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Re: Kootenai Over-snow Motorized Use Travel Plan

On behalf of WildEarth Guardians, Alliance for the Wild Rockies, and the Yaak Valley Forest Council please accept these comments on the scope of the proposed action described in the July, 2023 Kootenai National Forest Over-snow Motorized Use Travel Plan Scoping Packet (Scoping). For reasons explained below, we urge the Forest Service to consider a reasonable range of alternatives that maximizes wildlife protection, and restricts winter motorized use in inventoried roadless areas, recognizing that the Forest Plan identified significant portions of these areas as suitable for OSV use.[1] Such protections are crucial for a variety of species, including grizzly bear, Canada lynx, wolverine, and big game such as mountain goat and bighorn sheep. Given the size, scope, and duration of the proposed action, we urge the agency to prepare an environmental impact statement, especially given the fact that what the agency proposes represents a major federal action that will have significant impacts necessitating a hard look at the potential environmental consequences as NEPA requires.

The Forest Service explains the project's overall purpose "is to designate over-snow areas and trails for over-snow motor vehicle use on the Kootenai National Forest that is consistent with and achieves the purposes of both the travel management regulations at 36 CFR 212 subpart C and the Kootenai Land and Management Plan (forest plan)." Scoping at 2. Specifically, the Forest Service proposes to designate "1,257,633 acres and 642 miles open to cross country over-snow vehicle use," of which, "[a]pproximately 278,000 acres will be available for cross country travel from December 1 to March 31, and then approximately 979,000 acres will be available for cross country travel from December 1 to May 31." *Id.* at 3. We question if it is appropriate to designate nearly 78 percent of the proposed acres as available through May for cross-country travel given the likelihood of declining levels of snowpack predicted due to the increasing effects of the climate crisis, which will likely expose soils and vegetation to damage from OSVs. The Forest Service must disclose and discuss current and predicted trends in snowpack levels and explain how late-season cross-country travel will comply with the minimization criteria under the Travel Management Rule (TMR). One key variable the agency must consider is the level of noise disturbance OSVs produce and how that

[1] Per the 2015 Revised Forest Plan, there are 248,687 acres of Inventoried Roadless Areas available for OSV designation. *See* "Errata for the Final Environmental Impact Statement and Kootenai National Forest Land Management Plan" at Table 318, (combining MA5b, MA5c & MA 6 under the selected alternative, Alt B Modified2).

affects habitat quality for sensitive and at-risk species. We provide examples of how the agency may conduct this analysis in our comments below.

We do recognize the Forest Service has taken some steps to protect wintering wildlife and threatened species such as grizzly bears and whitebark pine. In fact, we strongly support protecting maternal and primary wolverine denning habitat as described in the proposed action and delineating high and medium quality grizzly bear denning habitat based on the best available science such as that found in Bader & Sieracki, 2022.[2] We urge the Forest Service to build upon these steps to protect sensitive and at risk species, and roadless characteristics, which we explain more fully in our comments below.

I. The Forest Service must conduct travel analysis to inform its proposed action.

Current Forest Service directives governing travel management planning require the agency to conduct travel analysis to inform its decision-making.[3] Travel analysis must be completed prior to formulation of a proposed action and should "form the basis for proposed actions related to designation of roads, trails, and areas for motor vehicle use."[4] More specifically, travel analysis is designed to "[i]dentify management opportunities and priorities[,] formulate proposals for changes[,] . . . [c]ompare motor vehicle use . . . with desired conditions established in the applicable land management plan, and describe options for modifying the forest transportation system that would achieve desired conditions."[5] Rather than conduct travel analysis, it appears the Forest Service skipped this critical step in the process. Such an omission further exemplifies the need for the agency to conduct detailed environmental analysis in a manner that will appropriately identify where OSV use may meet the minimization criteria in areas identified as suitable for OSV use.

II. The Forest Service must demonstrate in the record how it applied the minimization criteria to minimize impacts when designating each area and trail open to OSV use.

A. Background

In response to the growing use of dirt bikes, snowmobiles, all-terrain vehicles, and other off-road vehicles (ORVs) and the corresponding environmental damage, social conflicts, and public safety concerns, Presidents Nixon and Carter issued Executive Orders 11,644 and 11,989 in 1972 and 1977, respectively, requiring federal land management agencies to plan for ORV use based on

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[2] Michael Bader and Paul Sieracki "Grizzly Bear Denning Habitat and Demographic Connectivity In Northern Idaho and Western Montana," Northwestern Naturalist 103(3), 209-225, (17 November 2022). https://doi.org/10.1898/NWN21-17

[3] See generally Forest Service Handbook (FSH) 7709.55, chs. 10 & 20; Forest Service Manual (FSM) 7712 & 7715.

[4] FSH 7709.55, §§ 13(3) & 21.6; FSM 7715.03(2).

[5] FSH 7709.55, § 21.5.

protecting resources and other uses.[6] When designating areas or trails available for ORV use, agencies must locate them to:

1. minimize damage to soil, watershed, vegetation, or other resources of the public lands;
2. minimize harassment of wildlife or significant disruption of wildlife habitats; and
3. minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands.[7]

The Forest Service codified these "minimization criteria" in subparts B and now C of its travel management regulations.[8] The agency has struggled, however, to properly apply the criteria in its travel management decisions, leading to a suite of federal court cases invalidating Forest Service travel management plans.[9] Collectively, these cases confirm the Forest Service's substantive legal obligation to meaningfully apply and implement – not just identify or consider – the minimization criteria when designating each area and trail, and to show in the administrative record how it did so.

It has been over four decades since President Nixon first obligated the Forest Service to minimize impacts associated with OSV use, including snowmobiles. Yet the agency has systematically failed to do so. In the meantime, irresponsible and mismanaged OSV use continues to degrade soil, air, and water quality, threaten imperiled wildlife species, and diminish the experience of the majority of public lands visitors who enjoy the natural landscape through quiet, non-motorized forms of recreation. This is especially true now given the growth in OSV technology and use, and declining snowpack from changing climate conditions.

The following discussion describes in more detail how the Forest Service must apply the minimization criteria to designate areas and trails for OSV use that minimize impacts to vulnerable wildlife and the majority of national forest visitors seeking to enjoy nature free from noise and pollution.

B. Proper application of the minimization criteria.

The executive orders require the Forest Service to minimize impacts – not just identify or consider them – when designating areas or trails for OSV use, and to demonstrate in the administrative record how it did so. Importantly, efforts to *mitigate* impacts associated with a designated OSV

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[6] Exec. Order No. 11,644, 37 Fed. Reg. 2877 (Feb. 8, 1972), as amended by Exec. Order No. 11,989, 42 Fed. Reg. 26,959 (May 24, 1977).
[7] *Id.* § 3(a).
[8] 36 C.F.R. §§ 212.55, 212.81(d).
[9] *See Friends of the Clearwater v. U.S. Forest Serv.*, No. 3:13-CV-00515-EJL, 2015 U.S. Dist. LEXIS 30671, at *37-52 (D. Idaho Mar. 11, 2015); *The Wilderness Soc'y v. U.S. Forest Serv.*, No. CV08-363-E-EJL, 2013 U.S. Dist. LEXIS 153036, at *22-32 (D. Idaho Oct. 22, 2013); *Cent. Sierra Envtl. Res. Ctr. v. U.S. Forest Serv.*, 916 F. Supp. 2d 1078, 1094-98 (E.D. Cal. 2012); *Idaho Conservation League v. Guzman*, 766 F. Supp. 2d 1056, 1071-74 (D. Idaho 2011); *WildEarth Guardians v. Mont. Snowmobile Ass'n*, 790 F.3d 920, 929-933 (9th Cir. 2015).

system are insufficient to fully satisfy the duty to *minimize* impacts, as specified in the executive orders.[10]

Thus, application of the minimization criteria should be approached in two steps: first, the agency locates areas and trails to minimize impacts, and second, the agency establishes site-specific management actions to further reduce impacts. Similarly, the Forest Service may not rely on compliance with the relevant forest plan as a proxy for application of the minimization criteria because doing so conflates separate and distinct legal obligations. To satisfy its substantive duty to minimize impacts, the Forest Service must apply a transparent and common-sense methodology for meaningful application of each minimization criterion to each area and trail being considered for designation. That methodology must include several key elements.

First, proper application of the minimization criteria is not solely an office exercise. Rather, the Forest Service must get out on the ground, gather site-specific information, and actually apply the criteria to minimize resource damage and user conflicts associated with each designated area and trail.[11]

Second, effective application of the minimization criteria must include meaningful opportunities for public participation and input early in the planning process.[12] This includes during the travel analysis process, that the Forest Service skipped for this planning process. In many cases, public lands users and other stakeholders are the best source of information for identifying resource concerns and conflicts among existing and proposed recreational uses. We recognize the Forest Service conducted a robust internal process in developing its screening process meant to ensure compliance with the minimization criteria.[13] Yet, had the agency conducted travel analysis with an opportunity for public participation, the proposed action may have looked quite different, especially as it relates to wildlife habitat protection, minimizing recreational use conflicts and management of Inventoried Roadless Areas. Please note an important consideration, there is a clear difference between use and user conflict, where the latter focuses on recreational preferences people may have while the former

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[10] *See* Exec. Order 11,644, § 3(a) ("Areas and trails shall be *located* to minimize" impacts and conflicts.) S*ee also Friends of the Clearwater*, 2015 U.S. Dist. LEXIS 30671, at *46 ("Merely concluding that the proposed action is consistent with the Forest Plan does not . . . satisfy the requirement that the Forest Service provide some explanation or analysis showing that it considered the minimizing criteria and took some action to minimize environmental damage when designating routes."). *See also WildEarth Guardians v. U.S. Forest Service,* 790 F.3d 920, 931 (9th Cir. 2015) ("What is required is that the Forest Service document how it evaluated and applied the data on an area-by-area basis with the objective of minimizing impacts as specified in the TMR.") (emphasis added). See also *id.* at 932 ("consideration" of the minimization criteria is insufficient; rather, the agency "must apply the data it has compiled to show how it designated areas open to snowmobile use 'with the objective of minimizing'" impacts).

