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By Electronic Mail

Re: Comments on Lassen OSV Use Designation DEIS

Dear Supervisor Hays,

Thank you for the opportunity to comment on the Lassen National Forest’s Over-Snow Vehicle (OSV) Use Designation Draft Environmental Impact Statement (DEIS). The Lassen National Forest is the very first forest in the country to undergo winter travel management planning under the Forest Service’s new regulation governing OSV use, subpart C of the Forest Service travel management regulations.¹ The rule

¹ 36 C.F.R. part 212, subpart C.
requires national forests with adequate snowfall to designate and display on an “OSV Use Map” specific areas and routes where OSV use is permitted based on protection of resources and other recreational uses. OSV use outside the designated system is prohibited.

We are pleased to see that many sections of the DEIS provide a relatively thorough discussion of the impacts associated with OSV use. Unfortunately, the Forest Service has failed to apply that information and analysis to formulate a proposed action and alternatives that satisfy the requirements of the new subpart C regulations. To ensure that rule implementation is off to the right start and avoid the specter of litigation that has plagued summertime travel management planning, it is critical that the Lassen’s OSV use designation planning process:

- Satisfy the Forest Service’s substantive legal duty to locate each area and trail to minimize resource damage and conflicts with other recreational uses – not just identify or consider those impacts.
- Consti
tute discrete, specifically delineated open areas that transition the forest from its current default open status to a “closed unless designated open” status.
- Ensures OSV designations do not prejudice recommended wilderness decisions in the upcoming Forest Plan revision.

We are deeply concerned that the proposed action and alternatives in the DEIS fail to satisfy these and other requirements, as detailed below, and we hope to work with the forest to remedy these deficiencies.

I. Executive Order Minimization Criteria

A. Background & Regulatory Requirements

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 11644 and 11989 in 1972 and 1977, respectively, requiring federal land management agencies to plan for ORV use based on protecting resources and other uses. 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.

3 Exec. Order No. 11644, § 3(a).
The Forest Service codified these “minimization criteria” in subparts B and C of its travel management regulations. 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 planning decisions. 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. As the Ninth Circuit Court of Appeals recently held, “[w]hat is required is that the Forest Service document how it evaluated and applied [relevant] data on an area-by-area [and route-by-route] basis with the objective of minimizing impacts as specified in the [Travel Management Rule].”

To satisfy this 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 recreational use conflicts associated with each designated area and route.

- Second, effective application of the minimization criteria must include meaningful opportunities for public participation and input early in the planning process. In many cases, public lands users and other stakeholders are the best source of information for identifying resource and recreational use conflicts. The Forest Service must affirmatively address and minimize identified impacts and conflicts when making area and route designation decisions.

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4 36 C.F.R. §§ 212.55, 212.81(d).
6 WildEarth Guardians, 790 F.3d at 931; 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 designed the areas open to snowmobile use “with the objective of minimizing” impacts). Importantly, efforts to mitigate impacts associated with a designated OSV system are insufficient to fully satisfy the duty to minimize impacts, as specified in the executive orders. See Exec. Order 11644, § 3(a) (“Areas and trails shall be located to minimize” impacts and conflicts.). Thus, application of the minimization criteria should be approached in two steps: first, the agency locates areas and routes 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. See 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.”).
7 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).
8 See 36 C.F.R. § 212.52(a).
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. Winter Wildlands Alliance recently published a comprehensive literature review and best management practices (BMPs) for OSV use on national forests. The BMPs provide guidelines, based on peer-reviewed science, for OSV designation decisions that are intended to minimize conflicts with other winter recreational uses and impacts to wildlife, water quality, soils, and vegetation. The Forest Service’s National Core BMP Technical Guide also includes relevant BMPs, such as imposing minimum snow depth and season of use restrictions; using applicable best practices when constructing OSV trailheads, parking, and staging areas; and using suitable measures to trap and treat pollutants from OSV emissions in snowmelt runoff or locating staging areas at a sufficient distance from waterbodies to provide adequate pollutant filtering. The Forest Service should incorporate the Winter Wildlands Alliance and National Core BMPs into its winter travel planning decisions.

In addition to generalized BMPs, application of the minimization criteria should incorporate any site- or resource-specific scientific information or analysis. For example, to effectively minimize the significant noise impacts associated with OSV use, the Forest Service should conduct soundscape modeling and incorporate the results of that modeling into its decision-making. Other site- or resource-specific information might include, for example, air quality modeling or monitoring; wildlife population, habitat, or monitoring data; or visitor use data.

Fourth, proper application of the minimization criteria must address both site-specific and larger-scale impacts. 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 wilderness-quality lands and associated opportunities for primitive forms of recreation. 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.

9 See Friends of the Clearwater, 2015 U.S. Dist. LEXIS 30671, at *24-30, 40-52 (invalidating route designations that failed to consider best available science on impacts of motorized routes on elk habitat effectiveness or to select routes with the objective of minimizing impacts to that habitat and other forest resources).
12 See, e.g., Snowmobile Best Management Practices, pp. 6-7 (describing noise simulation modeling used in Yellowstone National Park).
13 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 routes on wilderness values or site-specific erosion and other impacts of particular routes).
• Fifth, the Forest Service should account for predicted climate change impacts in its application of the minimization criteria and designation decisions.\textsuperscript{14} 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.\textsuperscript{15}

• Sixth, application of the minimization criteria must take into account available resources for monitoring and enforcement of the designated system.\textsuperscript{16} 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 user conflicts.

• Finally, the Forest Service should consider whether to designate areas or trails by “class of vehicle” and/or “time of year,” as provided for in the OSV rule.\textsuperscript{17} 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.

The Forest Service’s substantive duty to minimize impacts associated with OSV use applies to both area and route designations. Minimization of impacts associated with OSV area allocations is particularly important because the OSV rule permits the Forest Service to designate larger areas open to cross-country travel than in the summer-time travel planning context. As the Ninth Circuit recently held, the Forest Service must “apply the minimization criteria to each area it designate[s] for snowmobile use” and “provide a . . . granular minimization analysis to fulfill the objectives of Executive Order 11644.”\textsuperscript{18} Importantly, the agency may not rely upon “plan-wide data” or “generalized statements in the EIS that it designed snowmobile allocations” to protect wildlife habitat, quiet winter recreation opportunities, and other resources to demonstrate compliance with the minimization criteria.\textsuperscript{19} Nor can the agency “rely upon a forest-wide reduction in the total area open to snowmobiles as a basis for demonstrating compliance with the minimization criteria,” which are “concerned with the effects of each particularized

\textsuperscript{14} See, e.g., 77 Fed. Reg. 77,801, 77,828-29 (Dec. 24, 2014) (Council on Environmental Quality’s revised draft guidance on consideration of climate change in NEPA states: “Climate change can increase the vulnerability of a resource, ecosystem, human community, or structure, which would then be more susceptible to climate change and other effects and result in a proposed action’s effects being more environmentally damaging. . . . Such considerations are squarely within the realm of NEPA, informing decisions on whether to proceed with and how to design the proposed action so as to minimize impacts on the environment, as well as informing possible adaptation measures to address these impacts, ultimately enabling the selection of smarter, more resilient actions.”).

\textsuperscript{15} See Snowmobile Best Management Practices, pp. 4-5, 10, 13.

\textsuperscript{16} 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).

\textsuperscript{17} 36 C.F.R. § 212.81(a).

\textsuperscript{18} WildEarth Guardians, 790 F.3d at 930-31.

\textsuperscript{19} WildEarth Guardians, 790 F.3d at 930.
area.” The agency is “under an affirmative obligation to actually show that it aimed to minimize environmental damage when designating . . . areas.”

Under the plain terms of the executive orders, the Forest Service must apply the minimization criteria to all trails designated for OSV use – even if those trails are located in areas of the forest that would be designated as open to cross-country OSV use. When designated and placed on a map, trails focus the impacts of OSV use to those locations and generally increase the number of OSV users visiting the area. This is particularly true of groomed trails within areas otherwise open to cross-country travel. Groomed trails are desirable for traveling faster and further into remote areas. In addition, grooming often results in widening the footprint of the trail. The widened trail may then be used in summer by wheeled motorized vehicles resulting in other impacts and conflicts. Moreover, the impacts associated with OSV use on designated trails extend beyond the trail corridor itself. As part of applying and implementing the minimization criteria, the Forest Service must address noise, air quality, habitat fragmentation, and other landscape-scale impacts associated with trail use.

To satisfy the minimization criteria, the Forest Service should make its route designations based on the following best management practices, which are addressed in the attached Snowmobile Best Management Practices report:

- Locate designated routes away from high-value and sensitive resource areas, including sensitive winter wildlife habitat and important non-motorized winter recreation areas
- Not exceed motorized route density thresholds based on best available scientific information in suitable habitat for relevant wildlife
- Locate routes to maintain large un-fragmented, undisturbed, and connected blocks of habitat where OSV use is prohibited
- Allocate unplowed roads fairly between designated OSV routes and non-motorized routes closed to OSV use
- Where necessary to designate an OSV route through a non-motorized area, locate and manage the route to minimize disturbance by imposing speed and idling limitations and ensuring that use is restricted to the trail itself
- Locate routes designated within open areas – especially groomed routes – to minimize environmental damage and conflicts with other recreational uses

**B. The Proposed Action and DEIS Alternatives Fail to Satisfy the Minimization Criteria**

The DEIS does not demonstrate that the Forest Service has applied or implemented the minimization criteria in its proposed area or route designations. While many sections of the DEIS provide thorough discussions of the potential impacts of OSV use on forest resources and other recreational uses, such identification and consideration of impacts is insufficient to satisfy the minimization criteria. The DEIS lacks a “granular” area-by-area and route-by-route analysis demonstrating how proposed areas and
trails are located to *minimize* those impacts.\textsuperscript{22} In other words, the Forest Service appears to have fallen into the common trap of treating the minimization criteria as just another procedural impacts analysis, when in reality it imposes a *substantive* obligation that significantly limits the agency’s decision space.

The forest may not rely on minor reductions in areas open to OSV use to satisfy its obligation to design a system that minimizes impacts. For instance, while we are pleased to see approximately 29,000 low-elevation acres (below 3,500 feet) and the 520-acre Black Mountain Research Natural Area\textsuperscript{23} closed to OSV use in the proposed action, those limited closures minimize impacts on less than 3% of the 1.15-million-acre forest. Binding Ninth Circuit precedent has explicitly rejected forest-wide reduction in the total area open to OSVs as a basis for demonstrating compliance with the minimization criteria; instead, the criteria are “concerned with the effects of each particularized area and trail designation.”\textsuperscript{24} Yet much of the explanation in the DEIS relies on acreage comparisons.\textsuperscript{25} While this information is useful to include in the DEIS, it does not satisfy the minimization criteria.

Other analysis approaches in the DEIS likewise fail to properly apply the minimization criteria. For instance, the DEIS considers the impacts of OSV use on sensitive wildlife like the Sierra Nevada red fox and Pacific marten by assessing whether OSV use would lead to a loss of viability or a trend toward federal listing of the species.\textsuperscript{26} While such an assessment may be required under other federal environmental statutes, it does not address whether adverse impacts to the fox have been *minimized*, as required. As the comments submitted by wildlife biologist Darca Morgan on behalf of The Wilderness Society, Winter Wildlands Alliance, Snowlands Network, and Center for Biological Diversity show, the best available scientific information demonstrates that OSV use in fox, marten, and other sensitive wildlife habitat on the Lassen National Forest will likely have significant adverse impacts on the species. Those impacts must be *minimized*, not just analyzed or considered.\textsuperscript{27}

Similarly, the DEIS concludes that all of the action alternatives minimize conflicts between motorized and non-motorized uses “to some degree by designating a clear system of OSV trails and areas, and development of the subsequent OSV use maps that will allow visitors to choose areas to recreate that will best meet their expectations and desired settings.”\textsuperscript{28} This is merely a statement of the regulatory requirement to designate a system for OSV use and display it on a map. That action alone does not show compliance with the minimization criteria, which must be applied to identify the designated system.

While we are pleased to see that the Forest Service conducted soundscape modeling, there is no apparent effort to translate the results of the modeling exercise to the identification of OSV areas or

\textsuperscript{22} See *WildEarth Guardians*, 790 F.3d at 930-32 (“mere consideration of the . . . minimization criteria is not sufficient;” instead, “the Forest Service is under an affirmative obligation to actually show that it aimed to minimize environmental damage when designating trails and areas”).

\textsuperscript{23} The RNA is already closed to motorized uses under the forest plan.

\textsuperscript{24} *WildEarth Guardians*, 790 F.3d at 932.

\textsuperscript{25} See, e.g., DEIS at 10 (opportunities for motorized winter uses analyzed based on percent change in acres open/closed to OSV use); *id.* (air quality impacts analyzed based on miles and acres open to OSV use).

\textsuperscript{26} DEIS at 47.

\textsuperscript{27} See *WildEarth Guardians*, 790 F.3d at 932.

\textsuperscript{28} DEIS at 149.
trails that minimize noise impacts. Nor is there any attempt to run the model in the context of minimizing acoustic impacts to wildlife based on the best available scientific information. Instead, the DEIS states that the results of the model *may* be used to “determine appropriate actions to help mitigate” future potential recreational use conflicts identified through monitoring. Potential future mitigation does not satisfy the obligation to apply relevant data to locate areas and trails to minimize impacts in the first instance.

Other information in the DEIS highlights identified impacts and conflicts that have not been minimized. For instance, the DEIS acknowledges the adverse impacts that OSV use can have on soil productivity and stability, yet proposes to designate tens of thousands of acres for cross-country travel on sensitive soils, with minimum snow depth restrictions that are not supported by the best available science (see Section I(C), below). Indeed, the DEIS acknowledges that the proposed minimum snow depth of only 6 inches on designated trails “may potentially create conditions in which the road surface is exposed to OSVs and there is potential for some soil erosion or rutting of the road surface.” Due to the proposed reduction in minimum snow depth on designated trails, the DEIS impacts analysis concludes that the no action alternative (which is not being seriously considered because it would not satisfy the purpose and need to implement the new subpart C regulations) would best protect water resources due to the risk of trail disturbance and associated hydrological impacts under the action alternatives.

Alternative 3 does take limited steps to minimize conflicts with other recreational uses and impacts on proposed wilderness areas by closing important areas for non-motorized winter recreation to cross-country OSV use, or limiting that use to designated snow trails. We support these proposals and believe they are necessary to create a balanced travel plan that satisfies the minimization criteria. The areas, however, cover only 68,430 acres (about 6% of the forest) and do not absolve the forest from applying the minimization criteria on the other 94% of the forest.

To properly apply the minimization criteria to the entire forest, the Forest Service must go back and identify those discrete areas and specific routes that are appropriate for OSV use and are located to minimize impacts and recreational use conflicts. This will require significant changes to the existing proposed action and DEIS alternatives, likely necessitating a supplemental DEIS.

Proper application of the minimization criteria likely will result in additional acreage or routes closed in the following areas:

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30 DEIS at 394.
31 DEIS at 51.
32 DEIS at 51.
33 See DEIS at 89-90.
34 40 C.F.R. § 1502.9(c) (NEPA requires preparation of a supplemental draft EIS where the agency “makes substantial changes in the proposed action that are relevant to environmental concerns” or “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts”).
• Additional low-elevation areas, thickly treed areas, windswept ridgetops, and other terrain generally inaccessible or ill-suited to OSV use closed. For instance, the DEIS recognizes that “the Front Country, Ishi Wilderness area, Almanor Ranger District, generally does [sic] not get sufficient snow for OSV use.”\textsuperscript{35}

• Ashpan in the Hat Creek Ranger District: low-elevation trailhead with unreliable snowpack, and leads to sensitive habitat for the California Spotted Owl and American marten near Thousand Lakes Wilderness.

• Bogard in Hat Creek Ranger District: low-elevation trailhead with unreliable snowpack, and leads to the Butte Lake area and the Caribou Wilderness.

• Swain Mountain: low-elevation with unreliable snowpack; leads to the Caribou Wilderness; cross-country ski trails in the area.

• Fedonyer and Spalding in the Eagle Lake Ranger District: minimal snow in recent years and cross-country ski trails in the area.

• Morgan Summit in the Almanor Ranger District: close to Lassen Volcanic National Park and very popular cross-country ski trails. Buffers around Heart Lake and Wild Cattle Mountains necessary to minimize impacts.

• Jonesville in the Almanor Ranger District: very popular area leading to Humboldt/Humbug summit and rich habitat for Pacific marten; cross-country ski trails.

• Lake Almanor: extremely low-elevation, leading to Humboldt/Humbug summit from the eastside; important habitat for American marten.

• Areas around the Pacific Crest National Scenic Trail. The DEIS claims placing this area off-limits to OSV use is outside the scope of the project.\textsuperscript{36} If the forest follows the required closed unless designated open approach (see Section II, below), however, this simply means that areas around the PCT would not be designated for cross-country OSV use, which falls squarely within the purpose of designating a system of areas and trails in compliance with the subpart C regulations.

**Recommendations:** Using the elements of the methodology described in section I(A), above, apply the minimization criteria to each area and trail (including those located in open areas) to identify a system that minimizes impacts.

\textsuperscript{35} DEIS at 130.
\textsuperscript{36} DEIS at 39-40.
Subpart C requires designation of areas and routes for OSV use “where snowfall is adequate for that use to occur.” Particularly with climate change leading to reduced and less reliable snowpack, low-elevation and other areas that lack regular and consistent snowfall should not be designated for OSV use. Closing those areas is necessary to comply with the plain language of the subpart C regulations and with the executive order minimization criteria. We are pleased to see the proposal to close approximately 29,000 acres below 3,500 feet in elevation, where “[s]nowfall is typically not adequate . . . for OSV use to occur.” Other low-elevation areas of the forest also lack regular and consistent snowfall and should be closed as well (see recommendations above).

To account for variable snowpack and ensure that OSV use occurs only where and when snowfall is adequate, minimum snow depth restrictions are a necessary tool to further minimize impacts associated with OSV area and trail designations. The best available science shows that minimum snow depths should be at least 18 inches for cross-country travel and 12 inches for travel on groomed trails. The Lassen’s proposed minimum snow depths of 12 inches for cross-country travel, 6 inches for travel on designated trails, and 12 inches for snow trail grooming are insufficient to minimize impacts to water quality, soils, and vegetation and to buffer for variable snow conditions. While a shaded trailhead may have 6 or 12 inches of snow, south-facing slopes further up the trail may have little or no snow. Notably, the proposed 6-inch minimum snow depth on designated trails and 12-inch minimum snow depth for snow trail grooming represent reductions from current minimum snow depths of 12 and 18 inches for those activities. These reductions are particularly concerning given the current and projected impacts of climate change, which already is leading to reduced and less reliable snowpack in the Sierras. Indeed, the DEIS acknowledges that “climate change may increase distances winter recreation users must travel for adequate snow depth.” The Lassen’s solution to this problem appears to be to reduce the minimum snow depth on trails “to improve OSV access to areas open to OSV use.” Rather than minimize impacts, as required, this approach is likely to increase impacts to water quality, soils, and vegetation. The DEIS itself recognizes this, by concluding that the no action alternative will have the least detrimental hydrological impacts.

In addition to increasing its minimum snow depths to those supported by the best available science, the Forest Service should address its plans to enforce minimum snow depth restrictions, including protocols for monitoring snow depths, communicating conditions to the public, and implementing emergency closures when snowpack falls below the relevant thresholds. Minimum snow depths measurements should be taken at established locations that are representative of varying snow depths based on factors...
such as wind, orientation, slope, tree cover, etc. and depths should be reported regularly on the forest website and posted at popular access points. Ensuring consistent minimum snow depth restrictions throughout the region will help avoid enforcement difficulties. The Lassen and other forests in the northern and central Sierras undergoing winter travel planning should follow the lead of the southern Sierra Nevada forests, which are proposing a forest plan standard of 18 inches for cross-country OSV use, consistent with the best available scientific information.\textsuperscript{44}

In addition, forests should clearly identified season of use restrictions based on wildlife needs, water quality considerations, average snow depth figures, and other relevant information, with those restrictions serving as bookends, and minimum snow depth requirements providing an additional limitation on use.\textsuperscript{45} The DEIS identifies seasonal restrictions for grooming of OSV trails (12/26-3/31), but provides no restrictions on OSV use.

**Recommendations:** To ensure adequate snowpack for OSV use to occur and to properly minimize impacts, the Lassen National Forest should: (1) close additional low-elevation areas that lack regular and consistent snowfall; (2) impose minimum snow depth restrictions of at least 18 inches for cross-country travel and 12 inches for snow trail use, consistent with the best available scientific information, and provide adequate measures for monitoring and enforcement of the restrictions; (3) clearly identify season of use restrictions; and (4) account for current and predicted climate change impacts on anticipated snowpack in making designation decisions.

**D. Other Mitigation Measures**

Efforts to *mitigate* impacts associated with a designated OSV system are insufficient to fully satisfy the duty to *minimize* impacts, as specified in the executive orders.\textsuperscript{46} Thus, application of the minimization criteria should be approached in two steps: first, the agency locates areas and routes to minimize impacts, and second, the agency establishes site-specific management actions to further reduce impacts. President Obama’s November 2015 memorandum on mitigating impacts on natural resources complements and reinforces this approach. The memo articulates a policy for the Department of Interior “to avoid and then minimize harmful effects to land, water, wildlife, and other ecological resources (natural resources) caused by land- or water-disturbing activities, and to ensure that any remaining harmful effects are effectively addressed, consistent with existing mission and legal authorities.”\textsuperscript{47} The policy requires agencies to avoid and minimize harmful impacts to achieve no net loss


\textsuperscript{45} 36 C.F.R. § 212.81(a) (OSV rule permits agency to designate areas or trails by “time of year” to tailor designation decisions to account for snowfall patterns).

\textsuperscript{46} See Exec. Order 11644, § 3(a) (“Areas and trails shall be *located* to minimize” impacts and conflicts.).

of – and ideally a net benefit to – important natural resources.\textsuperscript{48} It articulates a planning hierarchy requiring BLM to first avoid and minimize impacts through proper project siting and design, and only then consider additional measures to mitigate any remaining harmful effects.\textsuperscript{49}

As described above, the Lassen’s proposed action and DEIS alternatives generally ignore the first step of designing the system to avoid impacts in the first instance. Nevertheless, the DEIS does identify certain project design features, based on the Forest Service’s National Best Management Practices for Water Quality, to further minimize impacts associated with area and route designations.\textsuperscript{50} Although they do not satisfy the requirement to locate areas and trails to minimize impacts, we support these measures, which are generally consistent with the best management practices identified in the attached Snowmobile Best Management Practices report. The Forest Service should also incorporate other relevant mitigation measures and best management practices identified in the report, including:

- Encourage, incentivize, or require Best Available Technology for OSV noise and emissions controls, particularly in sensitive or high-conflict areas.
- Where possible, designate separate trailhead/parking/staging areas for OSV open areas and high-demand OSV routes, and locate those areas away from high-value and sensitive resource areas. Separate motorized and non-motorized trailheads should be established where possible in shared use areas.
- Ensure adequate design and maintenance of designated routes, including bridges, culverts, and roadbed to reduce hydrological and erosion impacts during spring run-off.
- Restrict use by class or type of OSV as necessary to minimize impacts.
- Provide public education and outreach.
- Monitor and enforce closed routes and areas, seasonal restrictions, and minimum snow depths. Minimum snow depths should be reported regularly on the forest website, with measurements taken at established locations that are representative of varying snow depths based on factors such as wind, orientation, slope, tree cover, etc.
- Establish an adaptive management framework that utilizes monitoring to determine efficacy of current management.

These measures may be necessary to satisfy the minimization criteria, and therefore are not outside the scope of the project.

\textbf{Recommendations:} After designating a system of areas and trails located to avoid impacts and conflicts in the first instance, the Lassen should apply and consider additional best practices to further reduce impacts.

\textsuperscript{48} Presidential Mitigation Memo, §§ 1, 3(b).
\textsuperscript{49} Presidential Mitigation Memo, § 1, 2(f).
\textsuperscript{50} DEIS at 31-32.
II. Open Area Designations

The DEIS alternatives propose to designate vast open areas “located in any part of the Lassen National Forest where OSVs are not otherwise prohibited.”51 This approach is improper. It rubber stamps the status quo by leaving the vast majority of the forest — between 76 and 85% — open to cross-country OSV use essentially by default. The DEIS alternatives would, as a practical matter, maintain an “open unless designated closed” approach. The final OSV rule specifically rejects this approach, and instead requires the agency to “designate” specific areas and routes and prohibits OSV use outside of the designated system.52 In other words, the rule requires forests to make OSV designations under a consistent “closed unless designated open” approach and not to designate areas as open essentially by default.53

This new approach represents an important paradigm shift in OSV management on the national forests. Currently, approximately 94 million acres within national forests that receive regular snowfall are open to OSV use, while only about 30 million acres outside of designated wilderness (where motorized uses are prohibited by statute) are closed to that use.54 The status quo on the Lassen National Forest is similar, with approximately 85% of the forest currently open to cross-country OSV use essentially by default. That acreage includes low-elevation and steep-terrain areas unsuitable for OSV use, sensitive wildlife habitat, and important areas for non-motorized winter recreation. Indeed, the DEIS recognizes that only about one-third of the acreage currently open to OSV travel enjoys significant OSV use.55 As described above, proper application of the minimization criteria will necessarily require a significant shift in management where smaller, discrete portions of the forest are designated open where the Forest Service has affirmatively demonstrated that OSV use minimizes impacts to forest resources and other recreational uses.

The Lassen’s proposal to designate as open all areas where OSVs are not otherwise prohibited also violates the rule’s requirement to identify and delineate discrete open areas.56 Instead, the Forest Service must look closely at the entire forest and designate as open only those discrete, specifically

51 DEIS at 13-14, 18 (Under the proposed action, the responsible official “would designate OSV use as allowed, restricted, or prohibited,” with 947,120 acres of areas where cross-country OSV use is allowed “located in any part of the Lassen National Forest where OSVs are not otherwise prohibited.”).
52 See 36 C.F.R. §§ 212.80(a), 212.81(a), 261.14.
53 Recognizing that the draft rule would have permitted inconsistent management approaches (by allowing OSV use to be “designated as allowed, restricted, or prohibited”), with corresponding confusion among users and enforcement difficulties, the Forest Service in the final rule determined that “it would be clearer for the public and would enhance consistency in travel management planning and decision-making if the Responsible Official were required to designate a system of routes and areas where OSV use is prohibited unless allowed” (i.e., marked open on a map). 80 Fed. Reg. 4500, 4507 (Jan. 28, 2015).
55 DEIS at 387 (“Of the 976,760 acres open to OSV use, only approximately 304,820 acres are anticipated to have high to moderate OSV use levels . . . .”).
56 36 C.F.R. § 212.1 (“Area” defined as “[a] discrete, specifically delineated space that is smaller . . . than a Ranger District.”).
delineated areas that are appropriate for cross-country OSV use based on application of the minimization criteria.

**Recommendation:** The Lassen National Forest must abandon its approach of designating as open any areas “where OSVs are not otherwise prohibited.” Instead, the Forest Service must look closely at the entire forest and designate as open only those discrete, specifically delineated areas that are appropriate for cross-country OSV use based on application of the minimization criteria. All other areas that are not determined to be appropriate for open designation must then be closed, moving the forest into the required “closed unless designated open” management regime.

### III. National Environmental Policy Act

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., is designed to facilitate informed decision-making and public transparency by requiring federal agencies to take a “hard look” at the direct, indirect, and cumulative impacts of their proposed actions and reasonable alternatives. The DEIS fails to satisfy NEPA’s requirements.

