regionally Significant Wildlife Corridor were never "occupied", while dismissing a century of observation by knowledgeable observers. There are no recovery or protection mechanisms and the CNF RFP FEIS process for assessing connectivity is ignored (the last line of defense for corridor habitat given that the NRLMD fails to protect linkage habitat). The relationship of this project to the nearby Canada lynx critical habitat (CH) and the effect of the loss of connectivity to/from the CH is not addressed. This also is a lack of compliance with NEPA, NFMA and FLPMA.

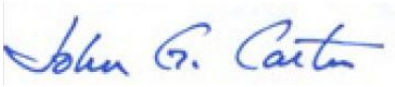
APA: The DROD flows from an arbitrary and capricious set of evaluations and determinations that do not flow from the requisite attention to the other laws and regulations, lack a hard look and accurate cumulative effects analysis, force an extraction-driven outcome and continue a lack of regulatory accountability.

REMEDY

We request the FS and BLM select and implement the No Action alternative. Further compromising increasingly rare and roadless landscapes including the Regionally Significant Wildlife Corridor by facilitating further degradation of our national forest is ecologically unacceptable. The FS should be proposing strategic restoration in these landscapes, where management impacts have already compromised habitats for rare and sensitive species of conservation concern.

In the alternative, the FS and BLM must prepare a Supplemental Environmental Impact Statement to address the scientific concerns and legal and regulatory deficiencies we've identified in this Objection.

Objection respectfully submitted:



John Carter
Yellowstone to Uintas Connection
[redacted]

And For:
Michael Garrity – Executive Director
Alliance for the Wild Rockies
[redacted]

And For:
Sara Johnson – Executive Director
Native Ecosystems Council
[redacted]

And For:
Buck Ryan
Snake River Waterkeeper
[redacted]

And For:
Katie Fite - Public Lands Director
WildLands Defense
[redacted]