[11] *See*, e.g., *Idaho Conservation League*, 766 F. Supp. 2d at 1074-77 (invalidating travel management plan that failed to utilize monitoring and other site-specific data showing resource damage).

[12] 36 C.F.R. § 212.52(a).

[13] *See* "Kootenai National Forest Over-snow Motorized Use Travel Plan Draft Minimization Criteria Screening" (hereafter "Screening Criteria").

rightly focuses on conflict of management direction. In some cases, we have seen the agency dismiss conflict of recreational uses as merely a difference of recreational preferences and caution the Forest Service against this position in any subsequent analysis.

Third, application of the minimization criteria should be informed by the best available scientific information and associated strategies and methodologies for minimizing impacts to particular resources.[14] It is well established that OSV use damages exposed soils and vegetation, and can harm water quality, especially early or late in the season where there is a likelihood of inadequate snow levels.[15] It may also occur where wind exposes soil and vegetation.[16] OSV use can cause significant damage to browse plants important to wildlife. As snow is compacted, the soil temperature can be reduced, and soil microbial activity and germination of seeds can be slowed. Compacted snow can lead to wet and soft trails due to slower snow melt, ultimately leading to damage by other users in the spring. OSVs that run over or near vegetation damage trees and shrubs by tearing at the bark, ripping off branches, or topping trees. Off-road vehicles—including OSVs—are designed to, and do, travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. Plus, fuel leaks and exhaust from OSV use also negatively impacts soil quality and vegetative health.

Further, OSV use can have significant adverse impacts on wildlife by increasing stress at a time when animals are highly vulnerable, facilitating competition, causing displacement and avoidance, and effectively reducing the amount of available habitat because species avoid motorized vehicles.[17] The Kootenai NF is home to grizzly bears, wolves, Canada lynx, North American wolverine, black bear, as well as many "big game" species like bighorn sheep, mountain goat, Rocky Mountain elk, and moose. Harmful impacts from winter motorized use can be significant, especially where specific trails cut through wildlife habitat. Studies show that snowmobile use causes both a physiological and behavioral response to wildlife.[18] The Forest Service's analysis should clearly disclose how the winter motorized use designations proposed in each alternative will minimize harassment of wildlife, disruption of wildlife habitat, and disruption of solitude. While the minimization criteria screening report includes several provisions for minimizing OSV caused disturbance to a range of wildlife species, the Forest Service failed to account for noise disturbance along designated trails or in areas. Based on this information, the Forest Service must show how its proposed action located OSV designations to minimize those impacts.

[14] *See Friends of the Clearwater*, 2015 U.S. Dist. LEXIS 30671, at *24-30, 40-52 (invalidating trail designations that failed to consider best available science on impacts of motorized trails on elk habitat effectiveness or to select trails with the objective of minimizing impacts to that habitat and other forest resources).
[15] *See* Exhibit 1 at 9-10
[16] *Id.* at 9.
[17] *Id.* at 14-17.
[18] *Id.*

Fourth, proper application of the minimization criteria must address both site-specific and larger-scale impacts.[19] For example, the Forest Service must assess and minimize landscape-scale impacts such as habitat fragmentation; cumulative noise, and air and water quality impacts; and degradation of roadless character, along with an evaluation of quiet recreation opportunities. The agency also must assess and minimize site-specific impacts to soils, vegetation, water, and other public lands resources, sensitive wildlife habitat, and important areas for non-motorized recreation.

Fifth, the Forest Service should account for predicted climate change impacts in its application of the minimization criteria and designation decisions. Already, climate change is leading to reduced and less reliable snowpack and increasing the vulnerability of wildlife, soils, and water resources to disturbance, compaction, and pollution impacts associated with OSV use.

Sixth, application of the minimization criteria must take into account available resources for monitoring and enforcement of the designated system.[20] To ease enforcement obligations and ensure user compliance in the first place, OSV designation decisions should establish clear boundaries and simple, consistent restrictions designed to minimize resource damage and conflicts of recreational uses. For example, the Forest Service must avoid designating trails and areas that intersect with non-motorized trails or areas in order to increase the enforceability of the OSVUM and to facilitate effective monitoring of the OSV designations. We discuss this in more detail below.

It is important to note that while the proposed action does consider different seasons of use, the Forest Service should consider whether to designate areas or trails by "class of vehicle" as provided for in the OSV rule.[21] That provision allows forests to tailor their designation decisions to account for snowfall patterns and different and evolving OSV technologies, and to minimize corresponding social and environmental impacts. For example, snowbikes can traverse areas with denser tree stands where Canada lynx find maternal denning or diurnal resting sites as compared to larger snowmobiles that may avoid such areas. In addition, tracked all-terrain vehicles may cause more damage to exposed soils and vegetation as the snow melts, even on roads that the agency identified as appropriate for year-round motorized use. Where spring melt occurs on such roads, tracked OSVs can cause erosion and increase stream sedimentation, similar to off-road vehicle use in the summer. Certainly, OSV trails should not be designated within riparian areas, especially when snow-depths no longer provide adequate protection.

Finally, as mentioned, we recognize the Forest Service spent considerable time and effort developing its minimization screening criteria to ensure consistency with the TMR. As a result, the agency is

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[19] *See, e.g.*, *Idaho Conservation League*, 766 F. Supp. 2d at 1066-68, 1074-77 (invaliding travel plan that failed to consider aggregate impacts of short motorized trails on wilderness values or site-specific erosion and other impacts of particular trails).

[20] *See Sierra Club v. U.S. Forest Serv.*, 857 F. Supp. 2d 1167, 1176-78 (D. Utah 2012) (NEPA requires agency to take a hard look at the impacts of illegal motorized use on forest resources and the likelihood of illegal use continuing under each alternative).

[21] 36 C.F.R. § 212.81(a).

well on its way to addressing the aforementioned elements listed above. However, there is still a need to clarify and refine several elements of the criteria. For example, the agency states the following:

> Roads open to year-round wheeled traffic, as designated on the motor vehicle use map (MVUM) from 2019, will remain open to provide access to and between motorized over-snow areas. These roads will remain open through wildlife closure areas because consultation was completed as part of the previous NEPA efforts. These roads are shown on the preliminary proposed action maps but are outside the scope of this planning process. The MVUMs are available here: Kootenai National Forest - Maps & Publications (usda.gov). Additional ungroomed over-snow motorized trails were added for access on existing roads that are open only in the summer on the MVUM.

We caution the Forest Service against relying on analysis supporting summer motorized designations to authorize OSV use on roads, or to designate winter motorized trails on roads or trails displayed on the MVUM. It is well established that winter habitat is distinctly different from summer conditions, and habitat security measures certainly change between the two seasons. In fact, the 9th Circuit Court of Appeals addressed this issue in regard to the Beaverhead-Deerlodge National Forest's decision to allow snowmobile use in big game winter range under its 2009 Revised Forest Plan:

> Third, the Forest Service argues that it adequately considered impacts on big game wildlife because it acknowledged that "motorized winter recreation can adversely affect wildlife by causing them to move away when demands on their energy reserves are highest," and provided illustrative data. This data is contained in Table 179 of the EIS showing the comparative probability that elk and mule deer would take flight from all-terrain vehicles, bicycle riders, horse riders, and hikers passing by at different distances. There is no basis for concluding that this table provides probative evidence of how big game wildlife would respond to snowmobiles in winter.[22]

Certainly OSV designations within big game winter range, even if restricted to roads and trails displayed on MVUMs, will need analysis to determine how motorized use, especially vehicle noise, will affect big game habitat security.

In another example, the Forest Service states "[w]olverine maternal and primary habitats will not be open to motorized over-snow travel." Scoping at 3. Yet, the agency explains that within the Big Pipe – Big Creek + Flatiron Proposed Over-Snow Vehicle Area that "[t]he spatial arrangement of habitat patches, elevation, and topography of the area will minimize these effects [to primary wolverine habitat] within the designated area, and thus, no other measures are necessary." The two statements are incongruent, either the agency will or will not designate use within primary wolverine habitat. Certainly the conditions described could limit OSV use and we welcome the opportunity to review

[22] *See WildEarth Guardians v. U.S. Forest Service*, 790 F.3d 920, 931 (9th Cir. 2015)

the kind of detailed analysis that would support the agency's conclusion, especially given the capabilities of newer OSVs to reach historically inaccessible areas, and the behavior of certain drivers to highmark, cornice tap and traverse avalanche chutes.