#### A. Range of Alternatives

An EIS “shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” To that end, NEPA requires agencies to “[r]igorously explore and objectively evaluate all reasonable alternatives” to a proposed action. The alternatives analysis is the “heart” of an EIS. “An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action.” This includes more environmentally protective alternatives and mitigation measures, consistent with NEPA’s basic policy objective to protect the environment. “The existence of a viable but unexamined alternative renders

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57 40 C.F.R. § 1502.1.
58 40 C.F.R. § 1502.14(a); see also 42 U.S.C. § 4332(2)(E) (agencies must “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources”).
60 Nw. Envtl. Def. Ctr. v. Bonneville Power Admin., 117 F.3d 1520, 1538 (9th Cir. 1997); see also 40 C.F.R. § 1508.25(c) (scope of an EIS dictated by its range of alternatives, including no action, “[o]ther reasonable courses of actions,” and mitigation measures).
61 40 C.F.R. § 1500.2(e) (agencies must “[u]se the NEPA process to identify and assess reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment”); see also, e.g., Kootenai Tribe of Idaho v. Veneman, 313 F.3d 1094, 1121-22 (9th Cir. 2002) (citing cases), abrogated on other grounds by The Wilderness Soc’y v. U.S. Forest Serv., 630 F.3d 1173, 1178-80 (9th Cir. 2011) (en banc).
an [EIS] inadequate.” The “touchstone” of the inquiry is “whether an EIS’s selection and discussion of alternatives fosters informed decision-making and informed public participation.”

The DEIS range of alternatives does not satisfy NEPA. The alternatives range between opening 878,690 acres (approximately 76% of the forest) under Alternative 3 and 976,760 acres (approximately 85% of the forest) under Alternative 1 to cross-country OSV use. However, the bottom 75% of the range is missing. This scenario is similar to the situation in California v. Block, where the Ninth Circuit invalidated an EIS that “uncritically assume[d] that a substantial portion of the [roadless] areas should be developed and consider[ed] only those alternatives with that end result.” Here, the DEIS assumes that a substantial portion of the areas currently open to OSV travel should be designated and considers only those alternatives with that end result. A reasonable range, by contrast, would designate between 0 and 878,690 acres of the forest as open to OSV use. The story is similar with respect to proposed trail designations, with each of the alternatives designating between 406 and 408 miles of snow trails for OSV use and no alternatives designating substantially less than the status quo.

In most cases, including on the Lassen, cross-country OSV travel has been allowed essentially by default across vast portions of the national forests, with that use and its associated impacts never being subjected to a thorough NEPA analysis or application of the minimization criteria. The NEPA analysis for the travel plan must analyze – and minimize – the impacts of designations that allow continued OSV travel in those areas. Similarly, the Forest Service must analyze and minimize impacts associated with designating existing OSV routes that have not previously been subject to NEPA or the minimization criteria. To facilitate this required analysis and comply with NEPA, the EIS must include an alternative under which no areas or routes would be designated as open to recreational OSV use. This alternative is necessary to provide an accurate comparison for analysis of the impacts associated with all the area and route designations made in the winter travel plan – including those that allow continued OSV travel in existing areas or on existing routes. Unlike in a typical NEPA analysis where the no action alternative provides that baseline for comparison, the no action alternative for most winter travel planning efforts, including on the Lassen, reflects the current management status quo allowing cross-country OSV travel by default across the vast majority of the forest. This is similar to the situation in Western Watersheds Project v. Abbey, where the Ninth Circuit overturned a BLM NEPA analysis that failed to analyze an alternative that would eliminate grazing in the Missouri Breaks National Monument. Absent such an alternative, and where both the no action and action alternatives permitted continued grazing, the court found that the agency was “operating with limited information on grazing impacts,” in violation of

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62 Mont. Wilderness Ass’n v. Connell, 725 F.3d 988, 1004 (9th Cir. 2013) (quotations and citation omitted).
63 Mont. Wilderness Ass’n, 725 F.3d at 1005 (quotations and citation omitted).
64 Compare California v. Block, 690 F.2d 753, 765-67 (9th Cir. 1982) (range of alternatives that included allocating a maximum of 33% of available roadless lands to wilderness was unreasonable), with Mont. Wilderness Ass’n, 725 F.3d at 1004-05 (range of alternatives that included opening between 0 and 10 of 10 existing airstrips, with three intermediate options, was reasonable).
65 690 F.2d at 767 (9th Cir. 1982).
66 Specifically authorized or permitted OSV uses to, for example, access valid existing rights would still be allowed. See 36 C.F.R. § 212.81(a) (describing exempted uses).
67 719 F.3d 1035, 1050-53 (9th Cir. 2013).
NEPA.68 The same is true here, where an alternative that designates no areas or trails open to OSV use is necessary to facilitate a fully informed decision about the impacts of the action alternatives.

In addition to an alternative that designates no areas or routes open to OSV use, the Lassen must analyze other alternatives that do not prioritize OSV use over other uses and resource protection needs. As described above, the current action alternatives do not satisfy the executive order minimization criteria. To remedy that deficiency and ensure a range of all reasonable alternatives that satisfies NEPA, the Forest Service must go back, apply the minimization criteria, and formulate one or more alternatives that identify discrete, specifically delineated open areas and routes located to minimize impacts. This will likely necessitate preparation of a supplemental DEIS, as any new alternative must be subject to public review and comment prior to release of a final EIS.69

**Recommendations:** The Forest Service must analyze a true range of alternatives, including one or more alternatives that would designate less than 76% of the forest as open to OSV use, properly apply the minimization criteria, and not prioritize that OSV use over other uses. An adequate NEPA analysis also requires an alternative that would designate no areas or routes as open to recreational OSV use. Development of these alternatives would likely necessitate preparation of a supplemental DEIS.

**B. Preferred Alternative**

The DEIS does not identify a preferred alternative, but continues to emphasize the Lassen National Forest’s detailed proposed action, which is analyzed as Alternative 2. An agency must identify its preferred alternative in the DEIS if it has chosen one.70 The Council on Environmental Quality has recognized that proposed actions generated by the agency may end up as the preferred alternative and must be identified as such.71 To the extent the Forest Service intends the detailed proposed action to be

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68 See also, e.g., New Mexico ex rel. Richardson v. Bureau of Land Management, 565 F.3d 683, 708-11 (10th Cir. 2009) (invalidating NEPA analysis that failed to analyze an alternative that would close the entire area to oil and gas development because, “[w]ithout substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded”).

69 See California v. Block, 690 F.2d 752, 771 (9th Cir. 1982) (“Only at the stage when the draft EIS is circulated can the public and outside agencies have the opportunity to analyze a proposal and submit comment. No such right exists upon issuance of a final EIS.”). The Ninth Circuit Court of Appeals has adopted the Council on Environmental Quality guidance that supplemental NEPA is not required when: (1) the new alternative is a minor variation of one of the alternatives discussed in the draft EIS, and (2) the new alternative is qualitatively within the spectrum of alternatives that were discussed in the draft EIS. Russell Country Sportsmen v. U.S. Forest Serv., 668 F.3d 1037, 1045 (9th Cir. 2011). It is unlikely that these requirements would be satisfied with respect to new alternatives that remedy the identified NEPA and executive order minimization criteria deficiencies. Therefore, a supplement to the DEIS would likely be necessary.

70 40 C.F.R § 1502.14(e); Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ’s NEPA Regulations, 46 Fed. Reg. 18,026, 18,027 (4b) (Mar. 23, 1981) (“if the agency has a preferred alternative at the Draft EIS stage, that alternative must be labeled or identified as such in the Draft EIS” (emphasis added)).

71 See 46 Fed. Reg. at 18,028 (5a).
carried forward as the preferred alternative, it must identify it as such and allow for meaningful public participation and comment.

More generally, the approach the Lassen has taken illustrates the pitfalls of developing a detailed proposed action in the winter travel planning context. This approach undercut the public scoping process by proposing areas for OSV use prior to application of the minimization criteria or public understanding of the governing sideboards on agency decision-space. The result is a detailed proposed action that is not legally compliant and has skewed the planning process in favor of motorized uses, as illustrated by the current range of alternatives. In the future, the Forest Service should avoid developing a detailed proposed action. Instead, it should conduct scoping more generally by clearly communicating the requirements of the laws and policies that will govern the process and define the agency’s decision-space, and then asking for public input including specific proposals for snowmobile and quiet use areas. This will facilitate a process in which all ideas can be fairly heard and vetted.

**Recommendations:** To the extent the detailed proposed action is in fact the Forest Service’s preferred approach, the agency must identify it as such and provide an opportunity for public input. In the future, the Forest Service should avoid developing detailed proposed actions.

### IV. Upcoming Forest Plan Revision and Wilderness Recommendation Process

According to our discussions with the Pacific Southwest Region, the Lassen National Forest will begin a comprehensive revision of its 1993 forest plan at some point in the coming years. As part of that revision process, the forest will be required to “[i]dentify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands for wilderness designation.” The agency’s directives governing the wilderness inventory and evaluation process (Chapter 70 of Forest Service Handbook (FSH) 1909.12), require the forest to first conduct a comprehensive inventory of all roadless lands that may be suitable for wilderness designation and then evaluate the wilderness characteristics of those lands pursuant to the criteria in section 2(c) of the Wilderness Act of 1964, 16 U.S.C. § 1131(c). Based on the results of the evaluation and public input, the forest then must analyze in the EIS for the plan revision potential recommended wilderness areas, and ultimately decide whether to recommend any of those areas for wilderness designation. Forest plans must “provide for . . . management of areas recommended for wilderness designation to protect and maintain the ecological and social characteristics that provide the basis for their suitability for wilderness designation.” Complementing the wilderness inventory and evaluation process, forest plans also must provide for ecological sustainability and integrity, species diversity, and sustainable

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72 36 C.F.R. § 219.7(c)(2)(v).
73 FSH 1909.12, ch. 70, §§ 71-72.
74 FSH 1909.12, ch. 70, §§ 73-74.
75 36 C.F.R. § 219.10(b)(iv); see also Forest Service Manual 1923.03(3) (2015) (“Any area recommended for wilderness or wilderness study designation is not available for any use or activity that may reduce the wilderness potential of an area.”).
recreation. A robust network of conserved roadless lands, including designated and recommended wilderness, is a critical component of achieving those substantive requirements.

As a general matter, permitting OSV use in areas that may be considered for wilderness recommendation degrades the areas’ naturalness, diminishes opportunities for solitude and primitive recreation, and vastly reduces the likelihood that Congress will eventually designate them as Wilderness. As a practical matter, OSV designation decisions made in the current planning process may prejudice the upcoming wilderness recommendation process by potentially disqualifying areas that might otherwise be suitable for wilderness designation. The Forest Service is required to analyze these impacts under NEPA and to minimize degradation to wilderness values and recreational uses under the minimization criteria when making OSV designation decisions.

**Recommendations:** The Lassen National Forest must designate areas and trails for OSV use that minimize impacts to wilderness values and conflicts with primitive forms of recreation and ensure that OSV designation decisions do not undercut the upcoming wilderness recommendation process.

V. **Planning in the Larger Winter Recreation Context**

The DEIS explicitly states that scope of the action does not encompass “a comprehensive, holistic winter recreation planning effort” or other over-snow uses that do not meet the definition of an OSV.

Planning for OSV use, however, cannot be conducted in a vacuum.

With increasing numbers of participants in both motorized and human-powered winter back-country recreation, conflicts between skiers, snowshoers, and snowmobilers has grown and will continue to escalate in many areas. Part of this conflict is due to the disparity in non-motorized opportunities available to skiers and snowshoers on national forests, as compared to snowmobilers. Those disparities are documented in detail in Winter Wildlands Alliance’s recent report, *Winter Recreation on National Forest Lands.* As described above, the Forest Service is obligated under Executive Order 11644 to locate designated areas and trails for OSV use to minimize those conflicts. Yet travel planning efforts are

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77 See, e.g., Idaho Conservation League, *In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas* (Feb. 2011) (documenting degradation by OSV use of wilderness characteristics in recommended wilderness) (attached); Martin Nie & Christopher Barns, *The Fiftieth Anniversary of the Wilderness Act: The Next Chapter in Wilderness Designation, Politics, and Management,* 5 Arizona Journal of Environmental Law & Policy 237-301 (2014) (documenting instances where Forest Service has retracted wilderness recommendations due to motorized uses the agency has permitted or where proposed wilderness boundaries have been redrawn to accommodate such uses) (attached).
78 See *Montana Wilderness Association v. McAllister,* 666 F.3d 549, 558 (9th Cir. 2011) (Forest Service failed to maintain wilderness character by ignoring impacts of increased motorized uses on opportunities for solitude); *Idaho Conservation League,* 766 F. Supp. 3d at 1066-68, 1071-77 (agency must analyze and minimize impacts of motorized uses on wilderness values and roadless characteristics).
79 DEIS at 3. OSV is defined as “a motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow.” 36 C.F.R. § 212.1.
80 See generally *Winter Recreation on National Forest Lands,* pp. 3-7.
often focused only on the motorized system and largely ignore non-motorized recreation. The result is to perpetuate the disparity in non-motorized recreation opportunities by ignoring one side of the equation.

The solution is to plan for OSV use in the larger winter recreation context. As the Forest Supervisor on the Bitterroot National Forest recently recognized in the Draft Record of Decision for that forest’s travel management planning process for both winter and summer off-road vehicle uses,

I concluded early in the analysis that motorized recreation opportunities on the Bitterroot National Forest could not be assessed without also considering opportunities for nonmotorized recreation. Motorized and nonmotorized recreation experiences are linked in the sense that one affects the other. This is particularly true for the effects of motorized use on nonmotorized user experiences. Providing quality recreation opportunities for both types of users requires the consideration of motorized use within the context of the full spectrum of uses.\(^{81}\)

Another forest that has effectively planned for off-road vehicle use in the larger recreation context is the White River. That forest’s 2011 travel plan, which covered both summer and winter, established clear boundaries and expectations for motorized and non-motorized uses based on factors such as the quality of recreational experiences, average travel distances and terrain needs for motorized versus non-motorized users, crowding, user trends and demands, and locations and availability of access points and staging areas.\(^{82}\)

The BLM has also recognized the importance of looking holistically at a travel network that includes both motorized and non-motorized recreational routes to ensure opportunities and access for all user groups, including those seeking quiet use opportunities. That agency’s travel and transportation management manual provides:

> [T]he recreation program has a specific need to recognize and manage motorized recreational use of off-highway vehicles (OHVs) and non-motorized travel, such as foot, equestrian, and non-motorized mechanical travel. The planning process should consider and address the full range of various modes of travel on public lands, not only motorized access needs. An understanding of the regional supply and demand of recreational opportunities and access needs is important in designating a system of roads, primitive roads, trails, and areas for specific recreation and other uses.\(^{83}\)

We encourage the Lassen National Forest to plan for OSV use in the larger recreation context. This includes proactively planning for both motorized and non-motorized winter uses, considering the array

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\(^{83}\) BLM Manual 1606.06(A)(1).
of recreational uses and trends, required settings, desired outcomes, and the recreation niche of the forest. Areas and trails for motorized and non-motorized winter uses should be designated based on that information and in accordance with the executive order minimization criteria (which requires locating motorized elements of the system to minimize adverse impacts to non-motorized winter recreation opportunities). Unfortunately, the proposed action and DEIS alternatives focus almost exclusively on the motorized elements of the system. We are pleased to see elements of the alternative submitted by Snowlands Network and Winter Wildlands Alliance incorporated into Alternative 3, and we encourage the forest to adopt the proposed non-motorized winter recreation areas in its final EIS preferred alternative. However, non-motorized winter recreation opportunities also must addressed and incorporated into the other action alternatives to ensure a balanced plan and to satisfy the minimization criteria.

In addition to meaningfully addressing non-motorized winter recreation opportunities, effective winter travel management planning and compliance with the minimization criteria require the Forest Service to account for existing and potential future over-snow recreational uses that may not satisfy the definition of an OSV. For example, fat-tire bike riding is an increasing wintertime mechanized use throughout the Sierra Nevada and nationally. Other new types of motorized or mechanized over-snow uses may also exist or be developed over the life of the winter travel plan. The OSV plan and corresponding NEPA analysis should address the non-OSV over-snow uses that are already occurring on the forest, and should anticipate and provide a process for addressing future over-snow uses through updates to the plan. Failure to address these ongoing and foreseeable uses of the forest that may be impacted by OSV designations would result in both an inadequate NEPA analysis and inadequate minimization of conflicts with other uses.

Finally, unauthorized use by wheeled off-road vehicles on snow trails remains a significant problem on the Lassen. While these uses are governed by the existing travel management plan and motor vehicle use map, enforcement in the winter remains a significant problem. For instance, we recently documented illegal use by wheeled vehicles on snow trails clearly marked as closed to all vehicles other than OSVs at the Ashpan Trailhead. The photographs were taken by Patricia Puterbaugh on February 22, 2016.

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84 See Exec. Order No. 11644, § 3(a)(3) (“Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands . . . .” (emphasis added)).

85 The DEIS states that “[o]ther types of motor vehicles that may operate over snow, but do not meet the definition of an OSV, are regulated under Subpart B of the Travel Management Regulations,” and references the forest’s existing motor vehicle use map. DEIS at 3. The 2010 Lassen Travel Management Plan and corresponding EIS addressed only wheeled motor vehicles, including imposing a seasonal restriction on their use on groomed OSV and ski trails. That decision did not address or analyze the impacts of other non-OSV, over-snow motorized or mechanized uses such as fat bikes or off-road vehicles modified (but not designed) to travel over snow on a track, ski, or other non-wheeled mechanism. Certain winter recreation vehicles and uses are therefore not regulated by existing or proposed plans.
The current planning effort must address and consider how this unauthorized use impacts OSV designation decisions and other winter uses. Importantly, the Forest Service is obligated to “monitor the effects of the use of off-road vehicles” and make necessary adjustments to travel management decisions. In addition, where motor vehicle use “is directly causing or will directly cause considerable adverse effects on public safety or soil, vegetation, wildlife, wildlife habitat, or cultural resources . . . , the responsible official shall immediately close that road, trail or area to motor vehicle use until the official determines that such adverse effects have been mitigated or eliminated and that measures have been implemented to prevent future recurrence.”

**Recommendations:** The Lassen National Forest must plan for OSV use in the larger winter recreation context to effectively minimize conflicts with other recreational uses. This should include: (1) adopting Snowlands Network and Winter Wildlands Alliance’s reasonable proposals for non-motorized winter recreation areas; (2) meaningfully addressing and incorporating non-motorized winter recreation opportunities into the proposed action and DEIS alternatives; (3) meaningfully addressing current and potential future over-snow uses that may not satisfy the definition of OSV; and (4) addressing unauthorized wheeled off-road vehicle use on snow trails.

**VI. Conclusion**

86 Exec. Order No. 11644, § 8(a); 36 C.F.R. §§ 212.54, 212.57.
87 36 C.F.R. § 212.52(b)(2).
While we applaud the Lassen National Forest for identifying and considering the impacts of OSV use on a variety of forest resources and uses, we remain deeply concerned that the proposed action and DEIS alternatives fail to comply with the plain language of the subpart C regulations and the executive order minimization criteria. We hope that the forest will correct these deficiencies, and we are eager to assist in that endeavor. Thank you for your consideration, and please contact us with any questions.

Sincerely,

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SNOWMOBILE BEST MANAGEMENT PRACTICES FOR FOREST SERVICE TRAVEL PLANNING

A COMPREHENSIVE LITERATURE REVIEW AND RECOMMENDATIONS FOR MANAGEMENT

DECEMBER 2014

Winter Wildlands Alliance is a national nonprofit organization promoting and preserving winter wildlands and a quality human-powered snowsports experience on public lands.

Online: winterwildlands.org/what-we-do/policy-advocacy/
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INTRODUCTION

Winter backcountry recreation is a popular and steadily growing activity on Forest Service lands. Undeveloped skiing (including backcountry skiing, cross country skiing, and snowshoeing) is projected to be one of the five fastest growing activities on Forest Service lands in the next 50 years (Figure 1). In one scenario, the number of participants in undeveloped skiing is predicted to double - reaching 16 million participants by 2060 (Cordell 2012). Motorized snow activities are forecasted to grow as well, albeit at a slower rate. Overall, more than 20 million people participate in some form of backcountry winter recreation on National Forest lands each year (Cordell 2012).

Snowmobilers and skiers often seek out the same winter backcountry setting and look for similar experiences such as solitude, fun, and the enjoyment of the natural beauty of the mountains. But as motorized and non-motorized winter recreation grows on Forest Service lands, so does the potential for conflicts between the two user groups and impacts on natural resources. In terms of recreation opportunity, snowmobile use adversely impacts the recreation experience sought by many nonmotorized users, while the reverse is rarely true. Motorized recreation will displace nonmotorized users where use is heavy. This has occurred numerous places. Where displacement does not occur because of the high level of demand for a particular area or a lower density of snowmobile use, conflicts among users still arise, and can be substantial.

Additionally, advancements in technology and changes in use patterns among both user groups have increased the need for proactive management. While in the early years, snowmobiles were relatively slow and were limited to groomed trails, today’s snowmobiles can go off-trail and up very steep slopes. “High marking” steep alpine bowls is now a popular riding technique, and modified motorcycles with a tread and ski allow riders to negotiate even heavily wooded areas. Backcountry skiers and snowboarders have also seen their sport evolve through technological changes in gear - making it easier for skiers and snowshoers to climb and descend mountains in the heart of the winter, and accelerating the trend of increased user participation and demand.

These advancements and changes in use patterns have led to increased use conflict and impacts to natural resources. Snowmobiles can create a number of impacts to wildlife which can result in fitness costs, fragmentation, and potential population declines (Gaines et al. 2003). Water quality, vegetation, and soils can also be greatly affected – especially in more sensitive alpine environments. Hundreds of research papers and monitoring reports have quantified these impacts and have been summarized in a number of recent literature reviews (e.g., Stokowski and LaPointe 2000, Gaines et al. 2003, Baker and Bithmann 2005, Davenport and Switalski 2006, Ouren et al. 2007, USDI NPS 2011, WWA 2014).

SNOWMOBILE MANAGEMENT

In recent years, the Forest Service has identified “unmanaged recreation” as one of the four threats to the health of National Forests (Bosworth 2003). On most forests, snowmobile recreation opportunities were never formally planned, but resulted from a default policy of allowing motorized use - including in many places where snowmobiling could not actually occur because of limitations in technology - in the absence of a specific reason to close or restrict it. As a result, more than 70 percent or 81 million acres in the western snowbelt forests are open to potential snowmobile use (Rivers and Menlove 2006, Figure 2). While skiers (including cross country, backcountry, and snowshoers) outnumber snowmobiles on National Forest System Lands (USDA FS 2014a), significantly more acreage and trail miles are available for winter motorized recreation than are designated for non-motorized recreation (Rivers and Menlove 2006, Figure 2). Of the thirty percent or 35 million acres closed to snowmobiles two-thirds are in Wilderness areas where all motorized use is legally prohibited, but where human-powered winter recreation opportunities are often difficult or impossible to access. Furthermore, many of the existing trailheads are weighted towards snowmobile recreation. The legacy of this unplanned “allocation” is widespread ‘open’ allocations for winter motorized use that is often not based on historical use patterns or any specific rationale, and displacement.

1 In this document, snowmobile and motorized use are used interchangeably, however, the Forest Service will also use over-snow vehicle (OSV). Skiing and non-motorized use are also used interchangeably and include backcountry skiing and snowboarding, as well as cross country skiing and snowshoeing. Snowmobile area and play area are also used interchangeably and are referring to an area on a forest which permits unrestricted snowmobile travel.
of non-motorized users has occurred as snowmobiles, aided by technology, expand their reach (e.g., Stokowski and LaPointe 2000, Manning and Valliere 2001, Adams and McCool 201). Revisiting the disparity of this allocation is critical to addressing recreational use conflict (Adams and McCool 2010).

Figure 2: Acres open and closed to snowmobiles on National Forests in the western snowbelt region (reprinted from Rivers and Menlove 2006)

MAIN AUTHORITIES GOVERNING THE MANAGEMENT OF SNOWMOBILES IN THE NATIONAL FOREST SYSTEM

In the early 1970s, management of snowmobiles and other motorized uses on public lands was inconsistent. However, after a series of ecological research findings and an increasing need for conflict management, President Nixon signed Executive Order 11644 on February 8, 1972. This order charged federal land managers with developing and issuing regulations to manage off-road vehicles, including snowmobiles, specifically to minimize damage to natural resources and minimize conflicts between motorized and non-motorized communities. The Executive Order continues to be the legal authority guiding off-road vehicle designations on public lands.

Executive Order 11644:

Section 3. Zones of use. (a) Each respective agency head shall develop and issue regulations and administrative

in structions, within six months of the date of this order, to provide for administrative designation of the specific areas and trails on public lands on which the use of off-road vehicles may be permitted, and areas in which the use of off-road vehicles may not be permitted, and set a date by which such designation of all public lands shall be completed. Those regulations shall direct that the designation of such areas and trails will be based upon the protection of the resources of the public lands, promotion of the safety of all users of those lands, and minimization of conflicts among the various uses of those lands. The regulations shall further require that the designation of such areas and trails shall be in accordance with the following—

(1) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, or other resources of the public lands.

(2) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats.

(3) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(4) Areas and trails shall not be located in officially designated Wilderness Areas or Primitive Areas. Areas and trails shall be located in areas of the National Park system, Natural Areas, or National Wildlife Refuges and Game Ranges only if the respective agency head determines that off-road vehicle use in such locations will not adversely affect their natural, aesthetic, or scenic values.

In 1977, President Carter signed Executive Order 11989, which amended and strengthened EO 11644 by giving federal public land managers the authority to close a motorized route or area if it “will cause or is causing considerable adverse effects” to natural resources:

Executive Order 11989:

Section 9. Special Protection of the Public Lands. (a) Notwithstanding the provisions of Section 3 of this Order, the respective agency head shall, whenever he
determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

(b) Each respective agency head is authorized to adopt the policy that portions of the public lands within his jurisdiction shall be closed to use by off-road vehicles except those areas or trails which are suitable and specifically designated as open to such use pursuant to Section 3 of this Order.

**Travel Management Rule (TMR)**

Over the last few decades, impacts from unmanaged off-road vehicle use and the growth of non-motorized backcountry recreation on National Forest System lands has led to a renewed effort to comply with the Executive Order direction. In 2005, the Forest Service promulgated the Travel Management Rule (TMR) to govern the management of the summer and winter off-road vehicle systems.\(^2\) Subpart B of the TMR requires the Forest Service to have a designated summertime off-road vehicle system, while subpart C allowed but did not require forests to designate a winter time off-road vehicle system.

In 2013, a Federal court found that subpart C failed to comply with the direction in the Executive Order to designate a system of trails and areas that minimize impacts to natural resources and conflicts. In response, the Forest Service issued a draft amendment to the TMR in 2014 to require the designation of roads, trails, and areas where over-snow vehicle (OSV) use is allowed, restricted, or prohibited. A final winter travel rule is expected during late 2014 or early 2015. In the coming years, Forests that receive enough snow to support winter recreation will be required to have a system of designated routes and areas for winter motorized use, providing opportunity for public involvement as they do so. This document is designed specifically to aid in the process of OSV route and area designation, management and monitoring on Forest Service lands.

BEST MANAGEMENT PRACTICES (BMPS) FOR LAND MANAGERS MINIMIZING IMPACTS FROM SNOWMOBILES

Best management practices provide science-based criteria and standards that land managers follow in making and implementing decisions that affect natural resources and human uses. BMPS are usually developed for a particular land use (e.g., road building and maintenance) and are based on the best available science, legal obligations and pragmatic experience (Switalski and Jones 2012).

While some BMPs currently exist for snowmobiles, they are presented in a piecemeal, resource-specific fashion, or only provide guidelines for trail building and maintenance. For example, the Forest Service has created BMPs for protecting water quality on their lands and gives some guidance on how to minimize impacts related to snowmobile route planning (USDA FS 2012). The Forest Service – as well as other land management agencies – also has guidance to pursue environmental collaboration and conflict resolution in addressing land management challenges generally (OMB CEQ 2012). The practice of collaboration and conflict resolution has been an increasing trend in recent years, and for environmental collaboration to be successful, several key aspects have been identified, including: balanced stakeholder representation, clear goals and objectives, information exchange, and shared decision-making (Schuett et al. 2001). As the Forest Service begins travel planning, it will be essential to have a comprehensive framework to help managers implement their mandate to minimize social and environmental impacts in designating winter motorized routes and areas.

In this document, we lay out the best available science for the impacts of snowmobiles on recreation use conflict and natural resources including water quality, soils, vegetation, and wildlife. Building off of the literature and existing recommendations from researchers and managers, we present a framework for minimization of snowmobile impacts. These Best Management Practices provide guidelines to help Forest Service managers designate appropriate routes and areas, and close inappropriate routes and areas. Additionally, they provide guidance on managing snowmobile use to be consistent with the Executive Orders minimization criteria and the Forest Service Travel Management Rule.

MONITORING, ENFORCEMENT, AND FUNDING

Key to any management action is monitoring the success or failure of a project and adapting the management strategy to reach the project objectives. Accordingly, the BMPs presented here rely heavily on monitoring. Enforcement of management actions is also essential for the success of any management plan (Adams and McCool 2010).

It is also essential that the Forest Service allocate adequate funding and resources to undertake travel planning efforts (Yankoviak 2005, Adams and McCool 2010). Education and outreach programs that reduce conflict between uses and to increase compliance have also been implemented (Lindberg et al. 2009, USDA NPS 2013); however there is limited data on the success of these programs and such efforts may need to be supplemented with monitoring and enforcement of existing regulations.

Yellowstone National Park has developed an extensive adaptive management program following the implementation of their winter use plan (USDA NPS 2013). They have identified key resources affected by motorized recreation, indicators for measuring their effects, and the most appropriate monitoring methods (Table 1). Using this framework they are able to revisit management decisions so learn if they are effectively mitigating use conflicts and environmental concerns in the Park.

<table>
<thead>
<tr>
<th>Affected Resource</th>
<th>Indicator</th>
<th>Preliminary Monitoring Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality at the West Entrance and Old Faithful</td>
<td>Levels of CO, PM10, and NOx</td>
<td>Fixed site monitoring for CO, PM10, and NOx</td>
</tr>
<tr>
<td>Soundscape directly adjacent to park roads</td>
<td>Audibility, decibel levels (dBA) in terms of magnitude and duration (constant sound level or 10 dB above background sound)</td>
<td>Could include audibility logging, digital recordings, and sound pressure level measurement</td>
</tr>
<tr>
<td>Visitor Experience</td>
<td>Satisfaction</td>
<td>Visitor survey (pending OMB approval)</td>
</tr>
<tr>
<td>Wildlife on or near roads</td>
<td>Wildlife behavioral responses to OSV</td>
<td>Observational studies</td>
</tr>
</tbody>
</table>

CLIMATE CHANGE

Today's land managers have to plan in the context of a rapidly changing climate. This will include addressing rising temperatures, thinner snow packs, more intense storms, and more rain-on-snow events which can damage trail systems and add additional management challenges (IPCC 2013). A receding snowpack and earlier spring runoff will alter future winter backcountry recreation use patterns.

With fewer or smaller areas available, there will be a concentration of use which may lead to increased crowding, recreational conflict and resource damage. For example, it is becoming more commonplace for snowmobiles to travel on dry roadbeds or snow-free trails to access the receding snowline.
This direct contact with the ground can cause soil compaction, erosion, and water quality issues and lead to a whole new set of management concerns. In another example, grizzly bears may leave their dens earlier as climate changes making previous seasonal management decisions obsolete. The trails themselves will need increased maintenance such as grading and clearing obstacles during snow-free months, upgrading culverts, building larger bridges, and moving routes from areas prone to flooding or rapid melting. To preserve quality recreation opportunities and minimize natural resource damage, land managers should consider the impacts of a changing climate when developing management direction.

WINTER RECREATIONAL USE
CONFLICT RESEARCH

INTRODUCTION

As more people recreate in the backcountry, winter wildlands are becoming increasingly crowded and conflicts are on the rise. Backcountry skiers and other non-motorized users seek out solitude, quiet, and undisturbed natural areas. Desirable terrain, snow conditions and access are also key components of their recreational experience. Snowmobiles change the quality of this experience and create conflict with other winter recreationists (Adams and McCool 2012). Conflict among motorized and non-motorized use is typically “asymmetrical” where skiers experience conflict, while snowmobilers do not (Knopp and Tyger 1973, Jackson and Wong 1982, Gibbons and Ruddell 1995). Quiet non-motorized recreationists can have the quality of their experience dramatically altered by snowmobiles, while motorized users often don’t even notice skiers using the same landscape.

In this section we present recent research on how snowmobile use and associated noise and fumes impact non-motorized use. Motorized use often creates a level of annoyance from non-motorized users that has been documented to lead to displacement (e.g., Stokowski and LaPointe 2000, Manning and Valliere 2001, Adams and McCool 2010). However, a well-planned and enforced system of routes and areas as well as improved management tools and technologies can help reduce or eliminate conflict.

SOUNDSCAPE

Protecting quiet soundscapes has become an increasingly important management issue in winter landscapes. Snowmobile noise is one of the biggest sources of use conflict, as an increasing number of winter recreationists seek out the peace and quiet found in the backcountry to escape the sounds of modern busy life (Abraham et al. 2010). Noise from motorized recreation is a particular problem in winter, when all use is restricted to a relatively small number of plowed trailheads and nonmotorized users cannot readily access Wilderness.

Natural soundscapes have been found to assist “in providing a deep connection to nature that is restorative and even spiritual for some visitors” (Freimund et al. 2009, pg. 4). When users have these expectations, the mechanical noise of snowmobiles can result in a substantial diminution in their recreation experience from the presence of snowmobile noise in otherwise quiet areas. This can negatively impact the experience of the recreationist, create conflict, and ultimately lead to displacement (Gibbons and Ruddell 1995, Manning and Valliere 2001, Vitterso et al. 2004, Adams and McCool 2010).

In “multiple-use” backcountry areas, snowmobile noise can be difficult to escape. While dependent on speed, type of machine, and direction of wind, snowmobile noise can travel up to 10 miles (Hastings et al. 2006, Burson 2008) – a distance farther than most non-motorized recreationists travel in a day. Additionally, considering that most forest roads are not plowed in the winter, the ability of skiers to avoid motorized noises is very restricted. Often trails and areas that are considered “frontcountry” and easily drivable in the summer are much more difficult to access in the winter. Accordingly, the user expectation in these areas is more aligned with a backcountry experience including a quiet soundscape. This disconnect between available recreation settings and desired user experience is something the Forest Service primarily addresses in planning through the Recreation Opportunity Spectrum (ROS). However, ROS is a classification tool that describes physical, social and managerial attributes – access, remoteness, size, user density, level of development – in summer, but not winter. Addressing these frontcountry multiple-use areas, which span a variety of ROS settings, is a particularly important source of conflict to address in travel planning.
AIRSHED

Motorized and non-motorized winter backcountry recreationists are often confined to the same plowed parking areas to prepare for their trips. However in these “staging areas” snowmobile emissions can be concentrated and lead to an additional source of conflict and potential health concerns. While technological advances have produced cleaner four-stroke engines (and even zero emission electric snowmobile prototypes), the vast majority of snowmobiles still use highly polluting two-stroke engine technology. Lubricating oil is mixed with the fuel, and 20% to 30% of this mixture is emitted unburned into the air and snowpack (Kado et al. 2001). Also, the combustion process itself is relatively inefficient and results in high emissions of air pollutants (USDI NPS 2000). As a result, two-stroke snowmobiles emit very large amounts of smoke which includes carbon monoxide (CO), unburned hydrocarbons (HC) and other toxins (Zhou et al. 2010). Carbon monoxide is particularly harmful to the human body’s ability to absorb oxygen (Janssen and Schettler 2003), and thus is particularly harmful to other users who wish to engage in aerobic exercise.

Concerns over human health related to snowmobile emissions have led to extensive recent research on snowmobile pollution in Yellowstone National Park (e.g., USDI NPS 2000, Bishop et al. 2001, Kado et al. 2001, Janssen and Schettler 2003, Bishop et al. 2006, Bishop et al. 2009, Ray 2010, Zhou 2010), and conclusions from these studies have led to a ban of older technology 2-stroke engines from the Park (USDI NPS 2013). Emissions from snowmobiles emit many carcinogens and can pose dangers to human health (Eriksson et al. 2003, Riemann et al. 2009). Several “known” or “probable” carcinogens are emitted including nitrogen oxides, carbon monoxide, ozone, aldehydes, butadiene, benzenes, and polycyclic aromatic hydrocarbons (PAH). Particulate matter, also found in snowmobile smoke, is detrimental in fine and coarse forms as it accumulates in the respiratory system and can lead to decreased lung function, respiratory disease and even death (Janssen and Schettler 2003). While most of the acute toxic effects of snowmobiles are limited to staging areas and parking lots, the smoke and fumes from snowmobiles on trails can dramatically reduce the quality of the experiences of non-motorized users along the trail as well.

VIEWSHED AND OTHER IMPACTS

In addition to the sounds and smells of snowmobiles, simply the presence of snowmobiles on the landscape can degrade the experience of many non-motorized users. In just a few hours, snowmobiles can access almost any basin in the west and disproportionately consume a limited resource, powder snow. Slopes displaying dozens of “high mark” tracks can take away the natural beauty of the landscape for some. The deep tracks of snowmobile can also create a hazard when skiing down a slope, or quickly “track out” a slope, rendering it un-skiable. Safety is also a concern as there is the possibility of collision with a snowmobile, or a risk of a snowmobile triggering an avalanche from above. Alternatively, a snowmobile can diminish the sense of risk or wildness because they effectively reduce the distance from safety (McCool and Adams 2012).

WINTER RECREATIONAL USE CONFLICT MANAGEMENT

The most effective way to manage recreational use conflict is a well-planned and enforced system of routes and areas that separate motorized and non-motorized uses as much as possible (e.g., Andereck et al. 2001, Lindberg et al. 2009, Adams and McCool 2010, USDI NPS 2013). Simply reducing snowmobile noise and smells may not be sufficient to reduce conflict or deter displacement, although limiting snowmobile use to best available technology (BAT) machines, as has been done at Yellowstone National Park, can substantially reduce use conflict. Closing or separating the non-compatible uses is the most effective way to reduce conflict. For example, an analysis of conflict reduction strategies in Sweden found that closing access to snowmobiles – a change from seeing hearing, and smelling snowmobiles, led to significant skier welfare gains (Lindberg et al. 2009).

Another strategy employed by the Forest Service is to separate motorized and non-motorized temporarily, thereby granting all users some opportunity for use while minimizing conflict. On the Chugach National Forest, for example, one section of the forest is closed to motorized use on alternating years (USDA FS 2007b). On the Humboldt-Toiyabe NF, a high-elevation trailhead is shared use until lower elevation access receives enough snow for OSV use at which point it becomes non-motorized (USDA FS 2007a). In more popular areas, shorter alternating closure periods, such as biweekly, may be more appropriate.

Mitigating snowmobile noise can help address use conflicts as well. Snowmobile noise can travel long distances in the winter, and noise models have been used to identify areas of recreational use conflict, and plan for management actions. For example, noise modeling has been used extensively in Yellowstone National Park to estimate the area affected by noise under a range of management alternatives (Hastings et al. 2006, Hastings et al. 2010, USDI NPS 2013, Figure 3).
Several studies have recommended replacing two-stroke engines with four-stroke engines to significantly reduce emissions and noise (e.g., Miers et al. 2000, Kado et al. 2001, Eriksson et al. 2003). Four-stroke engines are significantly less polluting (Zhau et al. 2010, Figure 4), and have improved fuel efficiency, as well as a reduction in visible exhaust plumes, odor, and noise (Bishop et al. 2006). A study of using best available technology (BAT) machines in Yellowstone has resulted in a 60% reduction in Carbon Monoxide (CO) and a 96% reduction in Hydrocarbon (HC) emissions (Bishop et al. 2006). However, if motorized use of a route or area has been identified as having an unacceptable impact on other user groups, that route or area should be closed (Lindberg et al. 2009, McCool and Adams 2010, and NYSDEC 2011).

Furthermore, in some forests non-motorized opportunities are limited, so creating non-motorized areas may be needed. For example, a snowmobile plan for Adirondack Park (NY) calls for closing routes if the “...opportunities for quiet, non-motorized use of trails are rare or nonexistent” (NYSDEC 2011, p.244). Finally, in some areas - regardless of conflict, snowmobiling should not be allowed. For example, Adams and McCool (2010) argue that roadless areas should be protected from motorized use because “roadless areas are exceptional for their wild and quiet recreational opportunities, their habitat for threatened and endangered species, and other values. Their character and values derive from their lack of accessibility by motor vehicles” (p. 109).

Figure 3: Example of noise simulation modeling used in Yellowstone National Park to identify where disturbance and conflict may be a management issue. Orange is the distance snowmobiles and snow coach noise travels beyond the groomed roads. Model inputs include temperature, relative humidity, snow cover, and natural ambient sound levels. The modeling also accounts for the acoustic effects of topography, vehicle speeds, and vehicle group size (USDI NPS 2013).

Figure 4: Average nonmethane hydrocarbons exhaust emission ratios relative to ethene (ppmv/ppmv) for two-stroke and four-stroke engines in 2002 (Reprinted with permission from Zhou, Y., D. Shively, H. Mao, R.S. Russo, B. Pape, R.N. Mower, R. Talbot, and B.C. Sive. 2010. Air toxic emissions from snowmobiles in Yellowstone National Park. Environmental Science and Technology 44(1): 222-228. Copyright 2010 American Chemical Society)
BEST MANAGEMENT PRACTICES FOR WINTER RECREATIONAL USE CONFLICTS

DESIGNATING MOTORIZED USE

• When necessary elements for successful collaboration exist, establish a working group with motorized and non-motorized users, conservation interests, land managers, and other stakeholders to develop concepts for minimizing recreational conflict.

• Identify routes and areas where there is ongoing conflict among motorized and non-motorized winter recreational use using existing information, surveys, GIS modeling, and community outreach.

• Identify routes and areas of particularly high value or demand for motorized and non-motorized use.

• To the degree possible, allocate separate trails, trailheads, and areas.

• Ensure that non-motorized trails and areas are available:
  - close to plowed access points, groomed trails, and other access portals.
  - in contiguous non-motorized blocks.
  - in areas where there are few non-motorized opportunities.
  - in both frontcountry and backcountry settings.
  - in areas with scenic beauty.
  - in areas sheltered from noise emanating from motorized areas.
  - across a variety of Recreational Opportunity Spectrum (ROS) categories.

• Ensure that a fair balance of unplowed roads are set aside for nonmotorized use.

• Locate motorized routes and areas:
  - away from popular or historically used backcountry ski areas, or areas of growing use.
  - outside proposed Wilderness Areas, Wilderness Study Areas, and Research Natural Areas.
  - with easily enforceable boundaries using topographic or geographic features, (e.g., a ridge top or highway) - use boundary signage to provide additional clarity, or where unauthorized use is occurring.
  - where they do not bisect non-motorized areas.

• Consider temporal restrictions in areas of high-use or high-value to both motorized and non-motorized use. This includes both early/late season restrictions, as well as alternating access.

• Where necessary to designate a motorized route through a nonmotorized area, locate and manage such route (such as speed and idling limits) to minimize disturbance to the nonmotorized area.

• In areas of shared use consider requiring Best Available Technology (BAT) to reduce conflict and impacts between uses.

MINIMIZING IMPACTS OF MOTORIZED USE

• Undertake proactive and systematic outreach programs in order to facilitate increased compliance of closures and reduce user conflicts.

• Provide free digital and paper maps that clearly show routes, areas, and watersheds open and closed to snowmobiles.

• Encourage or require the use of Best Available Technology (BAT) snowmobiles to reduce noise and local air quality impacts.

• Implement significant penalties and consequences for violating snowmobile regulations that will dissuade users from such violations.

• Monitor closed routes and areas to ensure that snowmobile intrusion is not occurring.

• Establish an adaptive management framework using monitoring to determine efficacy of current management.

• Revisit plan decisions as necessary to ensure use conflicts are being minimized and motorized impacts are below accepted thresholds. Close snowmobile routes and areas when motorized use is leading to trespass onto non-motorized trails or areas.

Backcountry skiing, Gallatin NF, Adam Switalski. 2009.
WILDLIFE RESEARCH

INTRODUCTION

While many animals are well adapted for survival in the winter, deep snow and cold temperatures can limit foraging opportunities and increase metabolic demands. Snowmobiles can add to animals’ vulnerability during this critical time by eliciting physiological responses such as increased heart rate and elevated stress level; eliciting behavioral responses including displacement and avoidance; facilitating sources of competition; and/or increasing hunting, trapping, and poaching mortality (for a review see Gaines et al. 2003, Figure 5, Table 2). These impacts can result in fitness costs, fragmented wildlife populations, and potential population declines (Gaines et al. 2003).

In this section, we focus on three species that warrant special attention because their populations are in decline or vulnerable, and they have state and/or federal legal protections: grizzly bears (Ursus arctos), wolverine (Gulo gulo), and lynx (Lynx canadensis). The strongest protection is afforded by the Endangered Species Act which prevents any “take” of a listed species. The term “take” includes any “means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.) As supported below, these three species are highly susceptible to snowmobile noise and disturbance and will need additional management actions to ensure winter recreation does not compromise their recovery. We also highlight research on the impact of snowmobiles on ungulates which are managed as game species and also need special management considerations.

Table 2. Snowmobile route associated factors for wide-ranging carnivores and ungulate focal species (adapted from Gaines et al. 2003).

<table>
<thead>
<tr>
<th>Focal species</th>
<th>Scientific name</th>
<th>Snowmobile route associated factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grizzly bear</td>
<td>Ursus arctos</td>
<td>Disturbance at a specific site</td>
</tr>
<tr>
<td>Wolverine</td>
<td>Gulo gulo</td>
<td>Trapping</td>
</tr>
<tr>
<td>Lynx</td>
<td>Lynx canadensis</td>
<td>Route for competitors or predators, Trapping</td>
</tr>
<tr>
<td>Gray wolf</td>
<td>Canis lupus</td>
<td>Disturbance at a specific site, Trapping</td>
</tr>
<tr>
<td>American marten</td>
<td>Martes americana</td>
<td>Trapping</td>
</tr>
<tr>
<td>Fisher</td>
<td>Martes pennanti</td>
<td>Displacement or avoidance</td>
</tr>
<tr>
<td>Mule deer</td>
<td>Odocoileus hemionus</td>
<td>Disturbance at a specific site</td>
</tr>
<tr>
<td>Elk</td>
<td>Cervus canadensis</td>
<td>Displacement or avoidance</td>
</tr>
<tr>
<td>Bighorn sheep</td>
<td>Ovis canadensis</td>
<td>Disturbance at a specific site, Physiological response</td>
</tr>
</tbody>
</table>

GRIZZLY BEAR

Grizzly bears (Ursus arctos) are a Threatened Species under the U.S. Endangered Species Act and protected from harm across their range in the continental U.S. Their denning habitat often overlaps with winter recreation areas, and they are susceptible to disturbance - increasing energy expenditures and the potential of den abandonment (Linnell et al. 2000). Direct mortality is also possible if an avalanche is triggered on a slope where the bears are hibernating (Hilderbrand 2000).

Grizzly bears typically den in relatively high elevation areas with more stable snow conditions and steep slopes (Linnell et al. 2000). In general they avoid roads (Mace et al. 1996), and will typically select den sites one to two kilometers from human activity (Linnell et al. 2000). However, snowmobiles can easily access these remote sites, posing the potential for disturbance. No systematic data set exists on how denning bears react to snowmobile disturbance, but a comprehensive review on the topic found that human disturbance within one kilometer of a den site has a significant risk of abandonment, especially early in the denning season (Linnell et al. 2000).

GRIZZLY BEAR MANAGEMENT

Although grizzly bears can be susceptible to disturbance and the risk of den abandonment, careful management of winter recreation can help avoid this conflict. Linnell et al. (2000) recommended that “winter activities should be minimized in suitable or traditional denning areas; if winter activity is unavoidable, it should begin around the time bears naturally enter dens, so that they can choose to avoid disturbed areas; and winter activity should be confined to regular routes as much as possible” (Linnell et al. 2000, pgs. 409-410). Podrunzney et al. (2000) modeled the overlap of potential grizzly bear denning habitat and potential snowmobile use areas on the Gallatin National Forest, MT. This model was used in Forest Service travel planning and allowed managers to plan snowmobile routes and areas to avoid conflict with grizzly bears.
Similar modeling efforts have been conducted in Alaska incorporating both motorized and non-motorized recreation with bear denning habitat (see Goldstein et al. 2010).

As a federally protected Threatened Species, the U.S. Fish and Wildlife Service considers snowmobile disturbance as a potential “take” thus requiring management actions. In a recent Biological Opinion for snowmobiling on the Flathead National Forest (MT), the U.S. Fish and Wildlife Service required the Forest to “quantify and monitor snowmobile use... and ensure adequate protection to known and discovered grizzly bear den sites and post-emergent females with cubs” (USDI FWS 2008, p. 57). In 2014, the Flathead National Forest closed the Skyland / Challenge snowmobile play area due to the emergence of a grizzly bear in the area.

Limiting open motorized route density is a key management action to increase grizzly bear habitat security. For example, USDA FS (2011) recommends limiting open motorized route density to less than 1 mile per square mile in much of the Cabinet-Yaak Recovery Area. State-level management plans also address management of snowmobiles in grizzly bear habitat. For example, The Montana Forested State Trust Lands Habitat Conservation Plan calls for minimizing road miles and restricting public access (including snowmobiles) on roads in important grizzly bear habitat areas and seasons (MT DNRC 2011).

Wolverine (Gulo gulo) are a rare, long-ranging carnivore that spends most of their lives in high elevation areas (Aubry et al. 2007). While they roam hundreds, sometimes thousands of miles seeking food and mates, in the heart of the winter females dig dens in the snowpack and give birth. Little has been known about this elusive carnivore until recently when it was petitioned for listing under the Endangered Species Act, resulting in a flurry of research studies. Wolverine are a Species of Special Concern in Montana, classified as a Sensitive Species by the Forest Service, and trapping has been banned across their range in the continental U.S.

In general, wolverine are sensitive to human disturbance. In studies in Canada, wolverine have been found to be much more common in protected areas than in multiple-use landscapes (Fisher et al. 2013, Whittington et al. 2014). Snowmobile use commonly overlaps with wolverine denning habitat, and their noise may cause female wolverines to abandon their denning sites, potentially reducing their reproductive success.

An ongoing five-year study is examining the impact of winter recreation on wolverine in multiple mountain ranges in Montana and Idaho (Heinemeyer and Squires 2013). Preliminary results suggest that in areas with winter backcountry use, denning female wolverine move more frequently, are moving at higher rates when in higher intensity recreation areas, and move more during the weekend when there is more use (Heinemeyer and Squires 2013). These impacts are creating a “significant additive energetic effects on wolverine during the critical winter and denning periods” (Heinemeyer and Squires 2013, p. 5).

While the majority of the study sites they have studied are snowmobile use areas, the ongoing study is adding more sites where non-motorized backcountry skiers recreate as well. However, researchers have already noted that limitations on the distance that skiers can travel often allows for core denning habitat to be available beyond the reach of backcountry skiers (Heinemeyer et al. 2014).

Wolverine Management

Wolverine have very large home ranges and need large blocks of interconnected habitat. Key management schemes for protecting wolverine include limiting disturbance and retaining and restoring habitat connectivity. Managers can reduce the potential conflict with snowmobiles and wolverine by identifying areas of overlap and managing accordingly. For example, The Wilderness Society developed the SPreAD-GIS model that can model snowmobile sound propagation overlap with wolverine denning habitat (Reed et al. 2009, Figure 6). Two other sound propagation models have also been used by Yellowstone National Park to model over-snow vehicle audibility including the Integrated Noise Model, and the Noise Simulation Model (USDI NPS 2013).

In the face of climate change, wolverines may lose much of their denning habitat as persistent snowfields disappear (Fisher et al. 2013), and connectivity among remaining habitat patches will become increasingly important (Schwartz et al. 2009). The 2014 Management Plan for the Conservation of Wolverines in Idaho calls for identifying wolverine linkage areas at local and regional scales and pro-actively conserving them (IDFG 2014).
CANADA LYNX

Canada lynx (Lynx canadensis) is a Threatened Species under the U.S. Endangered Species Act. They are adapted to deep snow conditions, allowing them to thrive in habitats where potential competitors and predators like coyotes (Canis latrans) cannot easily survive. However, compacted snow trails and play areas help facilitate coyote movement into Canada lynx habitat. While one study in Montana found limited use of snowmobile trails by coyotes (Kolbe et al. 2007), studies in Utah and Wyoming documented coyotes using compacted trails extensively resulting in potential competition and displacement of Canada lynx (Bunnell et al. 2006, Gese et al. 2013, Dowd et al. 2014). The differences in results are probably due to different regional snow characteristics, predator communities, and snowmobile use (Bunnell et al. 2006). While both snowmobiles and skis create trails that coyotes could exploit, snowmobiles can travel an order of magnitude further in a day than non-motorized users.

CANADA LYNX MANAGEMENT

Both researchers and managers have recommended limiting snowmobile routes in lynx habitat. Following their research on coyotes use of snowmobile trails, Dowd et al. (2014) suggests “limiting the expanse of groomed trail system may minimize coyote encroachment into these deep snow environments” (p.39). The Canada Lynx Assessment and Conservation Strategy set planning standards on Forest Service lands that include, “on federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by Lynx Analysis Unit... and map and monitor the location and intensity of snow compacting activities that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes available” (USDA FS 2000, p.82).

UNGULATES

Ungulates are hoofed animals including deer (Odocoileus spp.), elk (Cervus canadensis), moose (Alces alces), mountain goat (Oreamnos americanus), and bighorn sheep (Ovis canadensis). All of these animals are highly prized game species. Bighorn sheep are classified as a Sensitive Species by the Forest Service, and two subspecies - Nelson’s Peninsular and Sierra Nevada bighorn sheep - are listed as Endangered Species. It has been well established that undisturbed “winter range” is essential for ungulates survival (Canfield et al. 1999).

Studies have found that snowmobiles can exhibit both a physiological and behavioral response on a number of ungulate species (Gaines et al. 2003, Table 2). Recent studies in Yellowstone found elk had increased stress (Creel et al. 2002), and actively responded (Borkowski et al. 2006) when approached by snowmobiles. A recent study on moose in Scandinavia also found disturbance and displacement following snowmobile activity (Neumann et al. 2011). Bighorn sheep and mountain goats are particularly susceptible to the effects of disturbance because they are limited to relatively small areas of suitable habitat with very steep and rocky slopes Canfield et al. (1999).

UNGULATE MANAGEMENT

Limiting disturbance on ungulates, especially in winter range, is a key management strategy. For example, Canfield et al. (1999) in their review of the impact of recreation on Rocky Mountain ungulates suggest keeping motorized routes and trails away from wintering areas, and to create established designated travel routes to make human use as predictable as possible. Further, Harris et al. (2014) recently reviewed the impacts of winter recreation on northern ungulates and highlighted the importance of limiting the duration and spatial footprint of disturbance.