Finally, the Forest Service states numerous times (18) throughout the Screening Criteria that project design features will minimize harmful effects to whitebark pine from OSV use, "including public education (Botany-1) and monitoring considerations (Botany-3)." Screening Criteria at 106. In reviewing the scoping package, we did not find a description of the "Bontany-3" design feature, and look forward to reviewing a detailed monitoring plan with supporting evidence that demonstrates how those activities will ensure compliance with the TMR. In addition, "Botany-1" relies on public education to minimize damage to whitebark pine. Here, again, we look forward to reviewing the detailed environmental analysis and evidence that demonstrates how education will effectively minimize damage to this threatened species. Further, the Forest Service states that "[e]xisting white bark pine habitat will be open December 1 to March 31 when saplings and seedlings are protected by snow cover." Scoping at 3. The detailed environmental analysis must define the depths of snow cover sufficient enough to protect the species, and demonstrate that such depths persist through March 31 across all whitebark pine habitat. Otherwise, the agency should only allow OSV use on designated trails within these areas.

A Special Note on Minimizing Conflicts

The Forest Service has a duty to minimize conflicts between motor vehicle use and existing or proposed recreational uses of National Forest System lands. The Forest Service must "consider the effects . . . with the objective of minimizing . . . [c]onflicts between motor vehicle use and existing or proposed recreational uses of National Forest System lands or neighboring Federal lands."[23] Here it is important to note that the emphasis is on recreational ***uses.*** In other words, the regulation's focus on recreational uses rightly puts the issue on the agency's management, where motorized designations must not maintain or increase conflicts. Looking at the Screening Criteria, we are concerned that the Forest Service may continue such conflict of uses:

> Keeping cross country ski areas non-motorized where the current recreation uses are separated. If motorized over-snow travel and cross-country skiing are currently co-located this will be continued in most cases.[24]

If motorized and non-motorized uses are currently co-located, the Forest Service must take a hard look and determine if there is a conflict in management direction (i.e. uses). It is not the responsibility of individual recreationists to manage conflicts, especially given the fact that conflict between the two groups is asymmetrical, that is where non-motorized users are disproportionately affected by motorized disturbance, but not vice-versa. This is most evident when considering the

[23] 36 C.F.R. §§ 212.55, 212.81(d).
[24] Screening Criteria at 2.

effects of noise disturbance that we discuss at length below. We urge the Forest Service to forego its proposed management direction to retain co-located OSV and cross-country ski uses, and instead identify where such areas occur, analyze the potential for conflicts and consider separating the uses where necessary.

A Special Note on Minimum Snow Depths

In addition to limiting OSVs to designated trails, another way to minimize impacts is to close designated areas or trails when there is inadequate snowfall.[25] Snow in higher elevation areas is susceptible to wind movement—which can leave bare or thinly covered areas that would be difficult or impossible to avoid given the speed of snowmobiles. Plant communities, biodiversity and water quality in higher elevation shallow-soil ecosystems may be extremely vulnerable to soil or vegetation disturbance. The impact of a pioneered trail or other disturbance can extend well downslope of the disturbed area, and adversely affect plant communities, biodiversity, and water quality. Fragile vegetation in higher elevations needs protection against such use since impacts to fragile vegetation may be irreversible. Pursuant to National Best Management Practices, the Forest Service must consider a minimum snow depth to protect underlying vegetative cover and soil or trail surface.

This is especially true where the agency relies on snow cover to mitigate impacts to soil and vegetation, and denning bears. The best available science shows that minimum snow depths should be at least 24 inches for cross-country travel and 18 inches for travel on designated trails. The Forest Service must identify and impose a minimum snow depth, and address places to enforce those restrictions, including protocols for monitoring, communicating conditions to the public, and implementing emergency closures when snowpack falls below the relevant thresholds. We also suggest ending the snowmobiling season early enough to reduce potential snowmobile use in marginally snow-covered areas that could result in damage to fragile vegetation.

Grizzly Bears

One major impetus for completing winter travel planning is to comply with the U.S. Fish and Wildlife Service's (FWS) 2020 Biological Opinion addressing the Effects of The Kootenai National Forests Land Management Plan on the Grizzly Bear (2020 Bi-Op), where the USFWS accepted the Forest Service's request to extend its timeline for completing winter travel planning:

> Extend the timeline beyond what was originally stated in the Terms and Conditions of the 2013 biological opinion on the LMP for completing an over-snow motorized winter travel plan. Winter travel planning is expected to be completed by the end of 2024.[26]

[25] Switalski, A. 2016. Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management – Wildlife. Journal of Conservation Planning. 12:13-20. *See* Exhibit 1.
[26] 2020 Bi-Op at 15.

The USFWS explains that "Under the LMP, less temporal and spatial overlap of grizzly bears and snowmobiles would occur on the KNF due to the decrease in acres where winter motorized use is allowed; however, these changes would not be realized until winter travel plans are completed."[27] In the meantime, grooming restrictions of snowmobile routes past April 1 and implementation of forest plan guideline FW- GDL-WL-01 "would reduce the likelihood of overlap of snowmobilers and females with cubs during den emergence (thereby improving the baseline condition)."[28] It would be helpful to better understand how the proposed action implements "less temporal and spatial overlap of grizzly bears and snowmobiles" beyond the baseline condition, and we look forward to seeing this comparison in the agency's detailed analysis. Further, the USFWS recognizes that winter motorized use could still result "in disturbance of females with cubs that could impair the fitness and safety of the female and cubs."[29] It then asserts that the overall impact "of emerging females with cubs is low" based on several factors. The Forest Service must demonstrate in its analysis that these factors are still present, and also not only ensure compliance with the Endangered Species Act requirements, but also the minimization criteria under the TMR. In addition, it is deeply problematic for the agencies to dismiss adverse effects to female bears with cubs by asserting the harm would only occur during one denning season: "Thus, if a female grizzly bear suffers significant disturbance at or near her den site, it is probable that she would locate a new site to den in the future and would have options for denning elsewhere."[30] Even if such bears can find new dens elsewhere, that does not equate to minimization. In fact, significant disturbance to grizzly bear habitat is precisely what the agency must minimize and relying on bears to simply find new dens will is not a management approach that will meet the mandates of the TMR.

In addition, we caution the Forest Service against assuming that OSV use will not harass denning grizzly bears or significantly disrupt denning habitat prior to April 1. In the Biological Opinion on the Effects of the Divide Travel Plan on Grizzly Bears, the FWS notes that the risk of grizzly bear disturbance and risk of den abandonment is especially high from late February through April.[31] Further, the enclosed Winter Wildlands report notes the following:

> Both brown and black bears are sensitive to human disturbance during hibernation, which can be disrupted by winter recreation.[76] [77] [78] [79] Interruption of hibernation is extremely costly for bears and can lead to den abandonment, weight loss and decreased cub survival.[80] [81] Den abandonment results in short-term energetic costs and poses potentially long-term consequences if bears avoid favorable den habitat in the future because of disturbance from winter recreation activities.[82] After documenting brown (grizzly) bear den abandonment in

[27] *Id.* at 73.
[28] *Id.*
[29] *Id.*
[30] *Id.* at 74.
[31] *See* Exhibit 2 ("Grizzly bears excavate dens and require environments well covered with a blanket of snow for up to five months, generally beginning in fall (September-November) and extending until spring (March-April)")

response to heli-skiing, Crupi et al (2020) postulated that use of suboptimal denning sites could affect bear distribution patterns and lead to population level declines in reproduction and survival.[83] Because brown bears exist at low population densities, the loss of a few individuals bears may have strong negative effects on overall population viability.[84, 32]

The Forest Service must consider the impacts of OSV use in grizzly den areas prior to April 1, and how that use may directly, indirectly, or in the cumulative impact grizzly bears both within and outside the Cabinet-Yaak Recovery Zone.

Canada lynx

Canada lynx—a species listed as threatened under the federal ESA—can be sensitive to motorized recreation, especially during denning and diurnal resting periods. For lynx, it is important to remember that the Kootenai National Forest is included within one of six core areas for Canada lynx.[33] The U.S. Fish and Wildlife Service defines Canada lynx core areas as those "areas with the strongest long-term evidence of the persistence of lynx populations within the contiguous United States" and that "have both persistent verified records of lynx occurrence over time and recent evidence of reproduction."[34] Lynx avoid areas selected by motorized winter recreationists. [35]

Snow-packed trails created by OSVs have long been considered as serving as travel routes for potential competitors and predators of lynx, especially coyotes. Due to morphological differences in foot size and weight load, coyotes and lynx are typically spatially segregated, as lynx are better able to move across deep soft snow. This segregation in winter may break down, however, where human modifications such as snow-packed tracks from snowmobiles allow coyotes to access deep snow areas. As both coyotes and lynx prey on snowshoe hares, this increased access of coyotes may lead to competition for prey and thus negatively impact lynx.[36]

In its five-year status review, the USFWS explains that the Canada Lynx Conservation Assessment and Strategy (LCAS) identified 17 risk factors "with the potential to result in habitat conversion, habitat fragmentation, or obstruction to lynx movement [including] roads or winter recreation trails

[32] Hilary Eisen, Darça Morgan, Kylie Paul, and Kristina Boyd. May, 2021. Environmental Impacts Of Winter Recreation: Best Available Science. Winter Wildlands Alliance. *See* Exhibit 3.
[33] U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (Lynx canadensis) Contiguous United States Distinct Population Segment. Version 1.0, October, 2017. Lakewood, Colorado. pg. 2. Available at: https://ecos.fws.gov/ServCat/DownloadFile/213244 (last accessed on Aug. 11, 2023).
[34] Nordstrom, Lori. 2005. Recovery Outline: Contiguous United States Distinct Population Segment of the Canada Lynx. U.S. Fish and Wildlife Service at 3-4. *See* Exhibit 4.
[35] Squires, J. R., L. E. Olson, E. K. Roberts, J. S. Ivan, and M. Hebblewhite. 2019. Winter recreation and Canada lynx: reducing conflict through niche partitioning. Ecosphere 10(10): e02876. 10.1002/ecs2.2876.
[36] Hilary Eisen, Darça Morgan, Kylie Paul, and Kristina Boyd. May, 2021. Environmental Impacts Of Winter Recreation: Best Available Science. Winter Wildlands Alliance. *See* Exhibit 3.