Yellowstone National Park has implemented a number of policies to reduce disturbance from snowmobiles. Some of these practices include: limiting the number of snowmobiles, requiring best available technology, setting speed limits of 35mph, and establishing open and closure dates (USDI NPS 2013). This has also been coupled with monitoring and complementary research projects which can measure the effectiveness of the management plan. For example, Borkowski et al. (2006) stated that snowmobile regulations in Yellowstone including levels and travel routes “were effective at reducing disturbances to bison and elk below a level that would cause measurable fitness effects” (p.1).
**BEST MANAGEMENT PRACTICES FOR WILDLIFE**

**DESIGNATING MOTORIZED USE**

- Identify routes and areas where there is the potential for snowmobile disturbance of key wildlife including grizzly bear, wolverine, lynx, and ungulate winter range using survey data or GIS modeling. Survey information should be catalogued and regularly updated in a GIS database.

- Locate motorized routes and areas:
  - where disturbance is unlikely to significantly affect viability or recovery of listed or petitioned threatened or endangered species:
    - limit snowmobile routes and areas in grizzly bear suitable denning habitat, wolverine denning habitat, and Canada lynx Critical Habitat.
    - reduce snowmobile route density to below 1 mile/mile² in occupied habitat.
  - outside proposed Wilderness Areas, Wilderness Study Areas and Research Natural Areas.
  - in discrete, specified areas bounded by natural features (topography and vegetative cover) to provide visual and acoustic barriers and to ensure that secure habitat is maintained for wildlife.
  - outside critical ungulate wintering habitat.

- Set dates for snowmobile season opening and closure, and adjust based upon seasonal wildlife needs including:
  - critical ungulate wintering habitat/winter concentration areas (e.g., December through March in Rockies).
  - grizzly bear denning season (mid-November), and emergence time (mid-April).

- Limit or close routes and play areas with known bighorn sheep and mountain goat populations.

- Limit or close areas to off-road and oversnow vehicle use in areas where antler shed hunting is prevalent.

- Limit the number of routes and restrict off-trail use in key wildlife corridors.

- Maintain large un-fragmented, undisturbed, and connected blocks of forestland and alpine habitat where no snowmobile routes are designated.

**MINIMIZING IMPACTS OF MOTORIZED USE**

- Implement outreach programs to raise public awareness of winter wildlife habitat, wildlife behavior, and ways to minimize user impacts.

- Encourage or require the use of Best Available Technology (BAT) where necessary to limit disturbance on sensitive species.

- Close snowmobile routes and areas if a grizzly bear emerges from their den in the area.

- Monitor closed and areas to ensure they are effectively mitigating impacts to wildlife, and not being used illegally.

- Establish an adaptive management framework using monitoring to determine efficacy of current management. Revisit plan decisions as necessary to ensure wildlife impacts are being minimized and motorized impacts are below accepted thresholds.

**WATER QUALITY, SOILS, AND VEGETATION RESEARCH**

**INTRODUCTION**

Since the seminal research of Wallace Wanek and his colleagues in the 1970s, it has been well established that snowmobiles can negatively impact water quality, soils, and vegetation. However, while early researchers focused on localized impacts of snowmobiles on groomed trails, today’s machines also travel off-trail and into many sensitive habitats such as alpine cirques, meadows, and wetlands. Water quality can also be affected when spring runoff releases pollutants stored in the snowpack. Furthermore, as snowmobiles become increasingly powerful, their increased torque and reach creates a potential for greater impact. For example, steep erosion-prone slopes are now commonly used for “high marking,” increasing the risk of soil compaction and damage to slow-growing alpine vegetation.

**WATER QUALITY**

Protecting and enhancing water supply is a key mandate of the Forest Service, and a number of aquatic species and municipal watersheds depend on National Forests - especially in the West. For example, most National Forest acres west of the Cascade Mountains in Oregon and Washington are municipal watersheds (USDA FS 2000). During the winter, snowmobiles release toxins such as ammonium, nitrate, sulfate, benzene, and toluene which accumulate in the snowpack (Ingersol 1999), and increase acidity (Musselman and Kormacher 2007). In the spring runoff, accumulated pollutants are released as a pulse into the soil, groundwater, and surrounding waterbodies.

A recent study found snowmobiles are polluting a tributary of Lake Tahoe, CA. Examining 168 different semi-volatile organic compounds (SVOC), McDaniel (2013) found eight to 20 times greater loadings on snowmobile trails than background levels. He further reported that highly toxic and persistent polycyclic aromatic hydrocarbons (PAHs) had increased two to six times the background level in a nearby stream (McDaniel 2013). Impacts to water quality can be especially pronounced at trailheads and staging areas where snowmobiles congregate (USDA FS 2012). Lakes can also be vulnerable because snow melts directly into the waterbody without any vegetative buffer, and there is a risk of snowmobiles falling through thin ice and spilling toxins directly into the water (USDA FS 2012).
SOILS

Snowmobiles can directly impact soils in a number of ways including soil compaction, erosion, and contamination. When traveling in areas of low or no snow - such as wind-swept ridges, snow-free access points, or during periods of thin snowpack - snowmobiles can be particularly damaging.

They can also indirectly impact soils through snow compaction. Weighing several hundred pounds, snowmobiles easily compact the snow which can increase snowpack density, reduce soil temperatures, increase soil freezing, and result in a later melt-out (Gage and Cooper 2009). In areas of low or no snowpack, direct soil compaction can occur from snowmobiles leading to erosion (Gage and Cooper 2009). On steep slopes – especially south facing, or wind-swept slopes - vegetation and snow can be mechanically removed from snowmobile tracks resulting in exposed bare ground (Stagl 1999). Soil compaction impacts nearly all properties and functions of soil including increased bulk density and reduced pore space leading to reduced permeability of water and air (Batey 2009). This results in surface erosion especially on steep slopes (Batey 2009). Soil erosion when located near streams can also lead to localized stream sedimentation and increased turbidity. As climate change reduces the number of snow-free days, erosion from snowmobiles will be an increasing management concern.

Soils can also be contaminated when pollutants enter the soil from a melting snowpack. With inefficient engines, snowmobiles release much of their oil gas mixture into the snow unburned. Several pollutants have been recorded in the snowpack along snowmobile trails including ammonium, nitrate, sulfate, benzene, and toluene (Ingersol 1999). In the spring these pollutants are released into the soil creating local contamination and associated impacts.

VEGETATION

Snowmobiles impact vegetation either through directly crushing and breaking vegetation, or through a number of indirect mechanisms. When traveling off-trail, snowmobiles often run over trees and shrubs causing damage or death – often with minimal snowmobile traffic. Although these impacts may not be environmentally significant when they occur in robust forest environments, they can be very significant when they occur in sensitive forest habit, such as high mountain slopes or meadows.

A recent study on the Gallatin National Forest (MT) found 366 acres of trees damaged by snowmobiles on timber sale units - slowing forest regeneration (WWA 2009, Table 3). Trees such as white-bark pine (Pinus albicaulis), found only at high elevations and declining across its range, may be vulnerable to snowmobile damage. Trampling has also been found to result in a reduction in plant productivity, changes in the plant community, and a reduction in plant diversity (Stagl 1999).

As mentioned above, compaction of the snow reduces the insulating air spaces and conducts cold air to the ground (Gage and Cooper 2009).

These lower temperatures can reduce plant density and composition, reduce productivity and growth, delay seed germination and flowering, as well as affecting decomposition rates, hummus formation and microbial activity (Davenport and Switalski 2006). These impacts ultimately can change community structure and reduce the availability and duration of spring wildlife foods (Stagl 1999).

Table 3: Summary of snowmobile damaged trees on the Gallatin National Forest (MT) reported during regeneration transect surveys of previously logged timber stands (reprinted from WWA 2009).

<table>
<thead>
<tr>
<th>Area name</th>
<th>Year logged</th>
<th>Year inventoried</th>
<th>Acres</th>
<th>Average # damaged trees per acre</th>
<th>Total number of trees damaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Teton Creek Drainage</td>
<td>1998</td>
<td>1999</td>
<td>122</td>
<td>140</td>
<td>37,080</td>
</tr>
<tr>
<td>Horse Butte Road*</td>
<td>1990</td>
<td>1999</td>
<td>15</td>
<td>514*</td>
<td>7710*</td>
</tr>
<tr>
<td>Madison Arm</td>
<td>1991</td>
<td>1995</td>
<td>12</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>Uinta</td>
<td>1995</td>
<td>1998</td>
<td>66</td>
<td>23</td>
<td>1564</td>
</tr>
<tr>
<td>Uinta*</td>
<td>1996</td>
<td>1998</td>
<td>100</td>
<td>657*</td>
<td>65,200*</td>
</tr>
<tr>
<td>Crow Creek*</td>
<td>1985</td>
<td>1995</td>
<td>40</td>
<td>723*</td>
<td>43,500*</td>
</tr>
<tr>
<td>Total damaged trees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>135,114</td>
</tr>
</tbody>
</table>

*surveys note the presence of a snowmobile trail in this stand

WATER QUALITY, SOILS, AND VEGETATION MANAGEMENT

The most common strategies for protecting water quality, soils, and vegetation from snowmobile impacts is to ensure that there is adequate snow cover and create a buffer around waterways. For example, the Forest Service has developed National Best Management Practices to protect water resources on Forest Service lands from snowmobile pollution (USDA FS 2012). This document recommends, “Allow over-snow vehicle use cross-country or on trails when snow depths are sufficient to protect the underlying vegetative cover and soil or trail surface; use and enforce closure orders to mitigate effects when adverse effects to soil, water quality, or riparian resources are occurring; use suitable measures to trap and treat pollutants from over-snow vehicle emissions in snowmelt runoff or locate the staging area at a sufficient distance from nearby waterbodies to provide adequate pollutant filtering” (USDA FS 2012, p. 96-97).
WATER QUALITY, SOILS, AND VEGETATION MANAGEMENT

The most common strategies for protecting water quality, soils, and vegetation from snowmobile impacts is to ensure that there is adequate snow cover and create a buffer around waterways. For example, the Forest Service has developed National Best Management Practices to protect water resources on Forest Service lands from snowmobile pollution (USDA FS 2012). This document recommends, “Allow over-snow vehicle use cross-country or on trails when snow depths are sufficient to protect the underlying vegetative cover and soil or trail surface; use and enforce closure orders to mitigate effects when adverse effects to soil, water quality, or riparian resources are occurring; use suitable measures to trap and treat pollutants from over-snow vehicle emissions in snowmelt runoff or locate the staging area at a sufficient distance from nearby waterbodies to provide adequate pollutant filtering” (USDA FS 2012, p. 96-97).

Individual Forests have also recommended restricting snowmobile use to protect water quality. The Uinta-Wasatch-Cache National Forest (UT) does not allow recreational snowmobiling in Salt Lake City’s municipal watershed (USDA FS 2003). The Inyo, Sequoia, and Sierra National Forests are proposing a minimum of 18” of snowpack before allowing snowmobiling in their revised Forest Plan to protect forest resources (USDA FS 2014b). Restricting snowmobile use in sensitive habitats such as riparian areas and wetlands can be helpful in mitigating these impacts as well.

BEST MANAGEMENT PRACTICES FOR WATER QUALITY, SOILS, AND VEGETATION

DESIGNATING MOTORIZED USE

• Set dates for snowmobile season opening and closure, and adjust based upon adequate snow depth.

• Require a minimum snow depth of at least 12 inches, or sufficient depth to protect water quality, soils, and vegetation before allowing snowmobile trails to be groomed. Have a contingency plan and implement emergency closures if snowpack goes below this threshold.

• Require a minimum snow depth of at least 18 inches, or sufficient depth to protect water quality, soils, and vegetation before allowing snowmobiling off-trail. Have a contingency plan and implement emergency closures if snowpack goes below this threshold.

• Avoid locating snowmobile routes or areas in municipal watersheds.

• Restrict snowmobile use on wetlands, riparian areas, and sensitive meadows and buffer snowmobile trailheads and routes 150 feet from these areas.

MINIMIZING IMPACTS OF MOTORIZED USE

• Develop public information, educational programs, and signage about the impacts of snowmobiles on water quality, soils, and vegetation and how to minimize those impacts.

• Ensure adequate maintenance of bridges and culverts on routes to help prevent erosion during the spring run-off.

• If roads are only used for snowmobile use, scarify the roadbed to restore hydrology.

• Encourage or require the use of Best Available Technology (BAT) where necessary to minimize the impacts water quality, soils, and vegetation.

• Close routes and areas when excessive damage to soils and vegetation has occurred, and/or erosion has been documented.

• Monitor closed routes and areas to ensure the measures taken are effectively mitigating impacts to water quality, soils, and vegetation.

• Establish an adaptive management framework using monitoring to determine efficacy of current management. Revisit plan decisions as necessary to ensure impacts to water quality, soils, and vegetation are being minimized and motorized impacts are below accepted thresholds.

CONCLUSION

The growing number of winter backcountry users has increased recreational use conflicts and negative impacts on natural resources. As the Forest Service begins formally addressing winter recreation and determining where motorized use is allowed, restricted, and prohibited, it is essential that managers have the best available science to guide their decisions. In this document we presented the best available science on the impacts of snowmobiles. Based upon this research and the recommendations of researchers and managers, and professional experience, we have developed a list of best management practices. If these BMPs are followed, they will help mitigate recreational use conflicts and minimize impacts to natural resources. Once a system of routes and special use areas are established, enforcement and monitoring will be critical to the success of any management plan.

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LITERATURE CITED


The costs of chronic noise exposure for terrestrial organisms

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Growth in transportation networks, resource extraction, motorized recreation and urban development is responsible for chronic noise exposure in most terrestrial areas, including remote wilderness sites. Increased noise levels reduce the distance and area over which acoustic signals can be perceived by animals. Here, we review a broad range of findings that indicate the potential severity of this threat to diverse taxa, and recent studies that document substantial changes in foraging and anti-predator behavior, reproductive success, density and community structure in response to noise. Effective management of protected areas must include noise assessment, and research is needed to further quantify the ecological consequences of chronic noise exposure in terrestrial environments.

Anthropogenic noise and acoustic masking
Habitat destruction and fragmentation are collectively the major cause of species extinctions [1,2]. Many current threats to ecological integrity and biodiversity transcend political and land management boundaries; climate change, altered atmospheric and hydrologic regimes and invasive species are prominent examples. Noise also knows no boundaries, and terrestrial environments are subject to substantial and largely uncontrolled degradation of opportunities to perceive natural sounds. Noise management is an emergent issue for protected lands, and a potential opportunity to improve the resilience of these areas to climate change and other forces less susceptible to immediate remediation.

Why is chronic noise exposure a significant threat to the integrity of terrestrial ecosystems? Noise inhibits perception of sounds, an effect called masking (see Glossary) [3]. Birds, primates, cetaceans and a sciurid rodent have been observed to shift their vocalizations to reduce the masking effects of noise [4–7]. However, compromised hearing affects more than acoustical communication. Comparative evolutionary patterns attest to the alerting function of hearing: (i) auditory organs evolved before the capacity to produce sounds intentionally [8], (ii) species commonly hear a broader range of sounds than they are capable of producing [9], (iii) vocal activity does not predict hearing performance across taxa [9,10], (iv) hearing continues to function in sleeping [11] and hibernating [12] animals; and (v) secondary loss of vision is more common than is loss of hearing [13].

Masking is a significant problem for the perception of adventitious sounds, such as footfalls and other byproducts of motion. These sounds are not intentionally produced and natural selection will typically favor individuals that minimize their production. The prevalence and characteristics of adventitious sounds have not been widely studied [14–16], although their role in interactions...
among predators and prey is unquestionable. In animal communication systems, both the sender and receiver can adapt to noise masking, but for adventitious sounds the burden falls on listeners.

Anthropogenic disturbance is known to alter animal behavioral patterns and lead to population declines [17,18]. However, animal responses probably depend upon the intensity of perceived threats rather than on the intensity of noise [19]. Deleterious physiological responses to noise exposure in humans and other animals include hearing loss [20], elevated stress hormone levels [21] and hypertension [22]. These responses begin to appear at exposure levels of 55–60 dB(A), levels that are restricted to relatively small areas close to noise sources [20].

The scale of potential impact
The most spatially extensive source of anthropogenic noise is transportation networks. Growth in transportation is increasing faster than the human population. Between 1970 and 2007, the US population increased by approximately one third (http://www.census.gov/compendia/statab). Traffic on US roads nearly tripled, to almost 5 trillion vehicle kilometers per year (http://www.fhwa.dot.gov/ohim/tvtw/tvtpage.cfm). Several measures of aircraft traffic grew by a factor of three or more between 1981 and 2007 (http://www.bts.gov/programs/airline_information/air_carrier_traffic_statistics/airtraffic/annual/1981_present.html). Recent reviews of the effects of noise on marine mammals have identified similar trends in shipping noise (e.g. Refs [23,24]). In addition to transportation,
resource extraction and motorized recreation are spatially extensive sources of noise on public lands.

Systematic monitoring by the Natural Sounds Program of the US National Park Service (http://www.nature.nps.gov/naturalsounds) confirms the extent of noise intrusions. Noise is audible more than 25% of the hours between 7am and 10pm at more than half of the 55 sites in 14 National Parks that have been studied to date; more than a dozen sites have hourly noise audibility percentages exceeding 50% (NPS, unpublished). Remote wilderness areas are not immune, because air transportation noise is widespread, and high traffic corridors generate substantial noise increases on the ground (Box 1). For example, anthropogenic sound is audible at the Snow Flats site in Yosemite National Park nearly 70% of the time during peak traffic hours. Figure 1 shows that typical noise levels exceed natural ambient sound levels by an order of magnitude or more.

Roads are another pervasive source of noise: 83% of the land area of the continental US is within 1061 m of a road [25]. At this distance an average automobile [having a noise source level of 68 dB(A) measured at 15 m] will project a noise level of 20 dB(A). This exceeds the median natural levels of low frequency sound in most environments. Trucks and motorcycles will project substantially more noise: up to 40 dB(A) at 1 km. Box 2 provides a physical model of the reduced listening area that can be imposed by these louder background sound levels.

Acoustical ecology

Intentional communication, such as song, is the best studied component of the acoustical world, and these signals are often processed by multiple receivers. These communication networks enable female and male songbirds, for example, to assess multiple individuals simultaneously for mate choice, extra-pair copulations and rival assessment [26]. Acoustic masking resulting from increasing background sound levels will reduce the number of individuals that comprise these communication networks and have unknown consequences for reproductive processes [27].

Reproductive and territorial messages are not the only forms of acoustical communication that operate in a network. Social groups benefit by producing alarm calls to warn of approaching predators [28] and contact calls to maintain group cohesion [29]. A reduction in signal transmission distance created by anthropogenic noise might decrease the effectiveness of these social networks. The inability to hear just one of the alarm calling individuals can result in animals underestimating the urgency of their response [30].

![Figure 1. 24-hour spectrograms of Indian Pass in Lake Mead National Recreation Area (a), Madison Junction in Yellowstone National Park (b), Trail Ridge Road in Rocky Mountain National Park (c), and Snow Flats in Yosemite National Park (d). Each panel displays 1/3 octave spectrum sound pressure levels, with two hours represented horizontally in each of 12 rows. The first three rows in each panel represent the quietest hours of each day, from midnight to 6 am. Frequency is shown on the y axis as a logarithmic scale extending from 12.5 Hz to 20 kHz, with the vertical midpoint in each row corresponding to 500 Hz. The z axis (color) describes sound pressure levels in dB (unweighted); the color scaling used for all four panels is indicated by the color bar on the right hand edge. The lowest 1/3 octave levels are below 0 dB, the nominal threshold of human hearing. White dots at the upper edge of some rows in the panels on the right side denote missing seconds of data. Low-frequency, broadband signatures from high altitude jets are present in all four panels. Distinct examples are present just before 6 am in (a), near 12:45 am in (b) and (c), and between midnight and 12:30 am in (d). Fixed wing aircraft signatures (tonal contours with descending pitch) are present in (a) and (d), with a good example at 1:15 am in (d). Broadband signatures with very low frequency tonal components in (a) are due to low-altitude helicopters, that are prominent from 7 am until 8 pm. Another prominent helicopter signature is at 11:30 am in (d). (b) illustrates snowmobile and snowcoach sounds recorded ~30 m from the West Entrance Road in Yellowstone. (c) illustrates traffic noise recorded 15 m from Trail Ridge Road in Rocky Mountain National Park, during a weekend event featuring high levels of motorcycle traffic. Background sound levels at the Rocky Mountain site were elevated by sounds from the nearby river.](image-url)
Box 2. Physical model of reduced listening area in noise

The maximum detection distance of a signal decreases when noise elevates the masked hearing threshold. The masked detection distance: original detection distance ratio will be the same for all signals in the affected frequency band whose detection range is primarily limited by spreading losses. For an increase of N dB in background sound level, the detection distance ratio is: 

\[ \frac{k}{10} = 10^{-\frac{N}{10}} \]

The corresponding fraction of original listening area is: 

\[ \frac{k}{20} = 10^{-\frac{N}{20}} \]

A 1-dB increase in background sound level results in 89% of the original detection distance, and 79% of the original listening area. These formulae will overestimate the effects of masking on alerting distance and listening area for signals that travel far enough to incur significant absorptive and scattering losses. More detailed formulae would include terms that depend upon the original maximum range of detection.

Figure I illustrates the expected noise field of a road treated as a line source (equal energy generated per 10 m segment). An animal track is marked by ten circular features, that depict the listening area of a signal whose received level (expressed as a grey-scaled value for each possible source location) decreases with the inverse square of distance from the listener. The apparent shrinkage of the circles is due to masking by the increasingly dark background of sound projected from the road, just as noise would shrink the listening area. The circles span 9 dB in road noise level, in 1-dB steps from the quietest location (upper right) to the noisiest (at the crossing).

Masking effects are reduced with increasing spectral separation between noise and signal. The model presumes that the original conditions imposed masked hearing thresholds, so organisms that are limited by their hearing thresholds will not be as affected by masking. A diffuse noise source is illustrated, but the same results would be obtained if some spatial release from masking were possible, so long as the original conditions implied masked hearing thresholds (see Ref. [85] for a review of release strategies).

These measures of lost listening opportunity are most pertinent for chronic exposures. They imply substantial losses in auditory awareness for seemingly modest increases in noise exposure. Analyses of transportation noise impacts based on perceived loudness often assert that increases of up to three dB have negligible effects; this corresponds to a 50% loss of listening area.

Many vertebrate and invertebrate species are known to listen across species’ boundaries to one another’s sexual (e.g. Ref. [31]), alarm (e.g. Ref. [32]) and other vocalizations. Recent examples include gray squirrels, *Seiurus carolinensis*, listening in on the communication calls of blue jays, *Cyanocitta cristata*, to assess site-specific risks of cache pilfering [33]; and nocturnally migrating songbirds [34] and newts (Ref. [35] and Refs therein) using heterospecific calls to make habitat decisions. Reduced listening area imposed by increased sound levels is perhaps more likely to affect acoustical eavesdropping than to interfere with deliberate communication. The signaler is under no selective pressure to ensure successful communication to eavesdroppers and any masking compensation behaviors will be directed at the auditory system and position of the intended receiver rather than of the eavesdropper.

Acoustical communication and eavesdropping comprise most of the work in bioacoustics, but the parsimonious scenario for the evolution of hearing involves selection for auditory surveillance of the acoustical environment, with intentional communication evolving later [8]. Adventitious sounds are inadequately studied, in spite of their documented role in ecological interactions. Robins can use sound as the only cue to find buried worms [36]; a functional group of bats that capture prey off surfaces, gleaners, relies on prey-generated noises to localize their next meal [37]; barn owls (*Tyto alba*; [38]), marsh hawks (*Circus cyaneus*; [39]), and grey mouse lemurs (*Microcebus murinus*; [15]) have been shown to use prey rustling sounds to detect and localize prey; big brown bats, *Eptesicus fuscus*, have the ability to use low-frequency insect flight sounds to identify insects and avoid protected prey [40]. In addition to prey localization, spectrally unstructured movement sounds are also used to detect predators. White-browed scrubwren (*Sericornis frontalis*) nestlings become silent when they hear the playback of footsteps of pied currawong, *Strepera graculina*, their major predator [41]; and tungara frogs, *Physalaemus pustulosus* avoid the wingbeat sounds of an approaching frog-eating bat, *Trachops cirrhosus* [42]. We are aware of only one study that has examined the role of adventitious sounds other than movement noises; African reed frogs, *Hyperolius nitidulus* flee from the sound of fire [43]. It is likely that other ecological sounds are functionally important to animals.

It is clear that the acoustical environment is not a collection of private conversations between signaler and receiver but an interconnected landscape of information networks and adventitious sounds; a landscape that we see as more connected with each year of investigation. It is for these reasons that the masking imposed by anthropogenic noise could have volatile and unpredictable consequences.

Separating anthropogenic disturbance from noise impacts

Recent research has reinforced decades of work [44,45] showing that human activities associated with high levels...
of anthropogenic noise modify animal ecology: for example, the species richness of nocturnal primates, small ungulates and carnivores is significantly reduced within ~30 m of roads in Africa [46]; anuran species richness in Ottawa, Canada is negatively correlated with traffic density [47]; aircraft overflights disturb behavior and alter time budgets in harlequin ducks (Histrionicus histrionicus; [48]) and mountain goats (Oreamnos americanus; [49]); snowmobiles and off-road vehicles change ungulate vigilance behavior and space use, although no evidence yet links these responses to population consequences [50,51]; songbirds show greater nest desertion and abandonment, but reduced predation, within 100 m of off-road vehicle trails [52]; and both greater sage-grouse (Centrocercus urophasianus; [53]) and mule deer (Odocoileus hemionus; [54]) are significantly more likely to select habitat away from noise-producing oil and gas developments. Thus, based on these studies alone, it seems clear that activities associated with high levels of anthropogenic noise can re-structure animal communities; but, because none of these studies, nor the disturbance literature in general, isolates noise from other possible forces, the independent contribution of anthropogenic noise to these effects is ambiguous.

Other evidence also implicates quiet, human-powered activities, such as hiking and skiing, in habitat degradation. For example, a paired comparison of 28 land preserves in northern California that varied substantially in the number of non-motorized recreationists showed a five-fold decline in the density of native carnivores in heavily used sites [55]. Further evidence from the Alps indicates that outdoor winter sports reduce alpine black grouse, Tetrao tetrix populations [17] and data from the UK link primarily quiet, non-motorized recreation to reduced woodland, Lullula arborea populations [18]. A recent meta-analysis of ungulate flight responses to human disturbance showed that humans on foot produced stronger behavioral reactions than did motorized disturbance [45]. These studies strengthen a detailed foundational literature suggesting that anthropogenic disturbance events are perceived by animals as predation risk, regardless of the associated noise levels. Disturbance evokes anti-predator behaviors, interferes with other activities that enhance fitness and, as the studies above illustrate, can lead to population decline [44]. Although increased levels of noise associated with the same disturbance type appear to accentuate some animal responses (e.g. Refs [44,48]), it is difficult to distinguish reactions that reflect increasingly compromised sensory awareness from reactions that treat greater noise intensity as an indicator of greater risk.

To understand the functional importance of intact acoustical environments for animals, experimental and statistical designs must control for the influence of other stimuli. Numerous studies implicating noise as a problem for animals have reported reduced bird densities near roadways (reviewed in Ref. [56]). An extensive study conducted in the Netherlands found that 26 of 43 (60%) woodland bird species showed reduced numbers near roads [57]. This research, similar to most road ecology work, could not isolate noise from other possible factors associated with transportation corridors (e.g. road mortality, visual disturbance, chemical pollution, habitat fragmentation, increased predation and invasive species along edges). However, these effects extended for over a mile into the forest, implicating noise as one of the most potent forces driving road effects [58]. Later work, with a smaller sample size, confirmed these results and contributed a significant finding: birds with higher frequency calls were less likely to avoid roadways than birds with lower frequency calls [59]. Coupled with the mounting evidence that several animals shift their call frequencies in anthropogenic noise [4–7], these data are suggestive of a masking mechanism.