that may facilitate access to historical lynx habitat by competitors."[37] The LCAS characterizes these risks as second tier influences, which "are those that may affect individual lynx but are not expected to substantially impact populations or habitats."[38] Still, through the lens of the TMR and compliance with the minimization criteria, winter motorized use can have significant effects leading to harassment of individuals and significant habitat disruption, especially in the context of climate change that may be affecting snow-depths and the distribution of lynx foraging habitat. In addition, the aforementioned Winter Wildlands report notes the following:

> As snow levels diminish with climate change, winter recreation use will become more concentrated in those snowy areas still remaining – where lynx are trying to persist as well. Winter recreation will thus continually become a more serious threat to the persistence of lynx over time.
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> An additional concern related to over-snow vehicle use is that open roads and motorized winter access increases lynx vulnerability.[122] [123] [124] [125] Human access can increase the potential for mortality or injury of lynx captured incidentally in traps aimed at other species or through illegal shooting. Such vulnerability is reduced if there is less motorized winter recreation access.[39]

Further, the Forest Service explains "Although lynx are generally tolerant of disturbance, designating winter recreation activities near maternal den sites or diurnal resting sites could compromise their function." Screening Criteria at 8. To address potential impacts to lynx, the Forest Service explains:

> Seasonal restrictions to minimize the effects to grizzly bears and wolverine would reduce the amount of allowed over-snow vehicle use in these lynx analysis units, thus minimizing effects. No grooming of trails is allowed after March 31.

We urge the Forest Service to clarify this direction since the current proposal is to protect maternal and primary wolverine habitat from OSV designations. Further, the agency must disclose the amount of lynx habitat outside of wolverine and grizzly bear habitat that would have seasonal restrictions, and how the Forest Service will minimize lynx harassment and significant disruption of lynx habitat in these areas from OSV use. Further, we look forward to reviewing the detailed analysis that demonstrates how the seasonal grizzly bear restrictions apply to lynx and ensure compliance with the TMR. It is also important to consider that as snow levels diminish with climate change, dispersed use of over snow vehicles will become more concentrated in those snowy areas still remaining – exactly where lynx are trying to persist as well. Winter recreation will thus continually become a more serious threat to the persistence of the population over time. This must be properly analyzed.

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[37] U.S. Fish and Wildlife Service. 2017. pg. 54. Available at: https://ecos.fws.gov/ServCat/DownloadFile/213244 (last accessed on August 11, 2023).

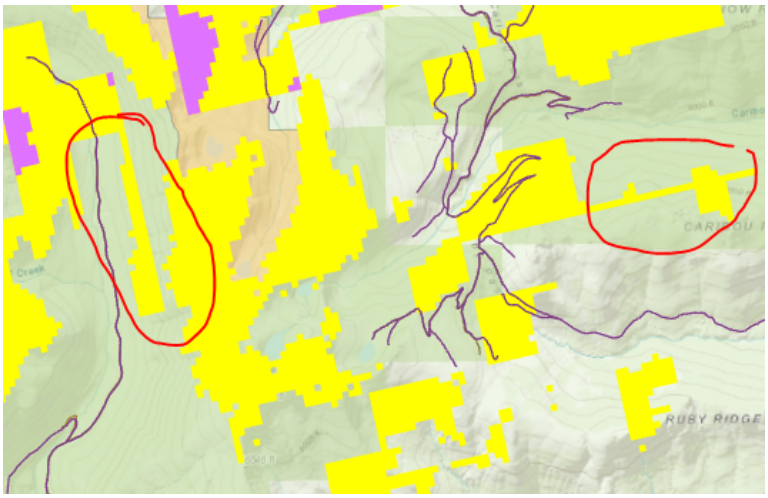
[38] *Id.*

[39] *See* Exhibit 3 at 15, 16.

Wolverine

We appreciate that the Forest Service recognizes the importance of protecting maternal and primary wolverine habitat and request any future analysis to disclose and discuss the methods for identifying these habitats. In fact, we expect that the agency may be relying on the work of Inman et al. (2013) that uses maternal, primary and dispersal habitat layers.[40] If so, the Forest Service must disclose the distribution of dispersal habitat within the planning areas, and explain how protecting only maternal and primary habitat is sufficient to minimize wolverine harassment and significant disruption of dispersal habitat. Further, we also recognize that identifying those areas relies on GIS data that may be insufficient to properly identify these areas. For example, we obtained the wolverine GIS data layer used in the Kaniksu OSV plan on the Idaho Panhandle National Forest and observed that the agency used coarse 800 m raster data that usually indicates climate datasets were used. This is readily apparent in Figures 1 below showing primary wolverine habitat in yellow and maternal habitat in magenta. The examples show areas bounded by straight lines and strips which do not reflect the natural irregularities of the landscape. Inaccuracies result from careless use of data, resulting in a substandard analysis. The image below of the Caribou Ridge to Pack River area shows strange liner features (circled in red) and right angles and gaps where habitat should be.

Figure 1. Primary and Maternal Wolverine Habitat Caribou Ridge to Pack River Area



Climate data can now be statistically downscaled using Climate BC/WNA/NA[41] and we urge the Forest Service to refine its data to provide better resolution and also to conduct field verification to ensure the accuracy of the mapped wolverine habitats. In addition, we urge the Forest Service to

[40] Inman, R. M., B.L. Brock, K.H. Inman, S.S. Sartorius, B.C. Aber, B. Giddings, S.L. Cain, M.L. Orme, J.A. Fredrick, B.J. Oakleaf, K.L. Alt, E. Odell, and G. Chapron. 2013. Developing Priorities for Metapopulation Conservation at the Landscape Scale: Wolverines in the Western United States. Biological Conservation 166:276–286.

[41] https://cfcg.forestry.ubc.ca/projects/climate-data/climatebcwna (last accessed 8/11/2023).

retain its proposed direction to fully protect maternal and primary wolverine habitat for the reasons explained below and consider protecting dispersal habitat.

In 2013 the FWS proposed to list the distinct population segment of the North American wolverine as threatened under the ESA.[42] After a district court vacated the FWS's 2014 withdrawal of its proposal, in 2016 the FWS reopened the public comment period on its proposal to list the distinct population segment of wolverine occurring in the contiguous United States as threatened under the ESA.[43] Ultimately, however, the FWS withdrew this proposal, which was subsequently challenged in federal court and in May this year a Montana District Court agreed with conservation groups that the wolverine is entitled to additional ESA protections while the U.S. Fish and Wildlife Service (FWS) reconsidered its 2020 decision to deny a petition to list the wolverine as threatened or endangered under the ESA.[44] Then, on September 9, 2022 the FWS withdrew its appeal of the May court ruling, sticking with its 2013 conclusion that wolverines deserve Endangered Species protection. The FWS will decide to list wolverine by November 2023. As such the Forest Service must take a hard look through the lens of both the TMR and ESA at the potential impacts the proposed action may have on individual wolverines and the overall population within the planning area.

Factors affecting the wolverine's continued existence include projected decrease and fragmentation of wolverine habitat and range due to climate change, lack of secure habitat allowing for connectivity, trapping, lack of regulatory mechanisms to address the threats to wolverine habitat from climate change, and loss of genetic diversity due to small population size. A recent study expands on these threats explaining:

> Modeling suggests snow in wolverine range in the USA and southern British Columbia will diminish markedly in the coming century (McKelvey et al., 2011a). Projection models based on climate-change scenarios suggest a marked reduction of persistent spring snow in the lower half of inferred denning elevation bands (Barsugli et al., 2020) and across all elevations in currently occupied states (Peacock, 2011) for the USA population.
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> Wolverine ranges in the USA are restricted to mountain environments and are fragmented by developed private lands in valley bottoms. As snowpack decreases through the 21st century wolverine populations are expected to become more fragmented and isolated, especially in the USA (McKelvey et al., 2011a).
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> In the mountain regions of the USA wolverines' close association to snow interacts with backcountry winter recreation. Using simultaneous GPS monitoring of mountain wolverines and winter recreationists, Heinemeyer et al. (2019) showed wolverines avoided otherwise high-quality habitats in areas with higher recreation levels. The strength of avoidance increased with increased recreation, was greater for dispersed off-trail activities, and was greater for motorized than non-motorized

[42] 78 Fed. Reg. 7864 (Feb. 4, 2013).
[43] 81 Fed. Reg. 71670 (Oct. 18, 2016).
[44] *Center for Biological Diversity v. Haaland*, 2022 WL 1686908 (D. Mont 2022).