A good first step towards disentangling disturbance from noise effects is exemplified by small mammal translocation work performed across roadways that varied greatly in traffic amount. The densities of white-footed mice, Peromyscus leucopus and eastern chipmunks Tamias striatus were not lower near roads and both species were significantly less likely to cross a road than cover the same distance away from roads, but traffic volume (and noise level) had no influence on this finding [60]. Thus, for these species, the influence of the road surface itself appears to outweigh the independent contributions of direct mortality and noise.

Recent findings on the effects of anthropogenic noise

Two research groups have used oil and gas fields as ‘natural experiments’ to isolate the effects of noise from other confounding variables. Researchers in Canada’s boreal forest studied songbirds near noisy compressor stations [75–90 dB(A) at the source, 24 hrs a day, 365 days a year] and nearly identical (and much quieter) well pads. Both of these installations were situated in two to four ha clearings with dirt access roads that were rarely used. This design allowed for control of edge effects and other confounding factors that hinder interpretation of road impact studies. The findings from this system include reduced pairing success and significantly more first time breeders near loud compressor stations in ovenbirds (Seiurus aurocapilla; [61]), and a one-third reduction in overall passerine bird density [62]. Low territory quality in loud sites might explain the age structuring of this ovenbird population and, if so, implicates background sound level as an important habitat characteristic. In addition to the field data above, weakened avian pair preference in high levels of noise has been shown experimentally in the lab [63]. These data suggest masking of communication calls as a possible underlying mechanism; however the reduced effectiveness of territorial defense songs, reduced auditory awareness of approaching predators (see Box 3 for a discussion of the foraging/vigilance tradeoff in noise), or reduced capacity to detect acoustic cues in foraging, cannot be excluded as explanations of the results.

A second research group, working within natural gas fields in north-west New Mexico, US, used pinyon, Pinus edulis-juniper, Juniperus osteosperma woodlands adjacent to compressor stations as treatment sites and woodlands adjacent to gas wells lacking noise-producing compressors as quiet control sites [64]. The researchers were able to turn off the loud compressor stations to perform bird counts, relieving the need to adjust for detection differences in noise [62]. This group found reduced nesting species richness but in contrast to Ref.
no reduction in overall nesting density. Unexpectedly, nest success was higher and predation levels lower in loud sites (also see Ref. [52]). The change in bird communities between loud and quiet sites appears to be driven by site preference; the response to noise ranged from positive to negative, with most responses being negative (e.g. three species nested only in loud sites and 14 species nested only in quiet, control sites). However, given the change in community structure, habitat selection based on background sound level is not the only interpretation of these data, as birds might be using cues of reduced competition pressure or predation risk to make habitat decisions [64]. The major nest predator in the study area, the western scrub jay, *Aphelocoma californica*, was significantly more likely to occupy quiet sites, which might explain the nest predation data [64]. It is probable that nest predators rely heavily on acoustic cues to find their prey. The study also found that the two bird species most strongly associated with control sites produce low-frequency communication calls. These observations suggest masking as an explanatory factor for these observed patterns. This work highlights the potential complexity of the relationship between noise exposure and the structure and function of ecological systems.

Adjusting temporal, spectral, intensity and redundancy characteristics of acoustic signals to reduce masking by noise has been demonstrated in six vertebrate orders [4–7,65]. These shifts have been documented in a variety
of signal types: begging calls of bird chicks [66], alarm signals in ground squirrels [67], contact calls of primates [68], echolocation cries of bats [65] and sexual communication signals in birds, cetaceans and anurans [4–7,69]. Vocal adjustment probably comes at a cost to both energy balance and information transfer; however, no study has addressed receivers.

Masking also affects the ability of animals to use sound for spatial orientation. When traffic noise is played back to grey treefrog, *Hyla chrysoscelis* females as they attempt to localize male calls, they take longer to do so and are significantly less successful in correctly orienting to the male signal [70]. Similar studies with the European tree frog, *Hyla arborea* show decreased calling activity in played back traffic noise [71]. *H. arborea* individuals appear to be unable to adjust the frequency or duration of their calls to increase signal transmission, even at very high noise intensities (88 dB(A), [71]); although other frogs have been shown to slightly shift call frequencies upward in response to anthropogenic noise [69]. These are particularly salient points. It is likely that some species are unable to adjust the structure of their sounds to cope with noise even within the same group of organisms. These differences in vocal adaptability could partially explain why some species do well in loud environments and others do poorly [5,7,72].

Under many conditions, animals will minimize their movement sounds. For example, mice preferentially select quieter substrates on which to move [73]. Adventitious sounds of insects walking contain appreciable energy at higher frequencies (main energy ~3–30 kHz [16]) and are thus unlikely to be fully masked by most anthropogenic noise (<2 kHz [4–7]) but the spectral profile near many noise sources contains significant energy at higher frequencies (e.g. Ref [74]). Foundational work with owls and bats has shown that frequencies between approximately three and eight kHz are crucial for passive sound localization accuracy [38,75]. In fact, a recent laboratory study demonstrated that gleaning bats avoided hunting in areas with played back road noise that contained energy within this spectral band ([74]; Box 4).

### Adapting to a louder world

Animals have been under constant selective pressure to distinguish pertinent sounds from background noise. Two
Box 5. Outstanding questions

- Multiple studies with birds have demonstrated signal shifts in anthropogenic noise that does not substantially overlap in frequency with the birds’ song [4–7,72]. To what extent does low-frequency anthropogenic noise inhibit perception of higher frequency signals? Mammals appear more prone to the ‘upward spread’ of masking than do birds [85,97]. Noise commonly elevates low frequency ambient sound levels by 40 dB or more, so small amounts of spectral ‘leakage’ can be significant. Laboratory studies should be complimented by field studies that can identify the potential for informational or attentional effects [98]. This work should use anthropogenic noise profiles and not rely on artificial white noise as a surrogate. Furthermore, we suggest that future studies measure or model sound levels (both signal and background) at the position of the animal receiver (sensu Ref. [23]).

- What roles do behavioral and cognitive masking release mechanisms [85] have in modifying the capacity of free-ranging animals to detect and identify significant sounds? Only one study has examined the masked hearing thresholds of natural vocal signals in anthropogenic noise [97]. This work found that thresholds for discrimination between calls of the same bird species were consistently higher than were detection thresholds for the same calls [97]. This highlights the lack of knowledge concerning top-down cognitive constraints on signal processing in noise. Can noise divide attention and reduce task accuracy by forcing the processing of multiple streams of auditory information simultaneously [99]?

- Do animals exploit the temporal patterning of anthropogenic noise pollution (see Ref. [4])? Alternatively, what constitutes a chronic exposure and how does this vary in relation to diel activity schedules?

- What routes (exaptation, behavioral compensation, phenotypic plasticity and/or contemporary evolution) lead to successful tolerance of loud environments?

- What role does audition have in vigilance behaviors? Are visually mediated predators at an advantage in loud environments when prey animals rely upon acoustical predator detection?

- Do animals directly perceive background sound level as a habitat characteristic related to predation risk? A noise increase of 3 dB(A) is often identified as ‘just perceptible’ for humans, and an increase of 10 dB(A) as a doubling of perceived loudness. These correspond to 30% and 90% reductions in alerting distance, respectively. Do organisms assess reduced alerting distance by monitoring other acoustical signals?

Examples include penguin communication systems being shaped by wind and colony noise [76] and frog systems driven to ultrasonic frequencies by stream noise [77]. A meta-analysis of the acoustic adaptation hypothesis for birdsong (the idea that signals are adapted to maximize propagation through the local habitat) found only weak evidence for this claim [78]. Physiological constraints and selective forces from eavesdropping could explain this weak relationship [78], in addition to variation of noise profiles across nominally similar habitat types (e.g. insect noise, [79]).

Phenotypic plasticity enables one adaptation to anthropogenic noise. The open-ended song learning documented in great tits, Parus major helps explain the consistent song shifts observed in all ten comparisons between urban and rural populations [72]. Contemporary evolution (fewer than a few hundred generations) has now been quantified in several systems [80] and we might anticipate similar microevolutionary changes in many species with rapid generation times that consistently experience acoustical environments dominated by noise, particularly in increasingly fragmented landscapes.

Perhaps the greatest predictors of the ability of a given species to succeed in a louder world will be the degree of temporal and spectral overlap of biologically crucial signals with anthropogenic noise (Figure 1), and their flexibility to compensate with other sensory modalities (e.g. vision) when auditory cues are masked. Given known sensory biases in learning [81], many animals will be constrained in their ability to shift from acoustical inputs to other sensory cues for dynamic control of complex behavioral sequences.

Conclusions and recommendations

The constraints on signal reception imposed by background sound level have a long history of being researched in bioacoustics, and it is increasingly clear that these constraints underlie crucial issues for conservation biology. Questions have been raised about the value of behavioral studies for conservation practice (for a review see Ref [82]), but ethological studies of auditory awareness and the consequences of degraded listening opportunities are essential to understanding the mechanisms underlying ecological responses to anthropogenic noise (Box 5). These studies are more challenging to execute than observation of salient behavioral responses to acute noise events, but they offer opportunities to explore fundamental questions regarding auditory perception in natural and disturbed contexts.

Chronic noise exposure is widespread. Taken individually, many of the papers cited here offer suggestive but inconclusive evidence that masking is substantially altering many ecosystems. Taken collectively, the preponderance of evidence argues for immediate action to manage noise in protected natural areas. Advances in instrumentation and methods are needed to expand research and monitoring capabilities. Explicit experimental manipulations should become an integral part of future adaptive management plans to decisively identify the most effective and efficient methods that reconcile human activities with resource management objectives [83].

The costs of noise must be understood in relation to other anthropogenic forces, to ensure effective mitigation and efficient realization of environmental goals. Noise pollution exacerbates the problems posed by habitat fragmentation and wildlife responses to human presence; therefore, highly fragmented or heavily visited locations are priority candidates for noise management. Noise management might also offer a relatively rapid tool to improve the resilience of protected lands to some of the stresses imposed by climate change. Shuttle buses and other specialized mass transit systems, such as those used at Zion and Denali National Parks, offer promising alternatives for visitor access that enable resource managers to exert better control over the timing, spatial distribution, and intensity of both noise and human disturbance. Quieting protected areas is a prudent precaution in the face of sweeping environmental changes, and a powerful affirmation of the wilderness values that inspired their creation.
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WINTER RECREATION ON NATIONAL FOREST LANDS

A COMPREHENSIVE ANALYSIS OF MOTORIZED AND NON-MOTORIZED OPPORTUNITY AND ACCESS
WINTER RECREATION ON NATIONAL FOREST LANDS
A Comprehensive Analysis of Motorized and Non-Motorized Opportunity and Access

June, 2015
By Hilary Eisen

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The purpose of this report is to provide data on winter recreation use, opportunity and access on National Forest lands. The information presented here was collected from Forest Service offices across the country and is the most complete compilation of its kind. Presented on a forest-by-forest as well as Regional basis, the data is reported as use levels, miles of available motorized and non-motorized groomed trails, and acres open and closed to motorized use.

This is an update of a 2006 report titled Winter Recreation on Western National Forest Lands. It is expanded to include 77 forests - 19 that the original report did not cover - and uses the most up to date information available from the Forest Service, acquired through Freedom of Information Act (FOIA) requests in 2014. The need for this report is similar to the first, as winter recreation use and conflict on public lands – and National Forest lands in particular – has only escalated in the decade since the original report was issued.

Opportunity and access are central issues to all user groups. Citing the motorized impacts of noise, exhaust, safety concerns and snowmobile tracks, skiers and snowshoers assert that opportunities for quiet, quality recreation have been lost on many forests. Snowmobilers counter that their access to forest lands is being limited.

Until the 1990s, there was little geographical overlap between motorized and non-motorized winter recreationists. Before that time, motorized use was generally limited to packed trails and roads as early snowmobiles would easily become bogged down in deep snow. Skiers and snowshoers wishing to avoid motorized impacts could go off-trail to areas unreachable by snowmobile. In the 1990s, however, the development of “powder sleds” designed for off-trail travel vastly increased the reach of snowmobiles allowing the newer, more powerful machines to dominate terrain previously accessible only by backcountry skis or snowshoes.

This report provides concrete data to Forest Service officials and public land users to help them better address the issue of equitable opportunity and access for quality winter recreation on National Forest lands. In 2014 Winter Wildlands Alliance submitted Freedom of Information Act (FOIA) requests to each National Forest receiving regular snowfall. See Table 1, pg. 11. The FOIA requests sought, from each individual National Forest, documentation of the following: number of acres open to snowmobiles; number of acres closed to snowmobiles, including Wilderness areas; miles of managed motorized snow trails, routes, or roads; miles of managed non-motorized snow trails, routes, or roads; GiS data related to winter recreation on National Forest lands.

In addition, using data from the National Visitor Use Monitoring Program (NVUM) conducted by the Forest Service, Winter Wildlands Alliance gathered annual visitor numbers for cross-country skiing, snowshoeing and snowmobiling for each forest. NVUM data shows that these forests receive 6.9 million cross-country skier and snowshoe visits annually and 4.0 million snowmobile visits annually. See Figure 2, pg. 3.

The FOIA responses show that, of the 176 million acres of National Forest land within the forests that receive regular snowfall, approximately 94 million acres, or 53%, is open to snowmobiles. See Figure 3, pg. 4.

Significantly, of the approximately 63.4 million acres officially designated as non-motorized, more than half lies within designated Wilderness areas. Motorized proponents often point out that non-motorized users have exclusive use of Wilderness areas. However, in winter, the distances from plowed parking areas and trailheads make the vast majority of designated Wilderness areas inaccessible to many skiers and snowshoers. Many acres of Wilderness that are included in this report do not support skiing or snowshoeing because of a lack of snow. Similarly, many of the acres that are technically open to snowmobiling do not have enough snow to support use. One much-needed element of further research is a better understanding of how designated Wilderness areas provide viable winter recreation opportunities by determining which Wilderness lands receive enough snowfall to support winter recreation and are sufficiently close to allow day-use access.

Despite the fact that the NVUM surveys show 58% more cross-country skier and snowshoe visits than snowmobile visits, more than one and a half times as many acres are open to motorized use than designated as non-motorized in winter. When difficult-to-access Wilderness areas are taken out of the equation the disparity becomes more severe, with three times as much designated motorized acreage as there is non-motorized, non-Wilderness acreage.

As for managed winter trails, the FOIA responses show an estimated 26,728 miles of managed snow trails in these National Forests. Just 5,746 miles, or 22%, are designated as non-motorized. See Figure 4, pg. 5.

The trails data provided in this report, while the best available at the moment, do not reflect the complete inventory of trails on National Forest lands. As it is, however, the data show that there are 4 times more winter trails open to snowmobiles than there are trails designated as non-motorized. There are several reasons why snowmobile trail miles vastly outnumber non-motorized trail miles. For one, snowmobiles cover much greater distances in a day than skiers or snowshoers do and therefore desire a more expansive trail system. However, this discrepancy in distance traveled is the very reason that there is a need for more non-motorized areas outside of Wilderness – areas near plowed parking areas should be prioritized for non-motorized use in order to remedy this inequity.

Local snowmobile clubs often pay to groom motorized trails, which are generally funded at least in part through snowmobile registrations. These trails are often also funded through
Recreational Trails Program (RTP) dollars, which are derived from the federal fuel tax. Anybody who buys gas for a vehicle pays into this fund. Both motorized and non-motorized users rely on Sno-Parks in states such as California, Idaho, Oregon, and Washington, which are funded through user fees. Nordic ski grooming operating costs are usually covered through a variety of means as well, such as use fees, although there is no mandatory state registration fee for skiing. Both motorized and non-motorized users share a variety of funding sources and funding is a challenge for all user groups.

The disparity between motorized and non-motorized opportunity and access is repeated on a forest-by-forest and Region-by-Region basis across the nation. As a result it is difficult for skiers and snowshoers to find a quality recreation experience, and with increasing use levels there is escalating conflict between motorized and non-motorized users on National Forest lands.

Multiple-use is defined as the “management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people.” This does not mean that all activities should or need to occur in all places. In fact the Multiple Use and Sustained Yield Act states that multiple use management specifically allows for land to be used for “less than all of the resources; and harmonious and coordinated management of the various resources”. Winter Wildlands Alliance and our constituents contend that in many cases the designation “multiple-use” is a misnomer and is de facto single use: motorized. In other words, while skiers and snowshoers have access to multiple-use areas, because of the motorized impacts listed above and elaborated in this report, the opportunity for a quality human-powered recreation experience is lost on many of the forest lands designated as multiple-use because those lands see high levels of snowmobile use often diminishing the skiing and snowshoeing experience.

Executive Order 11644, signed by President Nixon in 1972, requires the Forest Service “to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.” The order continues, stating that, “areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.”

In 2005, the Forest Service released new regulations to better manage and address the impacts associated with off-road vehicle use on National Forest lands and comply with Executive Order 11644. The 2005 Travel Management Rule marked a fundamental shift in how the Forest Service manages motorized recreation but it left management of over-snow vehicles (OSVs) as optional. Following a challenge by Winter Wildlands Alliance, a Federal Court ruled that the OSV exemption in the 2005 Rule was unlawful and ordered the Forest Service to write a new rule to address this issue. The new Over-Snow Vehicle Rule was published in January 2015 and requires all National Forest Units that receive adequate snow to designate routes and areas where OSV use is allowed. Once these designations are published on an OSV Use Map, OSV use that is not in accordance with the map is prohibited. Some forests have already begun this process, and many more will do so in the coming years.

The data in this report provide a baseline understanding of winter travel management on National Forest lands at the start of this winter travel planning era. Through winter travel planning we hope that, in every applicable National Forest Unit, sizeable and accessible areas will be managed for non-motorized use to ensure a quality recreation experience for human-powered winter recreationists. All snow recreation should be managed to protect the safety and enjoyment of all users, natural resources and wildlife. Furthermore, Winter Wildlands Alliance believes that winter travel planning should prioritize protection of wintering wildlife and critical winter habitat over all recreation use, whether motorized or non-motorized.

HISTORICAL OVERVIEW

Skiing and snowshoeing have a long and rich tradition on Western forests. Early European trappers, hunters, explorers and surveyors adopted snowshoes from Native Americans as their primary mode of winter travel. Scandinavian miners brought their skiing tradition with them to the Western mining camps of the mid-1800s and skiing quickly caught on both as recreation and for more utilitarian purposes such as mail delivery during long isolated winters. Skiers and snowshoers have ventured into the backcountry ever since. The first ski race in the United States took place in 1860 in California. The first backcountry ski huts were developed in Idaho and Colorado in the 1930s and 1940s. Archeological findings, including skis preserved in bogs and prehistoric rock art, date the use of skis and snowshoes to 5,000 years ago.

As to historical snowmobile use, attempts to build over-the-snow machines date back to the 1920s. In 1935 a utilitarian snowmobile that could carry twelve people was developed for emergency transport and the timber industry also made use of an early snowmobile. Not until the 1950s, however, with the invention of small gas engines, did snowmobiles come into use for recreational purposes. By the 1970s, a number of small manufacturers were building snowmobiles. Honda made a prototype machine in 1973 called the White Fox that had a 178 cc two-stroke engine and weighed 227 pounds. It could be carried in the back of a station wagon. The specifications for the Sno-Jet (a company purchased by Kawasaki) made in 1976 show a 355-pound machine with a 338 cc engine.

Until the 1990s, however, snowmobiles were generally restricted to packed trails and roads as the earlier machines would easily become bogged down in deep snow. In the mid-1990s, the development of the “powder sled” vastly changed the pattern of snowmobile use. As stated by the International Snowmobile Manufacturer’s Association, “today's snowmobiles...
bear little resemblance to earlier models. For example, the Snowmobile.com “Mountain Snowmobile of the Year” for 2015, the Ski-Doo 800 Summit with T3, weighs 467 pounds and has a 799.5cc engine that reaches up to 7,900 RPMs.

These advances in technology have expanded the terrain used by snowmobiles, leading to conflicts with skiers and snowshoers. The National Survey on Recreation and the Environment, a collaborative study co-sponsored by the Forest Service, concludes, “new technologies and better modes of accessing backcountry will continue to shift the nature of the demand for outdoor recreation.” The newest modes of backcountry winter travel include “snow bikes” – modified motorcycles with tracks instead of wheels – and “fat bikes” – bicycles with large, low-pressured tires designed for over-snow use – and have brought an even broader diversity of winter users into the backcountry.

**INCREASING NUMBERS OF PARTICIPANTS**

Participation in winter recreation is steadily growing. Government surveys put the number of snowmobile participants in the U.S. in 1982-83 at 5.3 million. Prior to that time, snowmobiling was not even included in the surveys, the first of which was conducted in 1960. The most recent survey, conducted in 2010, estimates that in the United States 10.7 million people snowmobile annually. In 2014 there were 1,397,262 snowmobiles registered in the United States.

In recent years, the National Forest Service has conducted a National Visitor Use Monitoring Program (NVUM) to gain more detailed participation data for each forest. This program includes visitor use surveys that are designed to measure the reasons why people visit a particular forest and the amount of participation in each activity in that forest. The results of the surveys from the National Forests in this report show that these forests receive 6.9 million cross-country skier and snowshoer visits annually and 4.0 million snowmobile visits annually. Backcountry skiing is usually classified as cross-country skiing in NVUM surveys. See Table 1 for forests studied and Figure 2 for NVUM visitation estimates.

As to human powered winter sports, the same government surveys show that in 1960, 2.6 million people in the U.S. participated in snow skiing, including cross-country skiing. By the winter of 1982-83 there were an estimated 5.3 million cross-country skiers (the survey did not track snowshoeing or telemark/alpine touring ski participation). The most recent government surveys show that in the United States 10.2 million people cross-country ski or snowshoe annually. See Figure 1. Forest Service surveys show that National Forests receive almost 7 million cross-country ski or snowshoe visits each year. It is difficult to compare individuals and user days but these numbers both serve to indicate that Nordic skiing and snowshoeing are increasingly popular activities across the nation.

The Outdoor Foundation reports that 8.12 million people participated in cross-country skiing, snowshoeing, or telemark skiing in the 2012-2013 winter season. By comparison, the Outdoor Industry Association reported that there were 2.98 million people who participated in snowmobiling during the 2012-2013 season. Participation in backcountry, or “undeveloped”, skiing is projected to be one of the fastest growing forms of outdoor recreation through 2060 while participation motorized snowsports is projected to be among the slowest growing activities. At the same time, hybrid skiing – using snowmobiles to access backcountry ski terrain – has grown in popularity although there are no hard numbers for how many people pursue this activity each year.

In their study of recreation trends, the Forest Service concludes, “there will likely be more conflicts among recreationists who will be competing at the same times for use of some of the same areas and sites for different forms of outdoor recreation.” These “continued increases in visits to most federal and state forests and parks will put added pressures on public managers to adopt new management policies and practices.”

As shown in Figure 1 and Figure 2, the most popular activities in the snowbelt states are cross-country skiing and snowmobiling.
COMPETING RECREATION USES ON A FINITE RESOURCE

The National Forests identified in Table 1 encompass a total of 176 million acres and include all of the forests that receive regular snowfall and manage for winter recreation.

This report focuses on the National Forest lands as these lands are generally at higher elevations and receive more reliable snow than most BLM and state-owned public lands. In addition, new Forest Service regulations that mandate winter travel planning provide context and an opportunity to revisit winter recreation management and address inequities on Forest Service lands.

These forests also represent escalating conflict zones, with cross-country skiers and snowshoers asserting that on many forests it is nearly impossible to find the quiet, peaceful recreation experience they seek, and snowmobilers countering that the forest lands are increasingly being closed off to them.

In an effort to shed more light on these competing assertions, in 2014, Winter Wildlands Alliance submitted Freedom of Information Act (FOIA) requests to each of these National Forests. The FOIA requests sought, from each individual National Forest, documentation of the following:

1. Number of acres open to snowmobiles.
2. Number of acres designated as non-motorized in the winter, including Wilderness areas
3. Miles of trail or road managed for motorized over-snow use
4. Miles of trail or road managed for non-motorized winter recreation
5. Forest closure orders, travel management plan documents, or other decisions and supporting documents governing the use of over-snow vehicles
6. Surveys of public use, attitudes, preferences, or opinions concerning winter recreation
7. Reports detailing the economic impact of winter recreation
8. GIS data showing winter recreation management

The majority of forests responded and the data were refined after many hours of follow up calls and submission of amended requests.

The responses received from the forests show that approximately 94 million acres, or 60%, of the forest land within the Snow Belt (forests that receive regular snowfall) are open to snowmobiles. See Figure 3.

It bears mention that, of the approximately 63 million acres officially designated as non-motorized, more than half of the acreage lies within remote Wilderness areas. In winter the distances from plowed parking areas and trailheads make the vast majority of designated Wilderness areas inaccessible to skiers and snowshoers. Interagency recreation planners in the state of Washington accurately noted in their state plan that “only the most hardy and determined mountaineers will undertake a winter visit to the tens of thousands of acres of rugged wilderness backcountry” and that “simply getting into undeveloped areas of a National Forest in winter can be difficult, sometimes impossible.” This isn’t to say that Wilderness areas do not provide backcountry skiing opportunities – indeed, Wilderness areas are an important part of the backcountry skiing experience – but these more remote destinations need to be supplemented by areas with easier access to provide a broader range of non-motorized opportunities.

Figure 3: National Forest Acres, by Region Open and Closed to Snowmobiles

![Diagram showing national forest acres open and closed to snowmobiles, by region. The diagram includes data for Alaska, Eastern, Intermountain, Northern, Pacific Northwest, Pacific Southwest, Rocky Mountain, and Southwestern regions. The data indicate the number of acres open to snowmobiles, designated Wilderness acres closed to snowmobiles, and non-Wilderness acres closed to snowmobiles.](chart)
As for trails, the FOIA responses show there are an estimated 26,728 miles of managed snow trails in these National Forests. Five percent of these trails are designated as non-motorized. See Figure 4.

NVUM surveys show that cross-country skier and snowshoer visits to National Forest lands are nearly double the number of snowmobile visits. In that light, the fact that there are more than one and a half times the number of forest acres designated motorized as non-motorized in winter is inequitable.

The consequence of this disparate situation is unequal opportunity for skiers, snowshoers and other quiet winter recreationists when compared to OSV users and escalating conflict between motorized and non-motorized uses on National Forest land.

Public land managers at the highest levels noted conflict between motorized and non-motorized use as early as the 1970s. In 1972 President Nixon signed Executive Order 11644 which requires the Forest Service “to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.” The order continues, stating that, “areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.”

Winter recreation in its myriad forms is a popular use of National Forest lands. Locals and visitors alike spend a significant amount of time and money skiing, snowshoeing, and snowmobiling on our National Forests. However, very few of the forests that receive enough snow to support winter recreation have done any form of comprehensive planning to determine how best to manage these uses. In the absence of deliberate planning, snowmobile use is primarily limited only by the constraints of terrain and technical capability. As snowmobiles have become more powerful and new over-snow vehicles, such as snowbikes, have appeared, the amount of terrain that is inaccessible to motor vehicles continues to shrink. While over-snow vehicles certainly have a place on our nation’s forests, it has become more important than ever for Forest managers to institute restrictions on motorized over-snow use in order to protect sensitive winter ecosystems and non-motorized winter recreation opportunities.

Winter travel management planning is a huge opportunity to bring balance to our National Forests. By stepping back and reassessing where on the landscape motorized use is truly appropriate, the Forest Service and those who participate in the winter travel planning process will be able to take steps to reduce user conflicts and ensure that high quality winter recreation opportunities exist for all users. For example, while there are abundant opportunities for quiet and solitude deep in the backcountry, fewer opportunities exist for non-motorized winter recreation closer to home. Creation of sizable and accessible winter non-motorized areas on each National Forest, with enforceable common sense boundaries, will go a long way toward meeting the public’s desire in this regard and reducing user conflict.

**Figure 4: Total Miles of Managed Snow Trails on National Forest Lands by Region**

- **Miles of Snowmobile Trails**
- **Miles of Cross-Country Ski or Snowshoe Trails**
This report explores the current on-the-ground management situation for winter recreation across all of the National Forests that have significant snow-based recreation opportunities and is presented to assist in the winter travel planning process. In many instances there was previously no cohesive record of how winter recreation was managed on a specific forest. However, with the implementation of the new Over-Snow Vehicle Travel Management Rule, it is important to understand the current state of winter recreation in order to properly plan for the future.

In reviewing the following data and the call for equitable access and opportunity, it is important to bear in mind the elements that constitute a quality recreation experience for skiers, snowboarders, snowshoers and other quiet winter recreationists. Human-powered recreationists venture into the winter backcountry in search of peace and solitude: to connect with nature. At the very core of this experience are the natural sounds, sights and beauty of pristine snowscapes.

**IMPACTS OF SNOWMOBILE USE ON NON-MOTORIZED USERS**

While it is possible for backcountry skiing and snowshoeing to occur alongside motorized recreation, OSV activity impacts human-powered winter recreation in a number of ways. These impacts often diminish the human-powered recreation experience and drive skiers and snowshoers away from trails or areas that are frequented by OSVs. These impacts fall into three categories: pollution, safety, and footprint.

OSV pollution comes in two forms – noise and exhaust. Noise has a significant impact on the cross-country skiing and snowshoeing experience and in multiple-use backcountry areas, snowmobile noise can be difficult to escape. Snowmobile noise can travel up to 10 miles depending on speed, type of machine, and wind – further than most non-motorized recreationists travel in a day. Likewise, snowmobile exhaust is another major detriment to a quality experience for skiers and snowshoers. Emissions from snowmobiles emit many carcinogens and can pose dangers to human health. While most of the acute toxic effects of snowmobiles are limited to staging areas and parking lots, the smoke and fumes from snowmobiles on trails can dramatically reduce the quality of the experiences of non-motorized users along the trail as well. Newer, unmodified, machines emit less noise and exhaust pollution than older snowmobiles but they are still not entirely clean or quiet. In addition, many of the machines used on National Forest lands today are older 2-stroke sleds and/or have after-market modifications that increase noise and exhaust levels.

OSVs pose a safety concern for backcountry skiers and snowshoers just as wheeled motorized vehicles can be a safety issue for pedestrians. Avalanches aside, excessive speed, reckless driving, alcohol, and inexperience are the most commonly issued citations and causes of accidents involving snowmobiles. Most winter backcountry trails have no posted speed limit and the most powerful snowmobiles today have from 125- to 177-horsepower engines, allowing them to travel at very high rates of speed. Snowmobiles weigh up to 600 pounds, and many can travel at speeds in excess of 90 miles per hour. At such speeds, a snowmobile will travel almost 200 feet before being able to come to a stop. The tremendous power and weight of snowmobiles are incompatible with skiers, snowshoers and other pedestrian users on winter trails and backcountry terrain.

Both skiers and snowmobilers travel into backcountry areas in search of untracked snow. However, the quality of cross-country and backcountry skiers’ experience on National Forest lands across the nation is rapidly eroding due to the ever-increasing reach of snowmachines. Improvements in power, maneuverability and fuel tank capacities enable snowmobiles to climb the steepest mountain slopes to access places previously reachable only by skiers using climbing skins. Before these advances, most snowmobile riders stayed on groomed trails because the machines would become easily stuck in soft powder snow. One study reports that the average distance traveled by a snowmobiler in a day ranges between 127 and 367 miles. By comparison, a skier or snowshoer will be hard pressed to cover more than five to 10 miles on ungroomed snow in a day. It can take less than an hour for a single snowmobile to completely track up a slope that multiple skiers could otherwise enjoy for days. Due to snowmobilers traveling freely on the vast majority of National Forest lands, pristine terrain for skiers and snowshoers is rapidly disappearing under the tracks of snowmobiles.

For more information on how over-snow vehicles impact non-motorized users and the environment, and management recommendations for how to minimize these impacts, please see the recently published Winter Wildlands Alliance paper “Best Management Practices for Forest Service Travel Planning.”

**SUMMARY OF RESULTS**

The 77 National Forests covered in this report include approximately:

- 176,008,137 acres of land (18,559,178 acres of land are unclassified, where designation status is uncertain)
- 94,025,989 acres of land open to snowmobiles
- 29,975,829 acres of non-wilderness land closed to snowmobiles
- 33,447,141 acres of designated Wilderness land, also closed to snowmobiles

See Figure 5.

These forests contain:

- 5,746 miles of cross-country ski and snowshoe trails
- 20,590 miles of snowmobile trails

See Figure 6.

The NVUM surveys show that in forests that manage for winter recreation, the number of cross-country skier and snowshoer annual visits far exceed the number of snowmobile annual visits. The NVUM surveys show that in these forests, there are an estimated:

- 6,878,106 cross-country ski and snowshoe visits annually
- 4,002,136 snowmobile visits annually

See Figure 7.
This report shows that snow-based recreation opportunities for motorized uses on National Forest lands far exceed those for non-motorized use. 53% of the lands across the forests within the Snow Belt are open to motorized use in winter despite the fact that winter non-motorized use in these forests makes up almost two-thirds of the use (63%).

The imbalance in the acres and trail miles of forest open to snowmobiles versus those managed for winter non-motorized recreation has to be addressed. The adverse impacts that snowmobiles have on human-powered recreation, including noise, exhaust, safety concerns, and tracks create a disparate situation where the activities of one user group disproportionally affect the ability of another to use and enjoy public lands.

By implementing the Over-Snow Vehicle Rule, National Forests have the opportunity to bring management of forest lands back into balance. Through travel planning land managers have an obligation to "promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands" as directed by Executive Order 11644.

Forests that have proactively created winter travel plans set an example for possible ways to zone the backcountry and bring balance to the winter recreation landscape. For example, the White River National Forest completed a travel management plan in 2011 which addressed motorized recreation across all seasons. When drafting the plan forest managers took non-motorized recreation and other activities into account, creating a plan that reduces conflict, protects natural resources, and allows for the continuation of high-quality motorized recreation.

Winter travel planning presents an opportunity to think proactively about how to balance various types of winter recreation across a forest, especially with the ever-growing popularity of snowsports. Winter travel plans should provide space for non-motorized activities in both the frontcountry and backcountry, designate OSV use areas with enforceable boundaries, and take into account the current and projected demands of the local recreation community. The Winter Wildlands Alliance BMP document can help ensure winter travel plans satisfy the requirements of the OSV Rule and Executive Orders and provide equitable recreational opportunities.

Nationwide, only 22% of the miles of managed winter trails are designated non-motorized, even though there are 1.7 times more cross-country ski and snowshoe visits than snowmobile visits to National Forest lands. Likewise, snowmobilers have access to 53% of the forest acreage, compared to human-powered recreationists, who, in order to enjoy a motor-free experience, are left with just 36% of the total acreage. Of this, more than half is Wilderness, which is largely inaccessible to skiers and snowshoers.

Similar disproportions exist in the individual forests in each Region. Although human-powered recreation visits outnumber snowmobile visits to National Forests across the country, less than half of the lands in National Forests that receive regular snowfall are designated as non-motorized.

CONCLUSION

These numbers confirm that the vast majority of National Forest lands where winter recreation occurs are open to snowmobiles in one form or another. By comparison, only a fraction of those lands, and even fewer trails, are set aside for human-powered winter recreation.

At the same time, NVUM data show greater numbers of cross-country ski and snowshoe visits than snowmobile visits on these forests.
The numbers in this report should be understood to be imperfect. Because very few National Forests have completed comprehensive winter travel planning many forests could not provide accurate data in all cases concerning the miles of trails managed for various forms of winter recreation or the total number of acres open to motorized winter recreation. This report reflects the best-available data as provided by the Forest Service. Trail mileage data were obtained from the Forest Service’s national trails database, INFRA Trails, for FY 2014. This database is standardized and consistent across all forests and is the agency’s official record for this type of information. However, INFRA Trail mileages are not accurate for all forests because the database is still in the process of being updated. In many cases the Forest Service provided acreage data in terms of total acres open and closed to OSVs. When the Forest Service did not provide an exact number of acres that are open or closed to OSVs on a particular forest we calculated these figures using GIS data when available. GIS analysis was done using a NAD 1983 Contiguous USA Albers projected coordinate system. When GIS data was not available this information was determined by sifting through Forest Plans, other planning documents, and special orders.

Several forests in Region 6 either did not respond to our FOIA request prior to publication or provided an incomplete response. For these – the Umpqua - Rouge River-Siskiyou, and Okanagan-Wenatchee – we have calculated approximate acres open and closed using the best information available.

The number of acres open and closed to OSVs as documented in this report does not necessarily reflect the number of acres that are actually suitable for winter recreation. This is true for both motorized and non-motorized winter recreation as we did not account for variability in terrain and snow accumulation. Some forests have snow depth requirements wherein there must be a set amount of snow before OSV use is allowed in a given area. We did not include this variable into our analysis.

3. All numbers are best estimates based on the information obtained.

4. The data, ratios and percentages presented in this report apply only to National Forest land. The number of trails or acres of National Park Service lands, BLM lands, state lands, or other public lands are not included in this report.

5. A copy of the original FOIA request is attached as Appendix 1 to this Report. Appendix 2 is a second request that was submitted when it was believed that the data obtained was incomplete.

6. Where there was any doubt about the estimate of “acres closed to snowmobiles,” if the exact figure was not provided in the FOIA response, the estimate is purposely generous to avoid any claim that the figure is underreported.

a. If the estimate was based upon the travel maps provided, areas on the travel maps shown as “closed to snowmobiles except on designated routes” were entirely included in “acres closed to snowmobiles.” This means that even though the acreage is counted as closed to snowmobiles, that acreage may have a web of snowmobile trails through it. This procedure was justified on the basis these snowmobile routes would usually be counted in the “miles of snowmobile routes”.

b. If the estimate was based upon a forest plan, the acreage was calculated based upon the total number of acres in all of the management areas that are closed to motorized vehicles. These areas are generally the Wilderness areas, research natural areas, and those areas classified as semi-primitive non-motorized. Several forests, however, allow snowmobiles in semi-primitive non-motorized areas while not stating so in the forest plan. Thus, it is believed that the estimates for “acres closed to snowmobiles” are generous, and that the acreage available for snowmobiles is even greater than shown.

8

NOTES ON DATA AND SOURCES

During 2014, Winter Wildlands Alliance submitted Freedom of Information Act (FOIA) requests to all of the forests listed in Table 2 and compiled the data presented in this report. These FOIA requests are available in Appendix 1 and 2 at the end of this report.

It is important to note the following with respect to the data:

1. Some minor discrepancies appear between the total of forest acres, open and closed acres, and Wilderness acres. This is because some forests administer lands technically within other forests and because forest land and boundaries are routinely modified.

2. Trail mileage data were obtained from the Forest Service INFRA Trails database, and while this data may not be completely accurate, it is the best available data that the Forest Service has.

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NVUM DATA

Existing National Forest plans and other agency needs mandate visitor use monitoring. Therefore, the Forest Service instituted the National Visitor Use Monitoring program in 2000. NVUM was developed to provide statistically reliable estimates of visitor use on National Forests throughout the United States.

Among other measures, NVUM reports visitation estimates using a standard definition for a “National Forest visit” in order to provide comparable estimates of visitor use. A “National Forest visit” is: “The entry of one person to a National Forest to participate in recreation activities for an unspecified period of time. A National Forest visit can be composed of multiple site visits.”

In addition to estimating the numbers of visits, the NVUM program obtains descriptive information about National Forest visitors, including the activity in which the visitor participated. Included in the list of activities are snowmobiling and cross-country skiing/snowshoeing. Skate skiing and other forms of groomed Nordic skiing, ungroomed Nordic skiing, backcountry ski/snowboard touring, and snowshoeing are all considered “cross-country skiing” in the NVUM surveys. However, it is likely that some backcountry skiers report their activity as “downhill skiing” (which the Forest Service considers mainly to be resort-based skiing). Therefore, the visitation numbers for human-powered activities are likely higher than reported in the NVUM surveys.

It is important to keep in mind that NVUM estimates of visitor use are estimates and may not capture the true extent of a particular activity on a forest. NVUM survey sites are selected “using a stratified random sample of the times and locations where recreational visitors can be counted.” However, the places that people choose to recreate, particularly for activities like skiing, snowshoeing, and snowmobiling are not distributed across Forest Service sites such that a random sampling is likely to capture them. Outdoor recreationists seek out particular experiences that can only be found in specific locations, and without weighting the site selection process to ensure that these favorite locations are included, the sample will result in an underrepresentation of these activities.

Additionally, data sampling at NVUM sites occurs on randomly selected days without adequately taking into account the variables that make any particular day optimal for a particular activity. NVUM sampling is unlikely to produce accurate data on winter recreational use because it fails to account for variables like whether there is enough snow for an activity to occur or differences in weather conditions that may encourage, or discourage, winter recreation on a particular day.

In reporting the amount of visitation to a forest for a particular activity, the NVUM surveys report visitation estimates only down to .01% of total forest visits. Thus, some forests show visitation rates of zero percent for the activities of snowmobiling or cross-country skiing/snowshoeing. This is usually the case in forests that do not have any groomed trails. For purposes of this report, it was assumed that a NVUM report of 0% visitation means less than .005% visitation and a NVUM report of .01% visitation means greater than or equal to .005% visitation.

NVUM data are provided in terms of percent participation. In order to obtain numbers of actual visits we multiplied the percent participation for a given activity on a given forest by the visitation estimate for that forest. This approach was recommended by the Forest Service NVUM program.

Forests that are jointly administered, like the Medicine Bow-Routt National Forest have NVUM data for each forest. Thus, to arrive at the users per mile and per acre for the jointly administered forest, the user numbers for each activity were calculated for each forest and then totaled and a new joint percent calculated for the combined forests.

SCORP DATA

The Land and Water Conservation Fund was created by Congress in 1964 to provide funds for, among other things, matching grants to states for outdoor recreation projects. Under the program, state recreation agencies are required to determine statewide outdoor recreation trends and demands. The data used in these reports comes from many sources including academic, NGO, and government surveys and GIS analysis. This data are then compiled into a Statewide Comprehensive Outdoor Recreation Plan, (SCORP), based on a planning horizon of 10 years.

The format of the plans varies from state to state but most include data about the number of people participating in the state annually in snowmobiling, cross-country skiing and snowshoeing. SCORP reports are used in this study as a supplement to NVUM data to gain a better understanding of snowsports participation.
The Forest Service manages forests by Region with each Region encompassing several states or portions of states, as shown in Figure 8. While a National Forest may fall in more than one state, each Forest is located in a single Region. In general, states are fully within a single Region but some, such as Wyoming and Idaho, are split between multiple Regions.

Not all of the National Forests within every Region are included in this report. Certain National Forests have not been included, either because they do not receive regular or any snow, or there is little, if any, snowmobile or cross-country ski or snowshoe use in that forest. Only the forests that receive regular snow are included in this report.

Several National Forests prohibit snowmobile use unless there is minimum snow depth. For example, the Umpqua National Forest prohibits snowmobile use in areas with less than a foot of snow cover. Therefore, in these cases, it is difficult, if not impossible, to estimate acres open and closed to snowmobiles under those circumstances and this report makes no attempt to do so.

Figure 8: Forest Service Regions.
Source: USFS, ESRI.
Map created 2/2015 by Winter Wildlands Alliance.
TABLE 1: NATIONAL FORESTS STUDIED

Region 1 (Northern): Beaverhead-Deerlodge, Bitterroot, Custer-Gallatin, Flathead, Helena, Idaho-Panhandle, Kootenai, Lewis and Clark, Lolo

Region 2 (Rocky Mountain): Arapaho-Roosevelt, Bighorn, Black Hills, Grand Mesa-Uncompahgre-Gunnison, Medicine Bow-Routt, Pike-San Isabel, Rio Grande, San Juan, Shoshone, White River

Region 3 (Southwestern): Carson, Cibola, Coconino, Coronado, Kaibab, Lincoln, Santa Fe

Region 4 (Intermountain): Ashley, Boise, Bridger-Teton, Caribou-Targhee, Dixie, Fishlake, Humboldt-Toiyabe, Manti-LaSal, Payette, Salmon-Challis, Sawtooth, Uinta-Wasatch-Cache

Region 5 (Pacific Southwest): Eldorado, Inyo, Klamath, Lake Tahoe Basin, Lassen, Modoc, Plumas, Sequoia, Shasta-Trinity, Sierra, Stanislaus, Tahoe


Region 10 (Alaska): Chugach, Tongass
The NVUM surveys for Region 1 forests show there are an estimated:

- 678,332 cross-country ski and snowshoe visits annually
- 506,524 snowmobile visits annually

See Figure A.

Region 1 National Forests contain:

- 24,148,297 acres of land
- 13,998,700 acres of land open to snowmobiles
- 4,999,097 acres of non-wilderness land closed to snowmobiles
- 4,987,877 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Region 1 National Forests contain:

- 475 miles of ski trails
- 4,100 miles of snowmobile trails

See Figure C.

Cross-country ski and snowshoe visits outnumber snowmobile visits on almost every National Forest in Region 1 yet there are almost 4 million more acres of land open to snowmobiles than there are designated as non-motorized and more than 10 times the number of miles of snowmobile trails versus ski trails in the Northern Region.

Across Region 1 there is an inequitable balance between the number of non-motorized winter recreationists visiting a forest and the number of acres on that forest that are managed for non-motorized use.

For example, on the Beaverhead-Deerlodge National Forest there are 7.2 times as many annual cross-country ski or snowshoe visits as there are snowmobile visits yet 1.3 times as many acres of the forest are open to over-snow vehicle use. Likewise, on the Kootenai National Forest cross-country ski and snowshoe visits outnumber snowmobile visits 30 to 1 yet there are 7 times as many acres on the forest that are managed for winter motorized use.

However, Region 1 is also unique in that it is home to several forests that have completed comprehensive winter travel management plans under the 2005 Travel Planning Rule. On these forests - the Gallatin, Lewis and Clark, and Helena - we see a much more equitable allocation of land for motorized and non-motorized winter use.49
The Custer-Gallatin National Forest sees almost the same number of cross-country skier visits as snowmobile visits and has almost equal amounts of non-motorized and motorized lands. Thirty-five percent of this forest is Wilderness and an additional 19% is designated as non-motorized while 43% of the forest is open to OSVs.

There are almost 5 times as many cross-country ski and snowshoe visits to the Lewis and Clark National Forest as there are snowmobile visits and a large proportion of the non-wilderness lands on this forest are closed to OSVs. Under the Lewis and Clark winter travel plan OSV use is concentrated in the more developed parts of the forest. The result is a management plan that protects winter wildlands while also providing for high quality snowmobile opportunities.

National trends in snow sport activities are reflected across Region 1. More people participate in non-motorized snowsports than motorized, even though Montana and Idaho are among the top ten states for motorized recreation participation. A University of Montana Institute for Tourism and Recreation Research survey of over 4,000 Montana households found that 21% of survey respondents used ski or snowshoe trails and 18% used snowmobile trails. Likewise, 48% of survey respondents would like to see an increase in the amount of cross-country ski and snowshoe trails and 30% felt there should be more snowmobile trails.
The NVUM surveys for Region 2 forests show there are an estimated:

- 2,198,604 cross-country ski and snowshoe visits annually
- 1,170,669 snowmobile visits annually

See Figure A.

Region 2 National Forests contain:

- 20,479,545 acres of land
- 11,799,009 acres of land open to snowmobiles
- 3,322,569 acres of non-wilderness land closed to snowmobiles
- 4,795,424 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Region 2 National Forests contain:

- 1,374 miles of ski trails
- 2,387 miles of snowmobile trails

See Figure C.

Wyoming forests in Region 2 receive more snowmobile visits than cross-country ski or snowshoe visits annually while all of the Colorado forests in Region 2 receive more non-motorized recreationists each winter. These numbers reflect general statewide recreation trends. In 2013 17% of Coloradans participated in cross-country skiing or snowshoeing, 7.5% participated in backcountry skiing, and 5% participated in snowmobiling. In contrast, snowmobiling is a much more popular activity in Wyoming, where 15% of households participated in snowmobile-based recreation during the winter of 2011-2012.

Overall Region 2 sees almost twice as many cross-country ski and snowshoe visits as snowmobile visits annually yet there are one and a half times more acres of land available for motorized use than are designated for non-motorized activities across the Region. This is most striking on the Pike-San Isabel National Forest, where non-motorized winter visits outnumber snowmobile visits 70:1 yet there are almost three times the number of acres open to snowmobiles as there are designated for non-motorized use. Even more striking, when Wilderness acres are excluded the number of non-motorized acres on the Pike-San Isabel drops to only one tenth of the number of motorized acres.

Winter visitors to National Forest lands have different needs depending on their preferred type of recreation. A 2005 study of winter recreationists on the Medicine Bow-Routt National Forest
outlined the experiences and access sought by each user group.55 Skiers and snowshoers desired areas that were free from the noise, smell, and sight of snowmobiles and untracked powder to ski downhill. In addition, hybrid skiers also sought out motorized access points to skiable terrain. Snowmobilers desired groomed and marked trails alongside open play areas and hills but also wanted more acres because they generally travel further than a skier in a day. On this forest there are approximately twice as many acres available for snowmobilers as compared to non-motorized acres where skiers can find the experiences they seek.

The White River National Forest is the only forest in Region 2 to undergo forest-wide winter travel planning prior to the OSV Rule. On this forest we see a much more equitable balance of opportunity. There are almost 9 times as many non-motorized winter visits to the forest and slightly more than twice as many non-motorized acres. If designated Wilderness is excluded then the number of motorized and non-motorized acres on the White River National Forest are approximately equal.
The NVUM surveys for Region 3 forests show there are an estimated:

- 251,712 cross-country ski and snowshoe visits annually
- 38,878 snowmobile visits annually

See Figure A.

Region 3 National Forests contain:

- 11,143,430 acres of land
- 8,411,389 acres of land open to snowmobiles
- 1,484,699 acres of non-wilderness land closed to snowmobiles
- 1,247,342 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Region 3 National Forests contain:

- 67 miles of ski trails
- 7 miles of snowmobile trails

See Figure C.

Snow-based recreation is low for forests in Region 3, which is unsurprising given the climate in the desert Southwest. However, high elevation mountainous areas do provide winter recreation opportunities across Region 3. Approximately 7% of New Mexicans take part in non-motorized snow-sports\textsuperscript{56} and 9% of Arizona residents reported moderate participation in cross-country skiing or snowshoeing in 2012.\textsuperscript{57}

None of the forests in Region 3 that receive enough snow to support winter recreation currently have winter travel management plans and there are few trails or areas designated for backcountry snow-based recreation. Although the numbers in this report are somewhat misleading given that snow-based recreation is only feasible in limited areas on these forests, they provide a good example of why winter travel planning is needed. Winter travel plans can ensure that snowmobiling is allowed on those areas of the forest where it truly makes sense, as opposed to being allowed anywhere where there might be snow.

**Figure A.** National Forest Annual Visits per Activity

Source: U.S. Government, National Visitor Use Monitoring Data
For example, the Kaibab National Forest receives approximately 791 snowmobile visits annually (and 38 cross-country ski or snowshoe visits) but there is virtually no guidance on how OSVs should be managed in any forest planning documents. By default snowmobiles are technically allowed everywhere on the forest except within designated Wilderness. While there are few places on the forest snowy enough to support winter recreation, there has been no analysis of how snowmobiles impact wildlife, natural resources, or other uses on the forest.

With the exception of the Kaibab, cross-country skiing and snowshoeing are far more prevalent across Region 3 forests than is snowmobiling. There are twice as many ski visits versus snowmobile visits on the Carson and Lincoln National Forests, 37 times more cross-country ski and snowshoe visits on the Coconino, and over 3,000 times more cross-country ski and snowshoe visits on the Santa Fe National Forest. No snowmobile visits were recorded during the NVUM surveys for the Coronado and Cibola National Forests and snowmobiles are not allowed off of designated routes on the Coronado.
The NVUM surveys for Region 4 forests show there are an estimated:

- 893,975 cross-country ski and snowshoe visits annually
- 594,487 snowmobile visits annually

See Figure A.

**Region 4 National Forests contain:**

- 31,759,620 acres of land
- 22,469,720 acres of land open to snowmobiles
- 3,779,999 acres of non-wilderness land closed to snowmobiles
- 5,750,811 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

**Region 4 National Forests contain:**

- 839 miles of ski trails
- 3,363 miles of snowmobile trails

See Figure C.

Overall, National Forests in the Intermountain Region see approximately 1.5 times as many cross-country ski and snowshoe visits as snowmobile visits yet there are almost 2.5 times the number of acres available for over-snow vehicle travel than are closed to motorized use in the winter, over half of which is designated Wilderness. When Wilderness is excluded this difference jumps up to almost six times the number of motorized versus non-motorized acres across Region 4.

Non-motorized winter visits (cross-country skiing, backcountry skiing and snowshoeing) outnumber snowmobile visits on the majority of forests in Region 4. Snowmobile visits outnumber cross-country ski and snowshoe visits on the Ashley, Caribou-Targhee, Dixie, and Payette National Forests. With the exception of the Payette, there are far more acres available for motorized use than are designated non-motorized on these forests. When designated Wilderness is excluded motorized acres far outnumber non-motorized acres across these forests just as with every other forest in Region 4.
Although there are almost six times more cross-country ski and snowshoe visits than snowmobile visits on the Boise National Forest, only one fifth of the forest is designated non-motorized. There are 11 times more cross-country ski and snowshoe visits than snowmobile visits to the Sawtooth National Forest but only a quarter of the forest is designated as non-motorized. Cross-country ski and snowshoe visits outnumber snowmobile visits on the Manti-La Sal as well, yet only one seventh of this forest is designated as non-motorized.

Most forests in Region 4 manage OSVs through a combination of special orders and Forest Plans. In some cases forests have developed winter travel management plans for certain areas of the forest where OSV recreation conflicts with other types of recreation or management objectives. For example, the Sawtooth National Forest developed a winter travel plan for the Wood River Valley in order to reduce conflict between motorized and non-motorized users. This travel plan is implemented through a special order. Similarly, the Bridger-Teton National Forest developed a winter travel management plan for the northern portion of the forest in order to reduce OSV impacts on wildlife. Both of these travel plans are over a decade old. Only one forest in Region 4 has a winter plan done under the Travel Management Rule and it does not cover the entire forest. The 2005 Caribou Travel Plan encompassed winter use but does not include the Targhee portion of the Caribou-Targhee National Forest.
The NVUM surveys for Region 5 forests show there are an estimated:

- 1,170,761 cross-country ski and snowshoe visits annually
- 488,783 snowmobile visits annually

See Figure A.

Region 5 National Forests contain:

- 14,571,103 acres of land
- 10,519,174 acres of land open to snowmobiles
- 525,440 acres of non-wilderness land closed to snowmobiles
- 3,216,652 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Region 5 National Forests contain:

- 334 miles of ski trails
- 1,391 miles of snowmobile trails

See Figure C.

Forests in the Pacific Southwest Region receive approximately 1.2 million cross-country ski and snowshoe visits annually, 2.4 times the number of snowmobile visits. In contrast, there is almost three times the amount of land open to snowmobiles as there is designated for non-motorized use. On three forests – the Klamath, Modoc, and Shasta-Trinity – the only lands that are off-limits to snowmobiles are those within designated Wilderness.