> recreation (Heinemeyer et al., 2019). As human pressures for recreational space mount, increasing effects on wolverines are expected in protected areas as last bastions of habitat, adding to the list of stressors for future wolverine.[45]

This study bolsters past findings that demonstrate wolverine may be sensitive to disturbance from motorized winter recreation activities and may alter their behavior in response to motorized winter recreation activities. Wolverine may avoid areas where motorized winter recreation activities occur. Disturbance from foot and snowmobile traffic have been purported to cause maternal female wolverines to abandon natal dens and relocate kits to maternal dens.[46]

Snowmobile use commonly overlaps with wolverine denning habitat.[47] Dispersed recreational activities like motorized winter recreation have the potential to negatively impact wolverine by disrupting natal denning areas.[48] Wolverines have one of the lowest successful reproductive rates known to mammals, and this is hypothesized as linked to winter energy constraints. Female wolverines select and enter dens and give birth in February to mid-March[49] and the overlap of winter recreation with this energetically taxing period is highly concerning. Any disturbance during this important winter period can negatively affect productivity and other vital rates.[50]

Researchers have reported that female wolverines may be sensitive to human disturbance in the vicinity of natal and maternal dens, and disturbance from foot and snowmobile traffic has been purported to cause maternal females to abandon or move dens.[51] One study found that females tended to avoid areas with heli-skiing and backcountry skiing areas.[52] Another study found that motorized recreation occurred at higher intensity across a larger footprint than non-motorized

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[45] Jason T. Fisher, Sean Murray, Mirjam Barrueto, Kathleen Carroll, Anthony P. Clevenger, Doris Hausleitner, William Harrower, Nicole Heim, Kim Heinemeyer, Aerin L. Jacob, Thomas S. Jung, Andrea Kortello, Andrew Ladle, Robert Long, Paula MacKay, Michael A. Sawaya. Wolverines (Gulo gulo) in a changing landscape and warming climate: A decadal synthesis of global conservation ecology research, Global Ecology and Conservation, Volume 34, 2022, E02019, ISSN 2351-9894, https://doi.org/10.1016/j.gecco.2022.e02019.

[46] 78 Fed. Reg. 7878 (Feb. 4, 2013).

[47] *See* Exhibit 3 at 15.

[48] J. Krebs *et al.*, Multiscale habitat use by wolverines in British Columbia, Canada, 71 Journal of Wildlife Management 2180 (2007); E.C. Lofroth and J. Krebs, The Abundance and Distribution of Wolverines in British Columbia, Canada, 71 Journal of Wildlife Management 2159 (2007); L.F. Ruggiero *et al.*, Wolverine conservation and management, 71 Journal of Wildlife Management 2145 (2007).

[49] Magoun, A.J. *et al.* (2017). Detecting Snow at the Den-Site Scale in Wolverine Denning Habitat, 41 Wildlife Society Bulletin 381.

[50] R. May *et al.*, Impact of infrastructure on habitat selection of wolverines *Gulo gulo*, 12 Wildlife Biology 285 (2006); Krebs (2007).

[51] S. Myrberget, The breeding den of the wolverine, 21 Fauna 108 (1968); Inman *et al.* (2008); Copeland (2009).

[52] Krebs (2007).

recreation in most wolverine home ranges.[53] Female wolverines exhibited stronger avoidance of off-road motorized recreation and experienced higher indirect habitat loss than male wolverines.[54] High-cirque snowmobile use, especially cross-country use and "high marking," may present a substantial threat to wolverines and their habitat.

These behavioral changes can negatively affect individuals' physiological stress levels and reproductive capacity in several ways, as evidenced in numerous studies on different species.[55] It may reduce the amount of time and thus ability of female wolverines to hunt or to utilize food caches. This would result in significant additive energetic effects, reducing foraging success for adult females already stressed by the demands of bearing and raising a litter. In addition, this could reduce kit survival rates by increasing the potential for predation and exposure to cold temperatures. These results indicate that winter recreation may impact wolverines in as yet unknown ways.

As snowmobiling and backcountry skiing continue to grow in popularity and as snowpack continues to decline due to climate change, there is increasing concern that wolverine denning habitat may become limiting. Recent warming has already led to substantial reductions in spring snow cover in the mountains of western North America.[56] Numerous recent and sophisticated studies support the conclusion that climate changes caused by global climate change are likely to negatively affect wolverine habitat.[57] Protection of denning habitat may be critical for the persistence of the species.

An additional concern related to snowmobile use is that motorized access leads to increased trapping pressure (direct or indirect capture) for some furbearers that prefer more mesic habitat conditions generally found at higher elevations or in riparian habitats, such as marten, fisher, lynx, and wolverine. Trapping season for these species is limited to the winter months, and most trappers prefer the relatively easy access to suitable habitat provided by snowmobiles. Wolverine populations in small, isolated mountain ranges can be very susceptible to trapping pressure.[58] Trapping pressure for these species is dramatically reduced if there is less snowmobile access.

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[53] Heinemeyer, *et al.* (2019). Wolverines in winter: indirect habitat loss and functional responses to backcountry recreation.

[54] *Id.*

[55] S.J. Creel *et al.*, Snowmobile activity and glucocorticoid stress responses in wolves and elk, 16 Conservation Biology 809 (2002).

[56] P. Mote *et al.*, Declining mountain snowpack in western North America, 86 Bulletin of the American Meteorological Society 1 (2005); G.T. Pederson *et al.*, A century of climate and ecosystem change in Western Montana: what do temperature trends portend? 96 Climatic Change (2010).

[57] Magoun (2017); J.P. Copeland *et al.*, The bioclimatic envelope of the wolverine (Gulo gulo): do climate constraints limit its geographic distribution? 88 Canadian Journal of Zoology 233 (2010); K.S. McKelvey *et al.*, Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors. 21 Ecological Applications 2882 (2011); S. Peacock, Projected 21st century climate change for wolverine habitats within the contiguous United States. Environmental Research Letters (2011); K.M. Johnston *et al.*, Projected range shifting by montane mammals under climate change: implications for Cascadia's National Parks, 3 Ecosphere 11 (2012).

[58] J.R. Squires *et al.*, Sources and patterns of wolverine mortality in western Montana, 71 Journal of Wildlife Management 2213 (2007).

The best available science reveals that motorized winter recreation poses a threat to wolverine persistence and recovery, in addition to the threats posed by climate change. The cumulative effect of climate change and motorized winter recreation on wolverines is significant. As wolverines lose habitat to the effects of climate change, wolverine and motorized winter recreationists will be forced to share smaller and smaller habitat patches.[59] Decreasing areas with sufficient snow will amplify the effect of motorized winter recreation on wolverine due to the fact that motorized winter recreation will be concentrated in smaller areas on the Kootenai National Forest. Protected areas in the proposed action may not necessarily provide for all of the wolverine's life history requirements.

Ungulates - Mountain Goats, Bighorn Sheep, Moose, Elk

The Forest Service recognizes the importance of the planning area for a variety of species including ungulates that are also sensitive to winter motorized disturbance. The Forest Service must take a hard look at how the proposed action may affect winter habitat security for mountain goat, bighorn sheep, moose, and elk. Ultimately, the agency must designate OSV use in a manner that minimizes harassment of these species and significant disruption of their habitat, the importance of which was summarized in Eisen et al, 2021:

> Regardless of the species, however, ungulate winter survival strategy hinges on gaining weight in the fall and expending as little energy as possible while they slowly starve their way through winter. Avoiding excess movement is particularly important, as deep snow can increase the metabolic cost of winter movement up to five times normal levels at a time when ungulates are particularly stressed by forage scarcity and high metabolic demands.[60]

According to Subpart C of the Travel Management Rule[61] the Forest service must identify and assess the impacts of over the snow machines on big game winter range. Winter range of ungulates must be assessed and mapped and motorized winter trails should be routed to avoid disturbance of winter stressed wildlife. Motorized winter travel has direct physiological on big game animals, and evidence suggests that popular winter trails can fragment winter habitat. Busy trails through core areas create an "edge effect" (the negative influence of the periphery of a habitat on the interior conditions of a habitat) and thereby marginalize the vitality of some species.[62] Heavy snowmobile traffic has been shown to inhibit free movement of animals across roads to preferred foraging areas and temporarily displaces wildlife from areas immediately adjacent to the roads.[63] Other studies have noted the

[59] Heinemeyer (2019).
[60] *See* Exhibit 3 at 6.
[61] *Travel Management; Designated Routes and Areas for Motor Vehicle Use.* (n.d.). Federal Register/Vol. 70, No. 216/Wednesday, November 9, 2005/Rules and Regulations. https://www.govinfo.gov/content/pkg/FR-2005-11-09/pdf/05-22024.pdf
[62] Baker, E. and Bithman, E., 2005. Snowmobiling in the Adirondack Park: Environmental and Social Impacts. St. Lawrence University, Department of Biology.
[63] Aune, K.E. 1981. Impacts of winter recreationists on wildlife in a portion of Yellowstone National Park, Wyoming. Thesis, Montana State University, Bozeman, Montana, USA.

displacement of elk along roads during periods of fairly continuous travel by snowmobiles[64] and displacement of moose from an area following the development of a Nordic ski trail system.[65] Elk are also sensitive to disturbance from non-motorized winter recreation. A study in Yellowstone National Park recorded elk behavioral responses to people on foot and found that elk fled from small groups of hikers and cross-country skiers, with adult female elk exhibiting a stronger sensitivity to disturbance.[66]

Among ungulate species, mountain goats are particularly susceptible to motorized disturbances. Winter is a critical seasonal time period for mountain goat survival. Goats experience significant nutritional deprivation during the winter. Deep snow reduces the availability of food and increases energy expenditures.[67] To conserve energy, mountain goats try to limit their movements to small winter ranges. Displacement due to over-snow vehicle use will cause mountain goats to expend critical energy reserves. In fact, a 2017 Montana Fish, Wildlife and Parks report noted OSV use as one of the top factors limiting mountain goat populations.[68] The Forest Service must disclose and discuss the current state of mountain goat populations in the Cabinet hunting units, especially in comparison to the 2017 reported survey results.