The Klamath National Forest receives approximately 4 times more cross-country ski and snowshoe visits than snowmobile visits and the Modoc receives 10 times more cross-country ski and snowshoe visits. The Shasta-Trinity National Forest did not record any snowmobile visits during the most recent NVUM survey period but did record approximately 47,000 cross-country ski or snowshoe visits. These three forests coordinate snowmobile management through the TriForest Snowmobile Trail System but there is no such program for non-motorized winter recreationists. The TriForest Snowmobile Trails are open to skiers and snowshoers as well but, with the exception of 14 miles of ski trails on the Klamath, there are not any winter trails on these forests where non-motorized users can distance themselves from OSVs.

The Inyo National Forest receives approximately five times more cross-country ski and snowshoe visits than snowmobile visits. While the number of acres open to OSVs versus designated non-motorized are approximately equal, there are over six times more winter trails managed for motorized recreation. In 2005 the Mammoth Lakes Region of the Inyo surveyed visitors to better understand what is important to winter recreationists in the Mammoth area. The survey found that the most common activity pursued by winter recreationists was cross-country or backcountry skiing. Snowmobiling was the third most common activity. Of those surveyed, cross-country skiers were the most
dissatisfied, with over 20% reporting their experience was below their expectations. In comparison, snowmobilers were the second most satisfied, with over 90% of participants stating that their expectations were met or exceeded.

OSV activity on the Sierra National Forest is guided by the 1991 Land and Resource Management Plan and the 1977 Sierra OHV Plan. Under these documents, approximately 58% of the Sierra National Forest is open to snowmobiles. However, the Forest Service estimates that only 5% of the Sierra National Forest is actually available for OSV recreation in a given winter because there is generally no snow below 7,000 feet.

Five of the forests in Region 5 have taken the lead in implementing the OSV Rule. The Lassen, Tahoe, Eldorado, Stanislaus, and Plumas National Forests began winter travel management planning in early 2015. Each of these forests will go through a public process to identify routes and areas for OSV use. Once these routes and areas are identified and published on a map OSV activity outside of these designated locations will be prohibited. Snowmobilers, skiers, and others interested in how these forests are managed in winter have written comments, attended meetings, and otherwise been involved in the creation of these travel plans which are expected to be completed in 2017.
The NVUM surveys for Region 6 forests show there are an estimated:

- 830,639 cross-country ski and snowshoe visits annually
- 243,286 snowmobile visits annually

See Figure A.

**Region 6 National Forests contain:**

- 23,764,614 acres of land
- 14,354,742 acres of land open to snowmobiles
- 4,531,285 acres of non-wilderness land closed to snowmobiles
- 4,909,037 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Please note that acreage figures for Region 6 are approximate. Several forests in this Region were unable to provide concrete numbers to help answer the question of how many acres are open or closed to OSVs. As a result, this report relies on Forest Plan management areas and Recreation Opportunity Spectrum designations to arrive at a general idea of how many acres on a particular forest are open or closed to OSVs.

**Region 6 National Forests contain:**

- 1,223 miles of ski trails
- 5,157 miles of snowmobile trails

See Figure C.

National Forests across the Pacific Northwest Region manage OSVs through motor vehicle designations made during forest planning and special orders that protect sensitive watersheds, wildlife habitat, or, occasionally, to reduce conflict between user groups. Overall, 60% of Region 6 is open to cross-country snowmobile travel and 76% of snow trail miles in Region 6 are open to motorized recreation.

On the Colville National Forest, where the 1988 Forest Plan is the only document dictating OSV management, 66% of the forest is open to cross-country snowmobile travel. On this forest snowmobile visits outnumber cross-country ski or snowshoe visits 3:1.

There are approximately twice as many cross-country ski and snowshoe visits annually to the Deschutes National Forest as there are snowmobile visits. Despite this, 74% of the forest is open to cross-country snowmobile travel and 80% of the trails are managed for motorized or shared use. In the early 2000’s, the Deschutes National Forest underwent a winter recreation suitability analysis to assess how best to provide quality winter
recreation opportunities and protect natural resources. This analysis pointed towards a need for backcountry zoning, increased educational efforts, and improvements to trail and parking facilities, among other recommendations. However, little has been done to date to implement the recommendations from this report.60

The Mount Hood National Forest is a major destination for winter recreationists and 94% of the 264,000 cross-country ski, snowshoe, and snowmobile visits to this forest are by human-powered recreationists. However, the forest does not have an official management plan for over-snow vehicle travel or winter recreation. The 1999 Travel and Access Management Guide is the closest thing to a management plan for motorized use on this forest. However, this document was intended for analysis purposes only and provides goals, objectives, strategies, processes, guidelines and general direction to manage forest routes. It is not a decision document and offers no site-specific recommendations.

These three forests are examples of how OSVs are managed across Region 6. Of the Regions analyzed in this report Region 6 proved to be the most difficult insofar as calculating acres open and closed to snowmobiles. This was because, Region-wide, there are no recent management plans for winter motorized recreation or decision documents outlining where snowmobiles are and are not allowed to travel. Given that a significant percentage of Oregonians and Washingtonians participate in winter recreation it is time for the National Forests in the Pacific Northwest to undergo comprehensive winter travel planning.

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**Figure B: National Forest Acres Open and Closed to Snowmobiles**

- Acres Open to Snowmobiles.
- Designated Wilderness Acres, Closed to Snowmobiles
- Non-Wilderness Acres Closed to Snowmobiles

**Figure C: Total Miles of Managed Snow Trails on National Forest Land Open and Closed to Snowmobiles**

- Miles of Snowmobile Trails
- Miles of Cross-country Ski and Snowshoe Trails

*Approximate acreage calculated using best available data*
The NVUM surveys for Region 9 forests show there are an estimated:

- 934,964 cross-country ski and snowshoe visits annually
- 969,098 snowmobile visits annually

See Figure A.

Region 9 National Forests contain:

- 9,904,649 of land
- 4,116,444 acres of land open to snowmobiles
- 4,170,030 acres of non-wilderness land closed to snowmobiles
- 1,615,577 acres of designated Wilderness land, also closed to snowmobiles

See Figure B.

Region 9 National Forests contain:

- 1,342 miles of ski trails
- 4,087 miles of snowmobile trails

See Figure C.

There are slightly more snowmobile visits to Region 9 overall than cross-country ski or snowshoe visits, making it the only Region in the country where NVUM surveys show more snowmobile visits to National Forests than cross-country ski or snowshoe visits. However, ski and snowshoe visits are more common on the Green Mountain and Finger Lakes, Monongahela, Superior, and White Mountain National Forests.

The Eastern Region is unique because most of the National Forests in this Region restrict snowmobiles to designated routes. Therefore, while at first glance it may appear that snowmobile travel is extremely limited in Region 9, it is important to consider how many miles of trails and roads are available for OSV use. 80%, or 4,087 miles, of the managed snow trails across all forests in the Eastern Region are open to snowmobiles.

Snowmobiles are restricted to designated routes on the Alleghany, Chequamegon-Nicolet, Chippewa, Green Mountain and Finger Lakes, Huron Manistee, Monongahela, Superior, and White Mountain National Forests. There are over 4,000 miles of designated snowmobile trails on Forest Service lands in the Eastern Region. In most cases National Forest snowmobile trails are connected to trail systems on state and private lands as well, further increasing opportunities for snowmobiling. For
example, there are 62,000 miles of interconnected snowmobile trails stretching across the state of Michigan. Well over half of the winter trail miles on every forest in Region 9 are open to or designated for snowmobile travel.

Cross-country snowmobile use is generally permitted on the Hiawatha and Ottawa National Forests. 94% of the Hiawatha is open to cross-country snowmobiling and 85% of winter trail miles are motorized. 40% of winter recreation visits (cross-country skiing, snowshoeing, or snowmobiling) to the Hiawatha National Forest are cross-country skiers or snowshoers yet there are very few areas on this forest where skiers and snowshoers can be guaranteed a non-motorized experience.

95% of winter recreation visits to the Superior National Forest are cross-country skiers or snowshoers yet there are 35 times more non-wilderness acres open to snowmobiles than there are designated as non-motorized on the Superior. The White Mountain National Forest sees almost 4 times as many ski and snowshoe visits as it does snowmobile visits yet 79% of the winter trail miles on this forest are motorized.
The NVUM surveys for Region 10 forests show there are an estimated:

• 33,261 cross-country ski and snowshoe visits annually
• 1,960 snowmobile visits annually

See Figure A.

Region 10 National Forests contain:

• 40,236,879 acres of land
• 8,574,599 acres of land open to recreational snowmobile use
• 6,954,788 acres of non-wilderness land closed to recreational snowmobile use
• 6,924,421 acres of designated Wilderness land, also closed to recreational snowmobile use

See Figure B.

Region 10 National Forests contain:

• 91 miles of ski trails
• 98 miles of snowmobile trails

See Figure C.

Section 811 of the Alaska National Interest Lands Conservation Act (ANICLA) allows rural residents engaged in subsistence uses to use snowmobiles to access subsistence resources on public lands regardless of other laws. Likewise, section 1110 of ANICLA allows for the use of snowmobiles on conservation system units, National Recreation Areas, National Conservation Areas, and Wilderness Study Areas for traditional activities (where such activities are permitted) and for travel to and from villages and homesites. Section 1110 allows for snowmobile use across 5.8 million acres of conservation system units on the Tongass National Forest.

Notwithstanding the exceptions permitted because of ANICLA, this report focuses on where recreational snowmobile activity is and is not allowed in Region 10.
The Chugach National Forest manages OSVs through its Forest Plan, amended to include the Kenai Winter Access Plan. The Kenai Winter Access Plan zones the Seward Ranger District into non-motorized and motorized areas. Because there are some areas on the Kenai that are highly valued by both skiers and snowmobilers, 18% of the Kenai is managed under a Season A/Season B scenario wherein certain areas are motorized one year and non-motorized the following. This type of zoning is not new to the Chugach National Forest. For many years the Forest Service has managed Turnagain Pass to reduce conflicts between skiers and snowmobilers. The pass is divided by the Seward Highway and lands south of the highway are designated for non-motorized use. Overall, 72% of the Chugach is non-motorized in the winter.

On the Tongass National Forest, 23% of land is off-limits to recreational snowmobile use although much more of this forest is functionally off-limits to snowmobiles due to terrain, snowpack, and access. In areas of the forest that are near towns the Tongass has delineated OSV use areas. These areas are depicted on the forest Motor Vehicle Use Maps. The Forest Plan and additional forest orders are the guiding documents behind these designations.

Much of Alaska is too rugged or remote for snowmobile access, however, only 34% of the National Forest lands in Region 10 are officially closed to recreational snowmobile use. This includes designated Wilderness areas. Cross-country ski and snowshoe visits outnumber recreational snowmobile visits to the Chugach by a factor of almost 16 to 1. Likewise, cross-country ski and snowshoe visits to the Tongass outnumber recreational snowmobile visits 18 to 1.
April 24, 2014
Region 1 FOIA Coordinator

* Freedom of Information Act Request
Re: Winter Recreation Planning and Management

Dear *,

Pursuant to the Freedom of Information Act, 5 U.S.C. Part 552, and implementing regulations, 36 C.F.R. Part 200, Winter Wildlands Alliance, a 501(c)(3) national non-profit organization, is filing this request for information. We request the following items for all National Forests in Region 1, except the Dakota Prairie Grasslands:

1) Any and all records that summarize the length of all cross-country ski and snowshoe trails on the National Forests specified above
2) Any and all records that summarize the length of all snowmobile trails, including roads, on the National Forests specified above
3) Any and all records that summarize the length of all trails that are designated shared use for motorized and non-motorized winter recreational activities on the National Forests specified above
4) Any and all records that detail the total acreage in the National Forests specified above that is open to or available for snowmobile operation
5) Any and all records that detail the total acreage in the National Forests specified above that is closed to snowmobile operation
6) Any and all Forest Closure Orders, Travel Management Plan documentation, or other decisions and supporting documents governing the use of over-snow vehicles on the National Forests specified above
7) Any and all surveys of public use, attitudes, preferences or opinions that concern, in whole or in part, snowmobiling, cross-country skiing, backcountry skiing or snowshoeing, including summaries and drafts for the National Forests specified above. You do not need to include documentation related to National Visitor Use Monitoring surveys.
8) Any reports detailing the economic impact of winter recreation on National Forest system lands published since 2000 for the National Forests specified above
9) Electronic copies of any and all GIS files related to winter recreation trails and areas, including sno-parks, designated non-motorized areas outside Wilderness and the boundaries of any Special Use Permits if applicable (ski areas, cat ski, etc.) for the National Forests specified above

We respectfully request electronic copies of this information to the extent possible.

If you determine that any of the requested materials are exempt from disclosure, please separate the exempt portions from the non-exempt portions and provide us with copies of the non-exempt portions. For any exempt portions, please include a specific description of the record and the reasons, defined in the terms of the Freedom of Information Act, for which the record is deemed exempt from disclosure. Winter Wildlands Alliance (WWA) reserves the right to appeal a decision to withhold any records.

To our knowledge, the above-requested information is not available from any other federal, state, or other public agency required to provide the information. Furthermore, the release of the information will not provide WWA, its affiliates, and any other individual, group, or organization with any financial benefits.

Winter Wildlands Alliance is a national, non-profit, human-powered winter recreation and wildlands advocacy organization. Spanning the nation, WWA is affiliated with local, state, and national recreation and conservation organizations, including 34 grassroots groups in 10 states. WWA and its partners, who represent cross-country skiers and snowshoers, focus primarily on public land management and winter recreation opportunities.

Currently, WWA is working with grassroots groups in 12 states, including Alaska, California, Colorado, Idaho, Minnesota, Montana, Nevada, Oregon, Utah, Vermont, Washington and Wyoming. The information contained within this FOIA request will benefit these groups, their members, and other public partners by educating them about USFS management practices, specifically how the needs of recreational user groups are addressed through current trail designation and funding. In addition to these groups, WWA will make all requested information available to the general public, its members, and other recreation and conservation groups, who will all benefit as they pursue winter recreation opportunities on our national forests.

Winter Wildlands Alliance makes information concerning USFS management practices available to all interested parties through public meetings, electronic and printed action alerts, newsletters, press releases, magazine articles, phone calls, and other means. The requested information will also assist WWA in responding to opportunities for public comment on proposed actions concerning winter recreation planning on national forest lands, in addition to allowing WWA to assist others in the preparation of such comments. The requested information will better educate the public, allowing them to be more active participants in Forest Service forums on winter recreation planning and management. Many opportunities are presently available for such involvement, as many Forest Plans are or soon will be in the process of revision.
For reasons of public interest and education, WWA requests that you grant a waiver of fees pursuant to 5 U.S.C. Part 522 (a)(4)(A) and 43 C.F.R. Part and Section 2.21. We expect that such a waiver will be granted. However, if a waiver is not granted, please inform WWA immediately of the price of disclosing the above-described records if such fees exceed $15.00.

We respectfully request that you will respond to our FOIA request within 20 working days. Please feel free to call me at (208) 629-1986 or email me at heisen@winterwildlands.org if you have any questions. Thank you for your immediate attention to this matter.

Sincerely,

Recreation Planning Coordinator
APPENDIX 2 - Refined Request

Winter Wildlands Alliance
PO Box 631 • Bozeman, MT 59771 • 208.336.4203
www.winterwildlands.org

(Submitted via email)
December 1, 2014

National Program Manager, Trails & Congressionally Designated Areas
USDA Forest Service

Freedom of Information Act Request
Re: Winter Recreation Planning and Management

Dear *,

Pursuant to the Freedom of Information Act, 5 U.S.C. Part 552, and implementing regulations, 36 C.F.R. Part 200, Winter Wildlands Alliance, a 501(c)(3) national non-profit organization, is filing this request for information. We request the following items for all National Forests in Region 1, except the Dakota Prairie Grasslands; all National Forests in Region 2, except the Nebraska National Forest; the Carson, Cibola, Coconino, Coronado, Kaibab, Lincoln, and Santa Fe National Forests in Region 3; all National Forests in Region 4; the Eldorado, Inyo, Klamath, Lassen, Modoc, Plumas, Sequoia, Shasta-Trinity, Sierra, Stanislaus, and Tahoe National Forests as well as the Lake Tahoe Basin Management Area in Region 5; all National Forests in Region 6; the Alleghany, Hiawatha, Huron-Manistee, Ottawa, Chippewa, Superior, White Mountain, Green Mountain/Finger Lakes, Chequamegon-Nicolet, and Monongahela National Forests in Region 9; and all National Forests in Region 10:

1) Total existing NFST miles with Managed Use of cross-country ski and total existing NFST miles with Managed Use of snowshoe (as recorded in the current, FY14, INFRA database).

2) Total existing NFST miles with Managed Use of snowmobile (as recorded in the current, FY14, INFRA database).

In addition, we request the following items for the Alleghany National Forest:

1) Any and all records that detail the total acreage in the National Forests specified above that is open to or available for snowmobile operation. Specifically, we are requesting total NFS designated areas, in acres, open to motorized over-snow vehicle use such as cross country travel, play areas, etc. Do not include linear features such as trails, trail mileage or associated acres for National Forest System trails.

2) Any and all records that detail the total acreage in the National Forests specified above that is closed to snowmobile operation. Specifically, we are requesting total NFS designated areas, in acres, specifically closed to motorized over-snow vehicle use such as cross country travel, play areas, etc. Do not include linear features such as trails, trail mileage or associated acres for National Forest System trails. Include wilderness acres that are closed to over-snow vehicle use.

3) Any and all Forest Closure Orders, Travel Management Plan documentation, or other decisions and supporting documents governing the use of over-snow vehicles on the National Forests specified above. Specifically, we are requesting all Forest Closure Orders, Travel Management Plans or other means of closure and the supporting NEPA documents and/or Forest Plans for the closure. Specify the district, forest, and region. If documentation is within a Forest Plan, state the information is within a Forest Plan and supply the forest name, plan date, and a direct link. If supporting NEPA documents are available via the internet, provide the direct link to the document.

4) Any and all surveys of public use, attitudes, preferences or opinions that concern, in whole or in part, snowmobiling, cross-country skiing, backcountry skiing or snowshoeing, including summaries and drafts for the National Forests specified above. You do not need to include documentation related to National Visitor Use Monitoring surveys.

5) Any reports detailing the economic impact of winter recreation on National Forest system lands published since 2000 for the National Forests specified above

6) Electronic copies of any and all GIS files related to winter recreation trails and areas, including sno-parks, designated non-motorized areas outside Wilderness and the boundaries of any Special Use Permits if applicable (ski areas, cat ski, etc.) for the National Forests specified above

Finally, we request the following in regards to forests in Region 6:
1) Okanogan-Wenatchee

We request any and all GIS files that depict motorized vehicle restrictions and were used to create the 2005 Methow Valley and Tonasket Ranger District travel plan maps.

2) Willamette

We request electronic copies of any and all GIS files related to winter recreation trails and areas, including sno-parks, designated non-motorized areas outside Wilderness and the boundaries of any Special Use Permits if applicable (ski areas, cat ski, etc.).

We request the Motorized Access and Travel Management Plans prepared for each Ranger District as per the 1990 Forest Plan unless these documents have been superseded by other Forest Orders or other management guidelines pertaining to OSVs.

We request any and all Travel Management Area shapefiles that reflect Forest Plan Management Areas (or similar) for the Willamette National Forest.

We respectfully request electronic copies of this information to the extent possible.

If you determine that any of the requested materials are exempt from disclosure, please separate the exempt portions from the non-exempt portions and provide us with copies of the non-exempt portions. For any exempt portions, please include a specific description of the record and the reasons, defined in the terms of the Freedom of Information Act, for which the record is deemed exempt from disclosure. Winter Wildlands Alliance (WWA) reserves the right to appeal a decision to withhold any records.

To our knowledge, the above-requested information is not available from any other federal, state, or other public agency required to provide the information. Furthermore, the release of the information will not provide WWA, its affiliates, and any other individual, group, or organization with any financial benefits.

Winter Wildlands Alliance is a national, non-profit, human-powered winter recreation and wildlands advocacy organization. Spanning the nation, WWA is affiliated with local, state, and national recreation and conservation organizations, including 34 grassroots groups in 10 states. WWA and its partners, who represent cross-country skiers and snowshoers, focus primarily on public land management and winter recreation opportunities.

Currently, WWA is working with grassroots groups in 11 states, including Alaska, California, Colorado, Idaho, Minnesota, Montana, Nevada, New Mexico Oregon, Utah, Vermont, Washington and Wyoming. The information contained within this FOIA request will benefit these groups, their members, and other public partners by educating them about USFS management practices, specifically how the needs of recreational user groups are addressed through current trail designation and funding. In addition to these groups, WWA will make all requested information available to the general public, its members, and other recreation and conservation groups, who will all benefit as they pursue winter recreation opportunities on our national forests.

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For reasons of public interest and education, WWA requests that you grant a waiver of fees pursuant to 5 U.S.C. Part 522 (a)(4)(A) and 43 C.F.R. Part and Section 2.21. We expect that such a waiver will be granted. However, if a waiver is not granted, please inform WWA immediately of the price of disclosing the above-described records if such fees exceed $15.00.

We respectfully request that you will respond to our FOIA request within 20 working days. Please feel free to call me at (208) 629-1986 or email me at heisen@winterwildlands.org if you have any questions. Thank you for your immediate attention to this matter.

Sincerely,

Recreation Planning Coordinator
## APPENDIX C. TABLE OF ALL FORESTS

<table>
<thead>
<tr>
<th>Region</th>
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<th>Annual Snowmobile Visits</th>
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<td>Acres of Non-Wilderness, Closed to Snowmobiles</td>
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<td>Miles of Cross-Country Ski and Snowshoe Trails</td>
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<td>9,752</td>
<td>6,924,421</td>
<td>40</td>
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<tr>
<td>40,236,879</td>
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<td>6,954,788</td>
<td>6,924,421</td>
<td>91</td>
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<tr>
<td>176,008,137</td>
<td>97,025,989</td>
<td>29,975,829</td>
<td>33,447,141</td>
<td>5,746</td>
</tr>
</tbody>
</table>

*Acreage figures are approximate based on best available data*
An "Over-Snow Vehicle" is defined by the Forest Service as: "a motor vehicle that is designed for use over snow and that runs on a track and/or a ski or skis, while used over snow."


5. From: Lund, "A Short History of Alpine Skiing," at www.skiinghistory.org/history


10. Id.; For photos of early machines see www.snowmobilehistory.com/page6.html.

11. Id.

12. See photo posted by the Snowmobile Canada website at www.snowmobile-canada.com/his3.htm

13. From: users.accesscomm.ca/r/read/76pcs.JPG


17. Id.


22. See fn. 13.


24. The most recent National Visitor Use Monitoring data give an estimate of 6,878,106 cross-country ski or snowshoe visits annually and 4,002,135 annual snowmobile visits to all of the forests in this report.


26. Id.


28. See fn. 19, at p. 302.

29. Id.

30. Available in Appendix 1 and 2

31. Three forests in Region 6 – the Umpqua, Rogue River-Siskiyou, and Okanogan-Wenatchee failed to provide a full response to our FOIA request. Acreage calculations for these forests are approximate based on the information available.


33. Id.

34. Exec. Order No. 11644, 37 FR 2877, 1972 WL 19410 (Pres.)


36. “A telephone survey undertaken in 1998 for Teton County, Wyoming (Morey and Associates, Inc.) collected information on local resident winter participation and attitudes. The study found that 21% of households snowmobiled and 15% cross-country skied in Yellowstone in the winter of 1997-1998. In their usage of GTNP, 12% of residents snowmobiled, 46% cross-country or backcountry skied, and 10% used snowshoes. A total of 52% of Yellowstone users and 56% of non-users felt snowmobiles negatively impact Yellowstone in the winter. Of these, 66% felt they are too noisy, 44% felt they affect air quality, 39% felt they disturb wildlife, and 25% feel there are too many." From: Yellowstone SEIS, Chapter 3, Affected Environment, at www.nps.gov/grte/winteruse/fseis/vol1/6-chap3.pdf

Also: "In 1975, Glacier [National Park’s] officials decided to ban snowmobiles from the park, primarily because they disrupted the solitude of the national park in winter: ‘Over 90% of the comments opposed to snowmobile use related that concern to silence, tranquility, or in other words, aesthetics.’ Yochim, "The Development of Snowmobile Policy in Yellowstone National Park," Yellowstone Science, Spring, 1999, Vol. 7, No. 2."


41. See http://snowmobiles.axlegeeks.com/ for a complete list of current year snowmobile specifications


43. Id. Other data suggest that it will take a snowmobiler operating at a speed of only 50 mph, at least 220 feet to come to a stop. See Gilmour and Bowe, “High Speeds at Night A Recipe for Disaster,” The Forum, at www.in-forum.com/specials/snowmobiles/articles2.shtml

44. See Powers, supra, at fn. 44. See also www.seagrant.umn.edu/tourism/snow.html#6.


46. Id

47. The NVUM homepage is at www.fs.fed.us/recreation/programs/nvum/

48. Personal communication with Don English, Visitor Use Monitoring Program Manager, Feb. 13, 2015

49. In April 2015 the Bitterroot National Forest released a draft Record of Decision regarding a new travel plan. Because this plan was not finalized at the time of report publication the numbers from the new plan are not included in this report. However, the new plan outlines a much more equitable balance of land allocation for motorized and non-motorized users similar to other National Forest winter travel plans in Region 1.


52. Id


59. Id.


Winter Wildlands Alliance is a national nonprofit organization promoting and preserving winter wildlands and a quality human-powered snowsports experience on public lands.
How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas

February 2011
In Need of Protection:
How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas

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Executive Summary

Former Chief of the Forest Service, Dale Bosworth called “unmanaged recreation,” including use of off-road vehicles and snowmobiles, one of the “top four threats” to our national forests. Motorized recreation is also the top threat to the Forest Service’s recommended additions to the National Wilderness Preservation System. Increases in the volume of use, size of vehicles and advances in off-road vehicle and snowmobile technology are degrading the wilderness character of many Forest Service recommended wilderness areas.

The national forests in Idaho provide a unique opportunity to compare and contrast different management approaches to off-road vehicle and snowmobile use in Forest Service recommended wilderness areas. The national forests in the state are split between the Northern and Intermountain Regions of the agency. These regions manage the areas and uses differently.

Due to the degradation of wilderness character that has occurred as a result of motorized recreation, national forests in the Northern Region are prohibiting the use of motorized vehicles in recommended wilderness areas through travel management and land and resource management planning. Conversely, the national forests of the Intermountain Region continue to follow a loose national policy that permits existing uses of recommended wilderness areas to continue. Unfortunately, the national policy is leading to ecological damage, user conflicts, decreased opportunities for solitude and degradation of other wilderness values. Therefore, the Forest Service is not living up to its responsibility to ensure that the unique wilderness characteristics of these areas are maintained.

The time has come for a national policy that protects the unique character of the Forest Service’s recommended additions to the National Wilderness Preservation System. The same uses of designated wilderness areas that are prohibited by the Wilderness Act should be banned from recommended wilderness areas. Such a policy is a commonsense means of protecting the wilderness character of Forest Service recommended wilderness areas until Congress considers statutory wilderness designation. At a minimum, a national policy for recommended wilderness areas should require the following:

- Adoption of a desired conditions statement in land and resource management plans that RWAs should be managed to reflect the definition of wilderness found in the Wilderness Act of 1964.

- Adoption of standards in land and resource management plans that require each national forest to prohibit uses of RWAs that are inconsistent with uses allowed per the Wilderness Act of 1964.

- Phase-out incompatible uses through land and resource management planning or travel management planning.

- Approval by the Chief of the Forest Service of any exceptions to this policy.
In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service's Recommended Wilderness Areas

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Introduction

In 1964 Congress passed the Wilderness Act “[i]n order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States.” The Act established the National Wilderness Preservation System (NWPS), including 16 “instant” wilderness areas. Additions to the NWPS are made by subsequent acts of Congress.