Achieving mountain goat population objectives requires stringent management approaches. In addition to the Montana FWP Department efforts to limit or restrict harvest where numbers are below objective, it is important for the Forest Service to complement these management actions by limiting stressors within mountain goat habitat. Over snow vehicle use in mountain goat winter ranges can result in expenditure of critical energy reserves, trigger avalanches that bury goats, and indirect habitat loss.

> Several literature reviews from the 1980's and 1990's addressed the effects of snowmobile recreation on mountain goats.[58] [59] [60] However, contemporaneous literature lacked any direct research on the subject. The authors instead cited information from personal communications or research of other disturbance effects on goats. Their professional consensus was that snowmobile recreation in goat habitat during the energetically taxing seasons of winter and spring would elicit vigilance and flight behavior, add to goats' energetic burden, and ultimately lead to declines in herd health and productivity.[61,69]

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64 Knight, R.L., and D. N. Cole. 1991. Effects of recreational activity on wildlife in wildlands. Transactions of the North American Wildlife and Natural Resource Conference 56:238-247.

65 Ferguson, M. A., and Keith, L. B. 1982. Influence of Nordic skiing on distribution of moose and elk in Elk Island National Park, Alberta. Canadian Field Naturalist 96(1):69-78.

66 Cassirer, E., Freddy, D., and Ables, E. 1992. Elk responses to disturbance by cross-country skiers in Yellowstone National Park. Wildlife Society Bulletin 20(4):375-381.

67 Dailey, T. V., et Hobbs, N. T. 1989. Travel in alpine terrain: energy expenditures for locomotion by mountain goats and bighorn sheep. Can. J. Zool. 67 : 2368-2375.

68 *See* Exhibit 5.

69 See Exhibit 3 at 11.

Subnivean Species

Small mammals that remain active during the winter depend on the insulated space between the snowpack and the ground – the subnivean zone – for winter survival. When snow compaction from snowmobiles occurs, subnivean temperatures decrease, which can lead to increased metabolic rates in these small mammal species, such as voles, shrews, and mice. For example, if the subnivean air space is cooled by as little as 3 degrees Celsius, the metabolic demands of small mammals living in the space would increase by about 25 calories per hour.[70] Through controlled experiments, researchers have demonstrated that compaction due to snowmobile use reduced rodent and shrew use of subnivean habitats to near zero – a decline attributed to direct mortality, not outmigration.[71] Elsewhere, scientists have documented a decline in small mammals following snowmobile activity that compressed the subnivean zone.[72]

Because small mammals make up the majority of prey for many species, from raptors to mesocarnivores, habitat changes that affect subnivean populations could cascade through the food chain.[73] One way in which the Forest Service can minimize OSV impacts to subnivean mammals is to ensure that OSV use only occurs when there is enough snow accumulated to avoid compaction of the subnivean zone. The best way to do this is through implementation of minimum snow depths (discussed later in these comments), although season dates may be an effective management tool as well if they only permit OSV use when there is guaranteed to be a deep snowpack.

Noise Analysis

Anthropogenic noise is pervasive and has a profound impact on wildlife, causing changes in behavior, density and community structure, and reduced reproduction.[74] In order to comply with the aforementioned requirements under the Revised Plan, TMR and ESA, the Forest Service must recognize the significant disturbance of noise caused by OSV use and incorporate that in its analysis.

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[70] Neumann, P.W. and H.G. Merriam. 1972. Ecological effects of snowmobiles. The Canadian Field Naturalist. 86: 207-212

[71] Jarvinen, J.A. and W.D. Schmid. 1971. Snowmobiles use and winter mortality of small mammals. In Chubb, M. (ed.) Proceedings of the Snowmobile and Off the Road Vehicle Research Symposium. College of Agriculture and Natural Resources, Department of Park and Recreation Resources, Recreation Resources and Planning Unit, Tech. Rep. 8, Michigan State University, East Lansing, MI. https://www.snowmobileinfo.org/snowmobile-access-docs/Snowmobile-use-winter-mortality-ofsmall%20mammals_1971.pdf

[72] Sanecki, Glenn & Green, Ken & Wood, Helen & Lindenmayer, David. (2006). The implications of snow-based recreation for small mammals in the subnivean space in south-east Australia. Biological Conservation. 129. 511-518. 10.1016/j.biocon.2005.11.018.

[73] Brander, R.B. 1974. Outdoor recreation research: applying the results: ecological impacts of off-road recreation vehicles. North Central Forest Experiment Station, USDA Forest Service St. Paul, MN. General Technical Report NC-9. https://www.fs.usda.gov/treesearch/pubs/10074

[74] Barber, J. R., K.R. Crooks, and K.M Fristrup. 2010. The Costs of Chronic Noise Exposure for Terrestrial Organisms. Trends Ecology and Evolution 25:180-189.

The TMR directs the agency to consider "compatibility of motor vehicle use with existing conditions in populated areas, taking into account sound, emissions, and other factors."[75] Properly managing noise emissions is also crucial to address conflicts with other recreational uses and impacts to wildlife. To best address this issue, we strongly urge the Forest Service to actually measure sound impacts for proposed designations using spatial models and software packages available for analyzing potential noise propagation from OSV use. Modeling results can then be overlaid across denning and secure winter habitats for a variety of species including grizzly bear, lynx wolverine, mountain goat and elk in order determine the potential for harassment and significant disruption of wildlife habitats.

For example, some time ago The Wilderness Society (TWS) developed a model for the specific purpose of analyzing noise propagation from off-road vehicles in forest landscapes. This model is based on the System for the Prediction of Acoustic Detectability (SPreAD), a workbook issued by the Forest Service and Environmental Protection Agency for land managers to "evaluate potential … acoustic impacts when planning the multiple uses of an area."[76] TWS adapted the SPreAD model to a GIS environment, so that potential noise impacts could be integrated with other variables being considered in the travel management planning process, like type of vehicle, engine stroke, etc. We have included the user's guide for the SPreAD-GIS model in Exhibit 6, and we are confident the Forest Service can replicate this or a similar model to evaluate the potential acoustic impacts on the planning area from engine noise in this process. In fact, comments we provided to the agency regarding the Kaniksu OSV plan demonstrates how the agency can utilize this model. Here we utilized the SPreAD-GIS model to evaluate potential noise propagation within areas of high and medium quality grizzly bear denning habitat based on Bader & Sieracki, 2022. We were able to illustrate decibel levels along specific paths often utilized by OSVs on both a calm and windy day, and how that noise disturbance echoed throughout the area. See Figures below. We provide a detailed description of our methods in Exhibit 7.

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[75] 36 C.F.R. 212.55(b)(5).
[76] *See* https://www.fs.usda.gov/t-d/library-card.php?p_num=9823%201308 (last accessed 9/15/2022).

Figure 2. OSV Noise Propagation, Roman Nose Area, Calm Wind Conditions

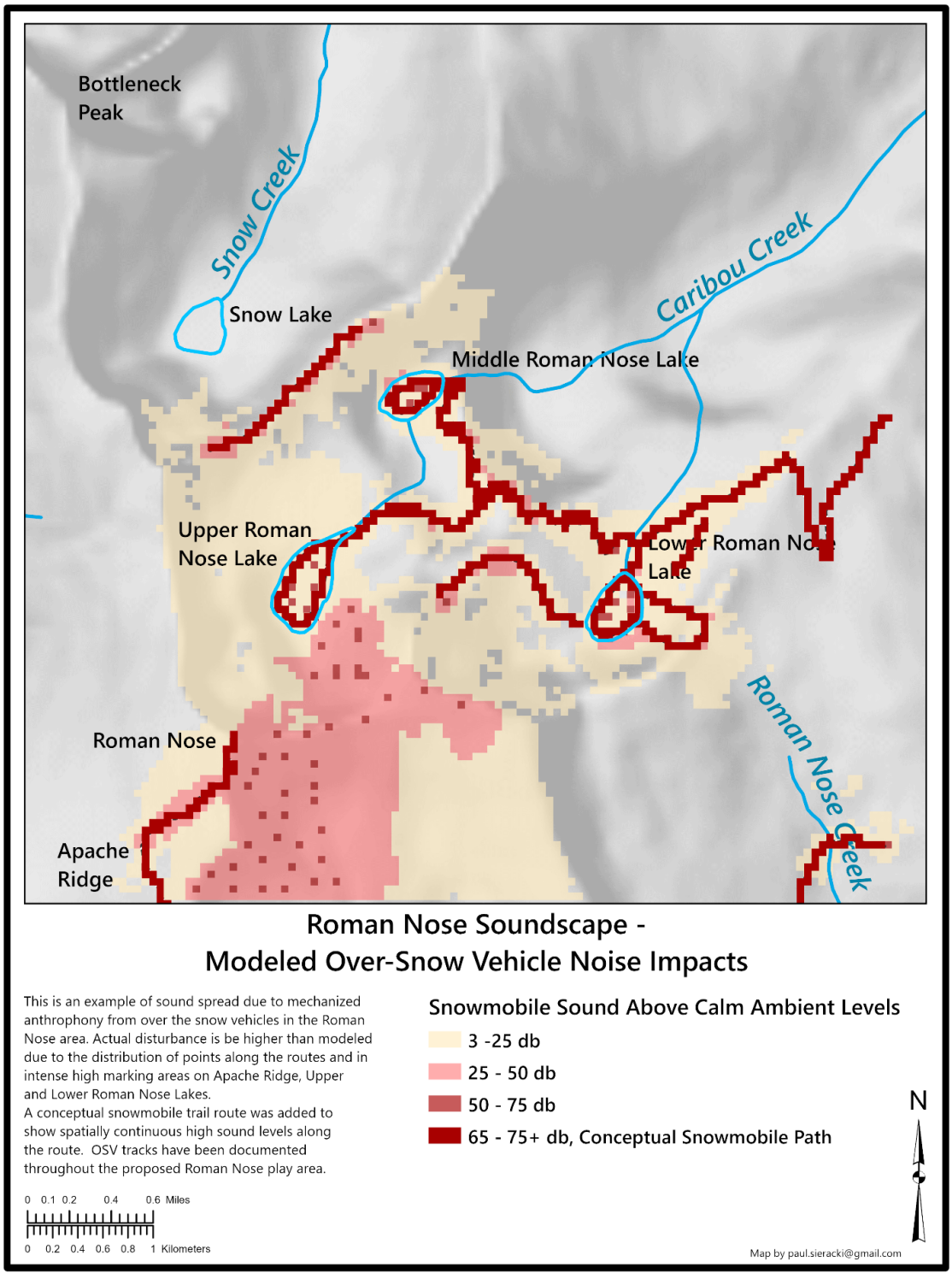
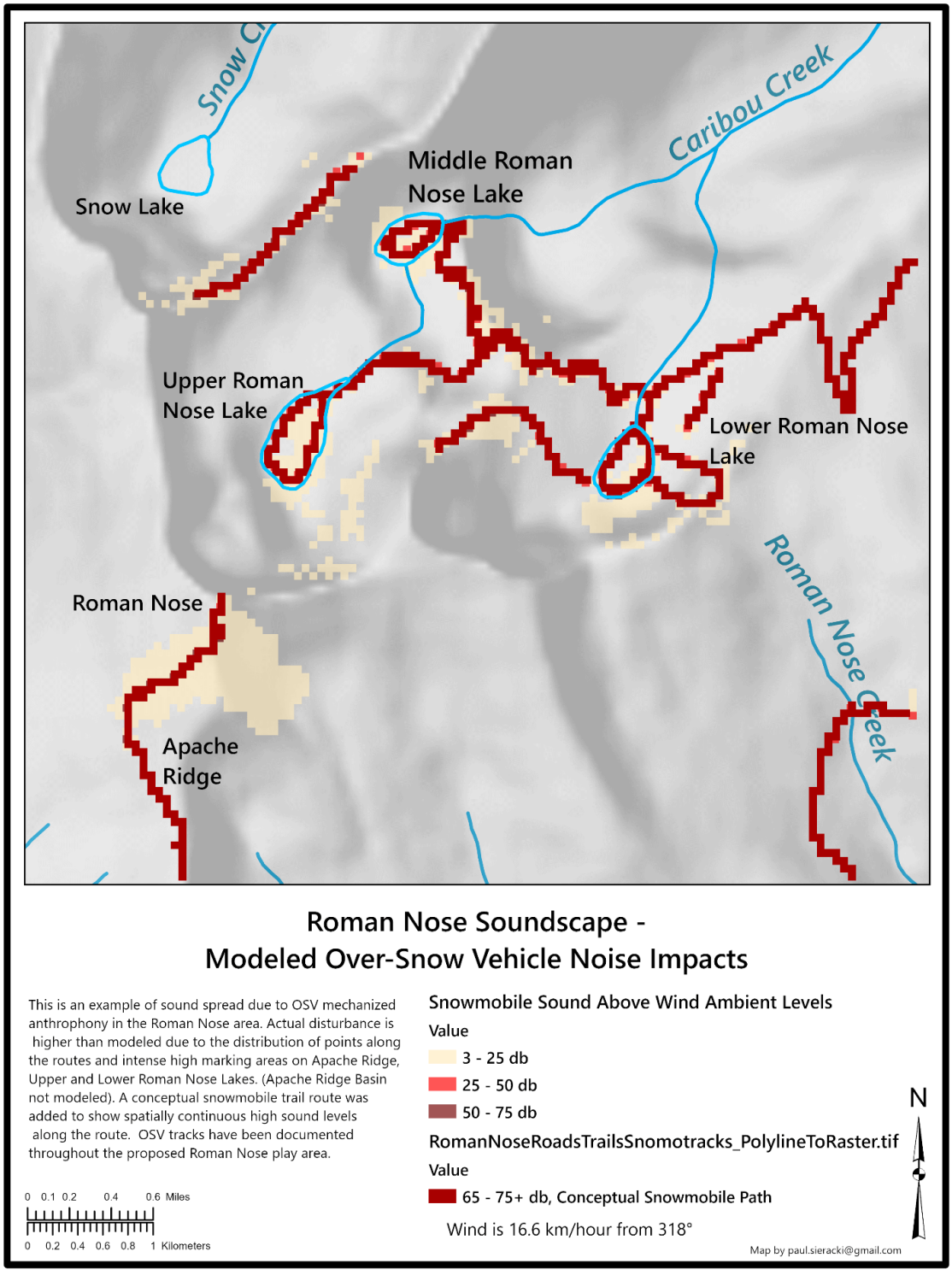
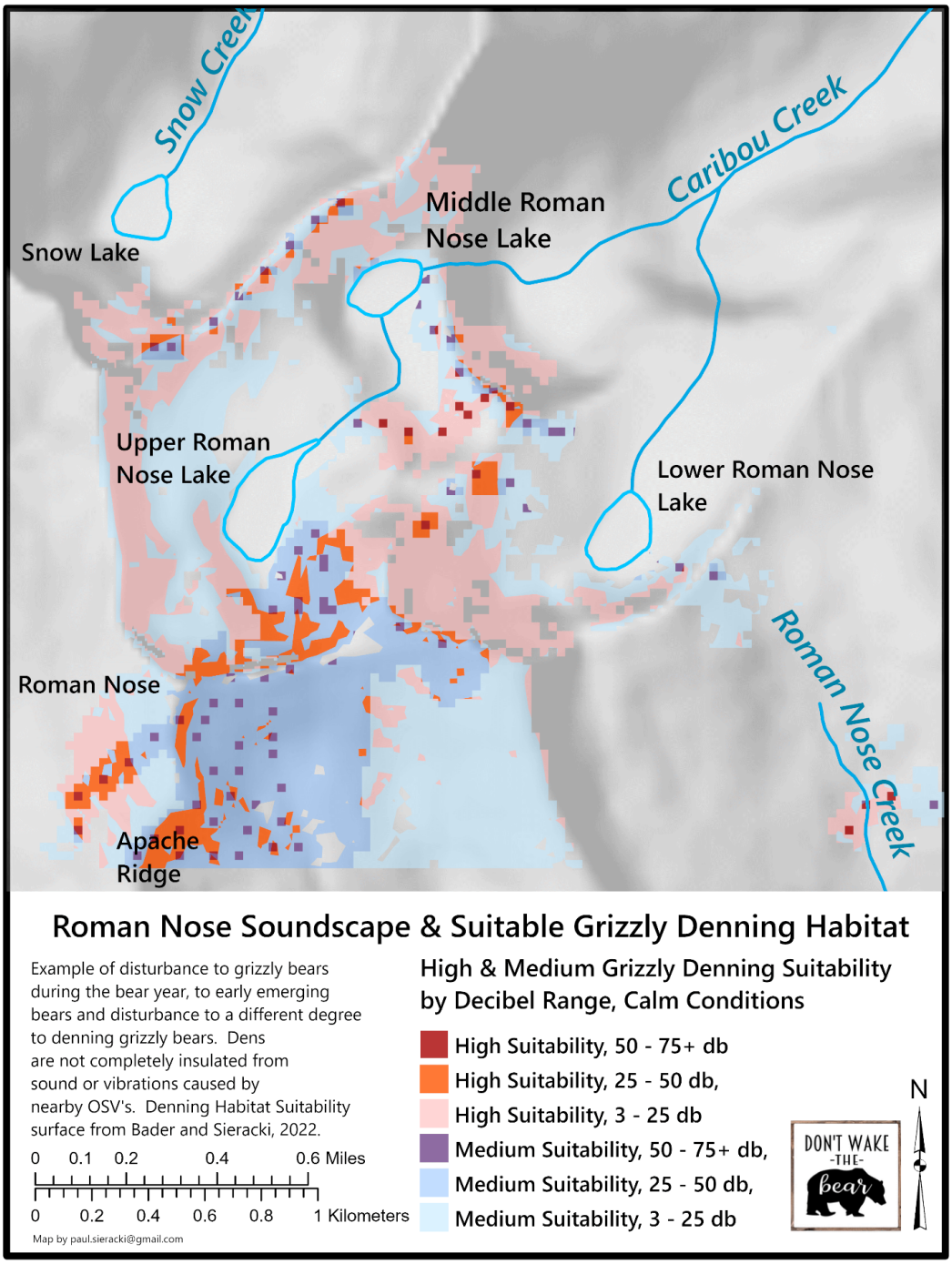


Figure 3. OSV Noise Propagation, Roman Nose Area, Wind at 10 mph



Comparing the two results demonstrates that on a calm day the noise disturbance echos within a portion of the area to the southwest, and on a windier day the ambient levels significantly reduce this disturbance.

Figure 4. OSV Noise Propagation, Calm Wind Conditions within High & Medium Suitable Grizzly Bear Denning Habitat



Our model results illustrate that keeping OSV use limited to designated trails reduces noise propagation within lake basins, and that ridgeline trails can cause disturbance across a large area. We strongly recommend that the agency only designate trails instead of areas where it knows there is a high likelihood of denning grizzly bears.

Inventoried Roadless Areas

As we noted above, the 2015 Revised Forest Plan identified 248,687 acres of Inventoried Roadless Areas (IRAs) available for OSV designation. The Forest Plan only evaluated IRAs to determine their suitability for wilderness designation.[77] "Approximately 35,100 acres, in five IRAs managed by the KNF, are located in the state of Idaho and are managed under the Idaho Roadless Rule of 2008."[78] The remainder of the IRAs fall under the 2001 Inventoried Roadless Rule.[79] Both rules use the same roadless character definition:

> *Roadless characteristics:* Resources or features that are often present in and characterize Idaho Roadless Areas, including:
> (1) High quality or undisturbed soil, water, and air;
> (2) Sources of public drinking water;
> (3) Diversity of plant and animal communities;
> (4) Habitat for threatened, endangered, proposed, candidate, and sensitive species, and for those species dependent on large, undisturbed areas of land;
> (5) Primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation;
> (6) Reference landscapes;
> (7) Natural appearing landscapes with high scenic quality;
> (8) Traditional cultural properties and sacred sites; and
> (9) Other locally identified unique characteristics.

In its analysis, the Forest Service should include an alternative that protects all IRAs from OSV designation in order to preserve roadless characteristics. In any case, the agency must evaluate how OSV designations will not degrade these characteristics and recognize that while the rules allow semi-primitive motorized uses, OSV designations may not be compatible with other roadless characteristics.

Air and Water Quality

The Over-snow Motorized Use Travel Plan must assess for and mitigate air and water pollutants emitted by over-snow vehicles. Over-snow vehicles create localized air pollution which settles into the snowpack and affects snow chemistry. Two-stroke engines, which represent the vast majority of OSV use on National Forest lands, are particularly concerning. OSVs create localized air pollution which settles into the snowpack and affects snow chemistry, potentially affecting water quality once the snow melts.

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[77] 2013 Final Environmental Impact Statement For the Revised Land Management Plan Kootenai National Forest at 444, ('Key Indicator - Number of acres recommended for wilderness, by alternative.).
[78] *Id.* at 453.
[79] 66 FR 3244

All over the snow machines with combustion engines emit polycyclic aromatic hydrocarbons (PAH) and other pollutants.[80] PAHs are highly persistent in the environment and can accumulate in plant and animal tissues, do not easily dissolve in water, and readily settle on the bottom of lakes and streams adhering to sediment particles.[81] This localized air pollution, this pollution settles into the snowpack and affects snow chemistry, potentially affecting water quality once the snow melts.

Several studies conducted across the United States have found that snow from roadways used by snowmachines contains detectable concentrations of several volatile organic compounds (VOCs), including benzene, methyl tert-butyl ether, m- and p-xylene, o-xylene, and toluene.[82] Changes to snow chemistry on snowmobile trails when compared to untracked snow, including elevated numbers of cations and some anions and a significant drop in pH.[83] A study in Yellowstone National Park found that snowmelt transported these VOCs to rivers and streams as the snow melted, but at diluted concentrations that are unlikely to pose a danger to aquatic systems. This same study documented large amounts of petroleum- based products in snowmelt, and raised concerns about PAHs in snowmelt and surface water.[84] In the Lake Tahoe Basin, researchers documented significantly greater concentrations of PAH in snow in areas with concentrated snowmobile tracks, and detected PAH in snowmelt and surface water samples in areas with heavy snowmobile activity as well.[85] This study found that PAH concentrations in snowmelt from areas with heavily snowmobile use was as much as six times higher as in areas without snowmobile traffic.

The Forest Service must consider unauthorized use

The Forest Service must consider the effects of proposed actions on its ability to enforce the entire existing and proposed designated system of roads, trails, and areas on the forest. NEPA requires the agency to take a hard look at the impacts of illegal motorized use on forest resources and the

[80] McDaniel, M. and B. Zielinska. 2015. Polycyclic aromatic hydrocarbons in the snowpack and surface water in Blackwood Canyon, Lake Tahoe, CA, as related to snowmobile activity. Polycyclic Aromatic Compounds 35(1):102-119.
[81] Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for polycyclic aromatic hydrocarbons (PAH's). U.S. Department of Health and Human Services, Public Health Service, Atlanta, Ga.
[82] Arnold, J.L. and T.M. Koel, 2007. Effects of snowmobile emissions on the chemistry of snowmelt runoff in Yellowstone National Park. Yellowstone National Park, Center for Resources, Fisheries and Aquatic Sciences Section.
[83] Musselman, Robert & Korfmacher, John. 2007. Air quality at a snowmobile staging area and snow chemistry on and off trail in a Rocky Mountain subalpine forest, Snowy Range, Wyoming. Environmental Monitoring and Assessment. 133: 321-34.
[84] Arnold, J.L. and T.M. Koel, 2007. Effects of snowmobile emissions on the chemistry of snowmelt runoff in Yellowstone National Park. Yellowstone National Park, Center for Resources, Fisheries and Aquatic Sciences Section.
[85] McDaniel, M. and B. Zielinska. 2015. Polycyclic aromatic hydrocarbons in the snowpack and surface water in Blackwood Canyon, Lake Tahoe, CA, as related to snowmobile activity. Polycyclic Aromatic Compounds 35(1):102-119.

likelihood of illegal use continuing or expanding under each alternative. Specifically, we urge the agency to analyze how the proposed action would contribute to existing illegal motorized use and create new opportunities for violations, especially where the proposed action would designate trails and areas within or directly adjacent to protected areas. The Forest Supervisor should work closely and transparently with LEOs to propose and analyze an alternative that will best meet their law enforcement capacity, and the results of this collaboration should be transparent to the public. There are solutions that can make enforcement easier e.g. not having roads dead-end at Wilderness boundaries, or creating seasonal closures that correlate with when there is sufficient snow coverage on areas designated for OSV use. Ultimately, we urge the Forest Service to develop a plan that lightens the load of these enforcement officers and does not create an undue burden on LEOs and other enforcement resources.

Develop a Monitoring and Enforcement Plan

In order for the travel management plan to be successful, the Forest Service must devote time and resources to effectively monitor OSV use and the resulting impacts to natural resources. In addition, the agency must also provide for effective enforcement of the designated system. For this reason, we urge the Forest Service to follow the examples from other units and develop a monitoring and enforcement plan.

The White River travel plan covers both summer and winter uses and defines modes of travel across the forest by area and by route. To ensure the travel plan was successfully implemented, the Forest Service drafted a Travel Management Implementation Plan (TMIP) to accompany the travel plan. The TMIP was specifically focused on the 3-year period immediately following the publication of the travel plan: 2012-2015.

The White River emphasized the "4Es" throughout travel planning and implementation – Education, Engineering, Enforcement, and Evaluation (monitoring). Recognizing that "without appropriate and adequate information and education materials available for the public, and personnel to create and distribute them, the designation process alone will not provide the change in awareness and behavior necessary to ensure that the desired positive effects of the new travel rule are realized." Education materials included up-to-date information posted on the forest website, public information kiosks, digital brochures and interactive maps, motor vehicle and over-snow vehicle use maps, visitor use maps, brochures on responsible use, specific brochures for high-use areas, brochures on safety in mixed-use areas, and talking points for forest staff. However, the plan went beyond education, recognizing that enforcement is absolutely necessary since education alone would not achieve compliance with the designations. Here it's important to note that the proposed action includes design features that heavily rely on just education.

At the start of the enforcement phase of the TMIP, the Forest Service increased the number of staff who were trained and certified as Forest Protection Officers (FPOs) and encouraged all staff to

spend more time in the field, to increase agency visibility and presence as District staff are primarily responsible for enforcing the TMP. The TMIP also calls for close coordination between forest law enforcement officers (LEOs) and district staff, with districts identifying priority or problem areas and LEOs coordinating with FPOs to carry out enforcement. A successful enforcement plan will ensure the agency conducts routine patrols at identified "hot spots" where compliance is an ongoing issue – such as where proposed wilderness boundaries are near OSV routes.

Another example the IPNF should look to for understanding the monitoring and implementation of travel management is the Custer Gallatin NF, where the agency immediately launched into implementation once its 2006 TMP was complete. While the Custer Gallatin NF's Travel Plan Implementation Strategy is not as detailed as the White River TMIP, it provides a basic outline for how the forest intended to implement its new travel plan.

Ultimately, the Forest Service must do more than cross its fingers and hope that motorized recreationists follow the rules, even after being educated. It must include a detailed and effective monitoring and enforcement plan.

Conclusion

We appreciate the opportunity to provide these comments and we support the Forest Service's effort to conduct a robust winter travel planning effort that will comply with the Travel Management Rule, and ultimately protect sensitive and threatened species, especially grizzly bears, Canada lynx, wolverine, and mountain goats. We strongly encourage the agency to produce an EIS in order to properly disclose and analyze the environmental impacts of the proposed action, including considering the results of GIS-based sound modeling. Further we urge the agency to recognize that year-long OSV use on roads designated for summer use does not meet the spirit or letter of the TMR, and only allow winter motorized use where appropriate, such as when minimum snow-depths are present. We look forward to our continued involvement in this process.

Cordially,

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