Section 3(b) of the Wilderness Act also set up a process whereby the Forest Service must make recommendations to Congress for additions to the NWPS. The Forest Service responded in the 1970s with the Roadless Area Review and Evaluation (RARE). However, litigation tied up RARE twice, so the agency elected to determine the wilderness suitability of individual roadless areas at the national forest level through the forest planning process.

Many national forests reviewed each roadless area for wilderness suitability and provided recommendations for additions to the NWPS in the first generation of forest plans. Subsequently, the Congressional delegations of all but two states with national forest system lands—Idaho and Montana—considered those recommendations and passed statewide wilderness bills in Congress. Idaho and Montana both attempted to produce and pass similar statewide legislation but fell short.

Since that time, both states have worked to resolve the wilderness debate through place-based legislation. The Selway-Bitterroot, Sawtooth, Hells Canyon, Gospel Hump and Frank Church – River of No Return Wilderness Areas were all designated by separate acts of Congress. The last are to be designated in Idaho was the Frank Church – River of No Return Wilderness in 1980.

With over 9 million acres of inventoried roadless areas in Idaho, many areas remain suitable for wilderness designation. Every forest plan in Idaho except the Nez Perce National Forest includes official Forest Service recommendations for additions to the NWPS (Table 1 and Figure 1).

Until Congress takes the opportunity to consider these recommendations, the Forest Service is obligated to protect the wilderness suitability of these areas. The Forest Service Manual states:

> Any inventoried roadless area recommended for wilderness or designated wilderness study is not available for any use or activity that may reduce the wilderness potential of the area. Activities currently permitted may continue pending designation, if the activities do not compromise the wilderness values of the area.¹

Unfortunately some national forests have failed to curb the increasing use of off-road vehicles and snowmobiles in recommended wilderness areas (RWAs), which has resulted in the degradation of wilderness character and potential. Operating motorized vehicles, as a general rule, is a use that would be prohibited if an area were designated as wilderness. Therefore, permitting these uses to continue is, by definition, inconsistent with wilderness character. The use of larger off-road vehicles and snowmobiles, as well as technological advances, has decreased the naturalness of many RWAs, opportunities for primitive and unconfined types of recreation, and ecological, geological, or other features of scientific, educational, scenic, or historical value.² Specific examples are outlined in this report.

¹ FSM 1923.03
² See Section 2(c) of the Wilderness Act of 1964 for a definition of Wilderness.
Idaho provides a unique opportunity to compare the management of RWAs between two different regions of the Forest Service. The national forests in North Idaho are part of the Northern Region of the Forest Service, and those in South Idaho are part of the Intermountain Region. The former is phasing out off-road vehicle and snowmobile use in the RWAs because trends in use, size and vehicle technology are decreasing the wilderness potential of areas where motorized vehicles have been permitted to continue. Perhaps the Clearwater National Forest Travel Management Plan, Draft Environmental Impact Statement articulates these impacts best:

As motorized technology continues to be developed levels of access into remote, back-country locations will rise and with this increased use will come additional noise and disturbance which adversely affects attributes of wilderness character. These technology improvements allow motorcycles, bicycles and over-snow vehicles to increasingly overcome the expectations of the 1987 Forest Plan that assumed the difficult and rugged terrain would prove to be self-limiting to motorized access. Activities, including motorized/mechanized (bicycle) trail or road use, or motorized over-snow vehicle use, that may potentially lead to the decline of an areas ability to provide the level of wilderness character that was present when it was recommended in 1987 does not support the protection of wilderness character. Proposing motorized/mechanized (bicycle) activities as part of travel planning decisions in recommended wilderness areas will not result in best meeting the desired future condition in these areas.3

Meanwhile, national forests in the Intermountain Region continue to permit off-road vehicle and snowmobile use in every recommended wilderness area in the region. As this report demonstrates, there are real on-the-ground consequences of these two different approaches that can no longer be ignored. A consistent national policy is needed to protect the wilderness characteristics of these areas from the increasing size, technological capability and use of off-road vehicles and snowmobiles.

Figure 1. Forest Service recommended wilderness areas and designated Wilderness areas in Idaho.
### Table 1. Forest Service recommended wilderness areas in Idaho by forest and region, including size and allowable off-road vehicle or snowmobile use within the area. 4

<table>
<thead>
<tr>
<th>Region</th>
<th>Forest</th>
<th>Area</th>
<th>Acres</th>
<th>Trails designated for off-road vehicle use (%)</th>
<th>Open yearlong or seasonally to snowmobiles (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Idaho Panhandle</strong></td>
<td>Mallard-Larkins</td>
<td>78,500</td>
<td>0%</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Salmo-Priest</td>
<td>17,600</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scotchman Peaks</td>
<td>9,400</td>
<td>0%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selkirk Crest</td>
<td>26,700</td>
<td>0%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td><strong>Northern Clearwater</strong></td>
<td>Great Burn (Hoodoo)</td>
<td>113,000</td>
<td>1% pending travel plan</td>
<td>0%, pending travel plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mallard-Larkins</td>
<td>66,700</td>
<td>0%</td>
<td>0%, pending travel plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selway-Bitterroot Additions</td>
<td>18,500</td>
<td>0%</td>
<td>0%, pending travel plan</td>
<td></td>
</tr>
<tr>
<td>Nez Perce</td>
<td>None</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>330,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Boise Payette</strong></td>
<td>Needles</td>
<td>91,900</td>
<td>30%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secesh</td>
<td>115,400</td>
<td>37%</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td><strong>Sawtooth Boise</strong></td>
<td>Hanson Lakes</td>
<td>13,600</td>
<td>0%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Needles</td>
<td>4,300</td>
<td>18%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red Mountain</td>
<td>86,100</td>
<td>93%</td>
<td>100%</td>
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</tr>
<tr>
<td></td>
<td>Tenmile-Black Warrior</td>
<td>79,900</td>
<td>9%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td><strong>Sawtooth Intermountain</strong></td>
<td>Boulder-White Clouds</td>
<td>184,400</td>
<td>30%</td>
<td>92%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hanson Lakes</td>
<td>18,500</td>
<td>39%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pioneer Mountains</td>
<td>61,000</td>
<td>11%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td><strong>Salmon-Challis</strong></td>
<td>Borah Peak</td>
<td>119,000</td>
<td>41% of the routes are designated for motorized use5</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boulder-White Clouds</td>
<td>34,000</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pioneer Mountains</td>
<td>48,000</td>
<td>10% of the routes are designated for motorized use2</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Caribou-Targhee</strong></td>
<td>Caribou City</td>
<td>29,201</td>
<td>0%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diamond Peak</td>
<td>29,521</td>
<td>0%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Italian Peaks</td>
<td>49,406</td>
<td>72%</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lionhead</td>
<td>11,314</td>
<td>0%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mt. Naomi</td>
<td>13,246</td>
<td>20%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Palisades</td>
<td>61,173</td>
<td>1%</td>
<td>94%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>1,049,614</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Idaho Total</strong></td>
<td></td>
<td></td>
<td>1,380,014</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 Figures for the acreage of each area were derived from the relevant forest management plans. Figures for motorized use were calculated with GIS software using spatial data provided by the Forest Service.  
5 The term “routes” is used because there are both roads (5.3 miles) and trails (7.2 miles) designated for motorized use in the Borah Peak RWA. There are 4.8 miles of designated roads in the Pioneer Mountains RWA.
Travel Management Planning

As described earlier, former Chief of the Forest Service, Dale Bosworth called “unmanaged recreation,” including the use of off-road vehicles and snowmobiles, one of the top four threats to our national forests. In 2005, the Forest Service promulgated the “Travel Management Rule” in response to the threat, prohibiting cross-country use of off-road vehicles. The rule also requires each national forest to designate specific roads, trails and areas for motor vehicle use.

The travel management plans developed under these regulations must also be consistent with the land and resource management plans (LRMP) required by the National Forest Management Act (NFMA). Travel management decisions must reflect the desired conditions, goals, objectives, standards and management prescriptions contained in LRMPs, including those related to RWAs.

Figure 2. Registered off-road vehicles and snowmobiles in Idaho.

Trends in off-road vehicle and snowmobile use in Idaho illustrate the magnitude of the threat that motorized recreation poses to our national forests and RWAs. The use of off-road vehicles has increased exponentially since the mid 1990s (Figure 2), due primarily to the rising popularity of all-terrain vehicles (ATVs).

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6 [http://www.fs.fed.us/projects/four-threats/]
8 [http://parksandrecreation.idaho.gov/datacenter/recreation_statistics.aspx]
In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas

There are also larger off-road vehicles and snowmobiles on the market today than in the past. The 1980 Honda ATC 185 three-wheeler included a 180 cc engine and was used as a farm implement. By 1988 Honda was manufacturing a 4x4 ATV with a 282 cc engine, called the Four Trax 300. The Four Trax 300 was intended for recreational use not for farming and ranching. As the off-road vehicles became larger, more powerful and popular for recreational use, the Forest Service was pressured to change regulations governing the use of these vehicles on Forest Service lands. In 1991, the Forest Service quietly did away with the “40-inch rule,” which previously prohibited the use of any vehicle greater than 40 inches in width on Forest Service trails. Forty inches happened to be the width of most dirt-bike handle bars. Most present-day travel plans and motor vehicle use maps accommodate modern ATVs by designating trails less than 50 inches in width.

Advances in vehicle technology and capability have also increased the threat. In particular, significant technological advances in snowmobile capability have occurred. For example, in 1973 Honda made a prototype snowmobile called the White Fox that had a 178 cc two-stroke engine and weighed 227 pounds. The Sno-Jet made in 1976 weighed 355 pounds and was powered by a 338 cc engine.

In the mid-1990s, the introduction of “powder sleds” vastly changed the pattern of snowmobile use. Advancements in technology led to greater power/weight ratios. For example, the 2011 Arctic Cat Z1 Turbo LXR has a 1,056 cc engine, a displacement more than three times the 1976 Sno-Jet.

These trends have challenged the Forest Service’s ability to protect the wilderness characteristics of RWAs. Trails and areas once considered physically inaccessible to off-road vehicles and snowmobiles because of technological limitations are now readily accessible to modern day machines.

The wilderness characteristics of many RWAs in Idaho have been degraded by the advances in technology and use of off-road vehicles and snowmobiles. The natural integrity of RWAs has declined where trail tread widths have been widened by the larger classes of off-road vehicles now available on the market. Naturalness has also declined because of physical resource damage, including erosion, siltation, loss of vegetation and spread of noxious weeds. Use of snowmobiles has also decreased the naturalness of RWAs where trail grooming and high-marking occurs.

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12 http://www.snojet.com
13 http://www.arcticcat.com/snow/Z1TURBO_LXR.asp
Opportunities for solitude or primitive and unconfined recreation have declined where the use of off-road vehicles and snowmobiles has increased. Where terrain was previously considered to be a limiting factor for vehicular access, advances in vehicle technology have made access to previously inaccessible areas possible. The ability to use modern motorized vehicles in formerly inaccessible areas negates the need to use traditional, primitive and unconfined modes of travel to access remote areas in RWAs. Further, the noise from these machines transmits across the landscape and disrupts the natural acoustics thereby spoiling the solitude sought by many nonmotorized recreationists.

Last but not least, increased use of off-road vehicles and snowmobiles in RWAs has affected ecological, cultural and other values in RWAs. In some RWAs, wildlife are less secure where previously inaccessible areas provided undisturbed refugia or migration corridors for a host of wildlife species. Many of the habitats in RWAs are particularly important because of their rarity and sensitivity.

While degradation of wilderness character has occurred in many RWAs, it is not too late for the Forest Service to act and protect these unique places. Travel management and forest planning processes can restore wilderness character by limiting the uses of RWAs to those allowed by the Wilderness Act. However, a national policy is needed to provide consistency in management and implementation.
Northern Region

The Northern Region of the Forest Service includes three national forests in Idaho—the Idaho Panhandle, Clearwater, and Nez Perce National Forest. As the forests within the region revise their travel management plans and forest plans, uses of RWAs that are inconsistent with the Wilderness Act are being phased out to protect the unique character of these areas. This forward-thinking approach will ensure that, when Congress considers whether or not to designate these areas as wilderness, the Forest Service will have fulfilled its obligation to preserve the wilderness characteristics of these areas.

Idaho Panhandle National Forest

There are four RWAs on the Idaho Panhandle National Forests. The permissible uses of off-road vehicles and snowmobiles vary by area. The 1987 Forest Plan permitted off-road vehicle and snowmobile use in all four RWAs. However, various resource issues have led to off-road vehicle and snowmobile closures.

The Salmo-Priest, Selkirk Crest and Scotchman Peaks RWAs were closed to off-road vehicle use to protect listed grizzly bear populations. Similarly, all of the Salmo-Priest RWA and the majority of the Selkirk Crest RWA were closed to snowmobile use to protect the last population of endangered woodland caribou in the coterminous United States. Despite these closures, seasonal monitoring by the agency and conservation groups reveals that snowmobilers continue to violate closures for both areas.

Designated snowmobile routes around the perimeter of the Selkirk Crest RWA facilitate illegal access into the caribou closure area and the RWA. Permitted snowmobile use within the “Trapper Burn” area between the Salmo-Priest RWA and the Selkirk Crest RWA has led to fragmentation of historic habitat in the Selkirk Crest RWA and habitat still used by caribou in the Salmo-Priest RWA. While snowmobile use is considered by the agency to be transitory in nature, wilderness characteristics are degraded on an ongoing basis by snowmobile use through increased noise, loss of opportunities for primitive and unconfined types of winter recreation, and impacts to ecological values including wildlife.

In 2006, the Forest Service nearly completed a revised forest plan for the Idaho Panhandle National Forest that would have prohibited off-road vehicles and snowmobiles in all four RWAs. However, nearly one-third of the Selkirk Crest RWA would have been dropped from the 1987 boundary to allow snowmobile use in the southern Selkirks. The Idaho Conservation League opposed this proposal because it would have sacrificed wilderness-quality landscapes in places like Fault Lake, Chimney Rock, Beehive Lakes, and Harrison Lake. These areas are also documented, historic caribou habitat. The revised plan was put on hold until recently because the Forest Service...
In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas

regulations used to draft the plan were enjoined in federal court. The plan revision is again underway using the 1982 planning regulations.

Snowmobiling is also permitted within the Scotchman Peaks RWA. However, actual snowmobile use is minimal. The 2006 revised plan would have slightly expanded the Scotchman Peaks RWA and prohibited both off-road vehicles and snowmobiles in the area. There is strong support in Bonner County for statutory wilderness designation of the Scotchman Peaks.

The last RWA on the Idaho Panhandle is the Mallard-Larkins, which straddles the shared boundary with the Clearwater National Forest. The St. Joe Ranger District recently completed a travel management plan that restricts the use of off-road vehicles in the Mallard-Larkins RWA to protect its wilderness character and opportunities for primitive and unconfined types of recreation commensurate with the Wilderness Act. The latest travel management plan for the St. Joe Ranger District does not prohibit snowmobile use in the area. However, the revised forest plan would have closed the area to snowmobiles. When the revised plan is completed, the prohibition of snowmobiles in the Mallard-Larkins RWA is expected to be carried forward.

**Clearwater National Forest**

There are three RWAs on the Clearwater National Forest identified by the 1987 Clearwater National Forest Plan. Off-road vehicles and snowmobiles are permitted in the Mallard-Larkins, Great Burn (Hoodoo) and proposed Selway-Bitterroot Wilderness additions. Conversely, the Forest Plan for the adjacent Lolo National Forest prohibits the use of snowmobiles and off-road vehicles within the portion of the Great Burn in Montana.

In 2007 the Clearwater National Forest began developing a new travel management plan for the forest. The draft plan released in 2009 proposed to prohibit the use of off-road vehicles and snowmobiles in all three RWAs with one exception—the existing ATV trail to Fish Lake (3 miles) in the Great Burn. The draft plan would close 38 miles of existing off-road vehicle trails within all three RWAs. Approximately 196,000 acres would be closed to snowmobiling. The preferred alternative would provide consistent management of the Great Burn and Mallard-Larkins RWAs across state and national forest boundaries. The Forest Service presented the following rationale in developing the preferred alternative:

The increase in vehicle capability, numbers, and local use, puts areas of recommended wilderness at far greater risk of degradation and loss of wilderness character than they were when the Forest
Plan was written. In addition, other areas recommended for wilderness have not received serious consideration for designation once motorized use has become established.

To date, the Clearwater National Forest Travel Management Plan, Draft Environmental Impact Statement is the best example of a plan that takes proactive steps to protect RWAs and their wilderness character. The plan correctly concludes that, due to the increasing size, capability and sheer numbers of off-road vehicles and snowmobiles, it is no longer possible for the agency to allow such uses in RWAs and protect their wilderness character at the same time.

**Nez Perce National Forest**

The 1987 Nez Perce National Forest Plan did not identify any RWAs on the forest. However, in 2006 the Clearwater and Nez Perce National Forests were in the midst of developing revised forest plans, which were not completed because of the injunction of the forest planning regulations in federal court. During the revision process, the Clearwater and Nez Perce National Forests reviewed every inventoried roadless area on the two forests for wilderness suitability. Each roadless area was given a “wilderness attributes rating” or WAR score. The East and West Meadow Creek Roadless Areas received WAR scores slightly higher and slightly lower, respectively, than the Great Burn RWA on the Clearwater National Forest.

For decades, the Idaho Conservation League has supported designating the Meadow Creek watershed as wilderness because of the area’s intact fish and wildlife habitat, opportunities for primitive and unconfined modes of recreation, and its size (213,000 acres). During the planning process, the Idaho Conservation League worked to convince the Forest Service that Meadow Creek should be recommended to Congress for wilderness designation.

In 2007 the Nez Perce National Forest proceeded with a revision of the forest’s travel management plan to comply with the 2005 travel management rule. Since Meadow Creek maintains high wilderness attribute ratings, the Idaho Conservation League and The Wilderness Society worked cooperatively to protect the Meadow Creek watershed from degradation by off-road vehicles.

A monitoring project conducted in 2008 uncovered severe off-road vehicle damage to sensitive meadows in the upper reach of Meadow Creek, clearly evidence of diminished naturalness and ecological value. In response, the Forest Service issued an emergency closure order to stop the damage and allow recovery of the meadows to begin. However, the emergency closure order will only remain in effect until the final travel management plan is completed.
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Intermountain Region

The Intermountain Region of the Forest Service includes five national forests in Idaho—the Payette, Boise, Sawtooth, Salmon-Challis and Caribou-Targhee National Forests. The region follows a loose national policy concerning RWAs, that allows existing uses of RWAs to continue unless degradation of wilderness characteristics occurs. All five national forests in the Intermountain Region allow off-road vehicle and snowmobile use in their RWAs. This policy is degrading the wilderness characteristics of many RWAs within the region, as described below.

Payette National Forest

Two RWAs identified in the 2003 Payette Forest Plan. Like almost all national forests in the Intermountain Region, some level of off-road vehicle and/or snowmobile use is permitted within the RWAs on the forest. Existing uses in the Secesh and Needles RWAs are permitted to continue unless they degrade wilderness character. Specifically, the “Southwest Idaho Ecogroup” forest plans for the Payette, Boise and Sawtooth National Forests provide that:

Mechanical transport in recommended wilderness areas where it currently exists may be allowed to continue unless: a) It degrades wilderness values, b) Resource damage occurs, or c) User conflicts result.

In 2009 the Payette National Forest completed a travel management plan for off-road vehicle use. The travel management plan designated 61 miles (33%) of the 183 miles of trails in the Secesh and Needles RWAs as open to motorcycles, including the Victor Creek, Twentymile Creek, Secesh River, Buckhorn Creek and other trails. These motorized routes cut through the two RWAs from one side to the other, fragmenting wildlife habitat and nonmotorized zones in between the trail corridors. Consequently, opportunities for solitude in these RWAs have been diminished. Motorcycle use on popular trails like the Twentymile Creek Trail results in user conflicts where hikers and equestrians would otherwise find excellent opportunities for primitive and unconfined modes of recreation. Resource damage has also occurred due to motorized use on trails such as Victor Creek.

The Payette National Forest also recently completed a winter travel management plan. While the winter travel plan did not expand the physical acreage open to snowmobiles in the Secesh and Needles RWAs, more than two-thirds of the Secesh RWA remains open to snowmobile use. A smaller proportion of the Needles RWA is also open to snowmobiles. Places like Twentymile Creek, Duck Lake, and Buckhorn Summit have become increasingly popular with snowmobilers.

14 See FSM 1923.03
Advances in snowmobile technology and capability have led to snowmobile access in terrain that was formerly inaccessible. Snowmobiles high mark slopes and track up otherwise untouched snow deep in the backcountry, leaving their mark in an otherwise pristine landscape. Noise caused by snowmobiles can be heard far across the landscape and is disruptive to other users, diminishing naturalness, solitude, and opportunities for primitive and unconfined recreational experiences.

**Boise National Forest**

The Boise National Forest recently completed travel management plans on a district-by-district basis. The scope of the district travel plans was limited to the portions of each district where cross-country use of off-road vehicles had not been previously restricted. Since cross-country off-road vehicle use was already restricted in the RWAs on the forest, there were no changes made to existing route designations in RWAs.

This was an unfortunate omission by the Boise National Forest, which boasts more motorized trails (by percentage) than any other national forest in Idaho. With the proximity of this forest to the rapidly growing Treasure Valley, recreational uses of the Boise National Forest are closely following growth trends in the valley. On summer weekends, people from Boise, Nampa, Caldwell and other suburbs flock to the Boise National Forest to camp and partake in other recreational activities, including off-road vehicle use. The Red Mountain, Hanson Lakes and Tenmile-Black Warrior RWAs are all within a three-hour drive of nearly one-half million people.

The Red Mountain RWA is particularly at risk, where more than 92% of the trail miles are open to motorcycle use. Opportunities for primitive and unconfined types of recreation are difficult to find without leaving the trail and venturing into terrain that would be difficult to access on foot. Recreational vehicle and off-road vehicle use is supported at Forest Service facilities on the perimeter of the Red Mountain RWA at Bull Trout Lake and Bear Valley where many Treasure Valley residents camp during summer weekends.

Although the Tenmile-Black Warrior RWA is perhaps a bit more difficult to access, off-road vehicle use also threatens the wilderness character of this RWA, which would make a logical addition to the Sawtooth Wilderness. The Blue Jay and Tenmile Ridge Trails on the edge of the RWA are increasingly popular with motorcycle enthusiasts, which has decreased opportunities for solitude, quiet, and primitive and unconfined types of recreation.

Resource damage has also occurred in the Tenmile-Black Warrior RWA, particularly in Black Warrior Creek where illegal ATV use caused significant resource damage that resulted in an emergency resource closure order. While Table 1 and Appendix A indicate that less than 9% of the trails in the Tenmile-Black Warrior RWA are open to off-road vehicles, the true figure remains
uncertain. Many trails open to off-road vehicles follow the boundaries of the RWA and could be counted “in or out.” Such trails are excluded from Table 1 and Appendix A.

In the Hanson Lakes RWA, significant resource damage has occurred on the Bench Creek and Swamp Creek Trails from illegal four-wheeler use. The increased trail tread width, erosion and siltation has reduced the naturalness and ecological integrity of the area. Motorized use has also decreased opportunities for solitude and primitive and unconfined types of recreation in the Hanson Lakes RWA due to intrusion by noise and disruption of the primitive and remote characteristics of the RWA.

Snowmobile use is also an issue in all four RWAs on the Boise National Forest. Not a single acre of these four areas is closed to snowmobile use. It’s not clear that a winter travel plan has ever been developed for the Boise National Forest despite the popularity with winter motorized and nonmotorized recreationists. The open nature of the timber stands and above-tree-line terrain in all four RWAs make for easy snowmobile access. Issues with wolverine denning habitat and mountain goats exist, but they have not been addressed through winter travel management planning.

**Sawtooth National Forest**

The Sawtooth National Forest is home to some of the most popular RWAs in Idaho. The Boulder-White Clouds RWA has a long and colorful history that includes the ascendancy of Cecil Andrus in Idaho politics. Although the threat to this great area in the 1960s was a proposed open-pit mine, the modern threat is off-road vehicles. Existing off-road vehicle use is permitted to continue in the Boulder-White Clouds RWA under the Sawtooth Forest Plan. Nearly one-third of the trails in the Boulder-White Clouds RWA are open to motorcycles, and more than 90% of the RWA is open to snowmobiles. Resource damage has occurred on the Little Boulder Creek and Warm Spring Trails as a result of motorized use, lessening the natural character in these trail corridors. Motorcycles also regularly use nonmotorized trails in Upper Warm Springs, Castle Divide, Born Lakes and Garland Lakes. Motorized use has lessened opportunities for solitude and primitive and unconfined types of recreation since the area was first recommended for wilderness in 1972.

There are no designated off-road trails in the portion of the Pioneer Mountains RWA managed by the Sawtooth National Forest. However, nearly 80% of the Pioneer Mountains RWA is open yearlong or seasonally to snowmobiles. Significant snowmobile recreation occurs in the Upper Little Wood drainage and is permitted seasonally in Hyndman Basin. While snowmobile use is considered by the agency to be transitory in nature, impacts to wolverine are likely resulting in this high mountain environment where this species has been confirmed. Advances in snowmobile technology have also facilitated access to formerly inaccessible terrain in the Pioneers. Consequently, opportunities for solitude and primitive and unconfined types of recreation have been diminished, including backcountry skiing.
and snowshoeing. Conflicts between snowmobilers and skiers and snowshoers have occurred. The Pioneers Mountains RWA is closed to snowmobiles on the Salmon-Challis National Forest side.

Nearly 40% of the trails in the portion of the Hanson Lakes RWA managed by the Sawtooth National Forest are designated for off-road vehicle use. Resource damage has been caused by off-road vehicle use on the Swamp Creek and Trap Creek Trails, including illegal four-wheeler use. Increases in trail tread width, erosion and siltation has occurred in both portions of the RWA managed by the Boise and Sawtooth National Forests. One-hundred percent (18,500 acres) of the portion of the Hanson Lakes RWA managed by the Sawtooth National Forest is open to snowmobile use.

In 2008 the Sawtooth National Forest completed a travel management plan that included only the portions of the forest open to cross-country use of off-roads at the time. Unfortunately, the scope of this plan did not include any of the three RWAs on the forest, despite increasing problems with resource damage, user conflicts, and illegal use of nonmotorized trails.

**Salmon-Challis National Forest**

Snowmobile use is prohibited in all three RWAs on the Salmon-Challis National Forest, including the Borah Peak, Boulder-White Clouds and Pioneer Mountains RWAs. The 1987 Forest Plan also prohibited off-road vehicle use in all three RWAs at the time. Unfortunately, the Forest Plan was amended in 1993 to allow nine different exceptions for off-road vehicle use on specific routes in all three RWAs. This amendment was followed by exponential growth in off-road vehicle use, putting the wilderness character of all three RWAs at risk.

In 2009 the Salmon-Challis National Forest revised the forest-wide travel management plan, primarily to end cross-country off-road use on the forest. At the request of the Idaho Conservation League and The Wilderness Society, the Forest Service considered and analyzed an alternative that would have prohibited off-road vehicle use in all three RWAs to enhance and protect the wilderness characteristics of all three areas, reduce user conflicts, address resource impacts and increase opportunities for solitude and primitive and unconfined types of recreation consistent with the Wilderness Act.

The selected alternative closed the Herd Peak-Toolbox Trail to off-road vehicles in the portion of the Boulder-White Clouds RWA managed by the Salmon-Challis to address problems with cross-country off-road vehicle use and enforcement. Unfortunately, the existing designated routes in the Borah Peak and Pioneer Mountains RWAs were carried forward despite documented evidence shared with the Forest Service that resource impacts and degradation of wilderness character was occurring as a result of off-road vehicle use.

For example, motorized use of the Swauger Lakes Trail in the Borah Peak RWA has resulted in documented resource damage to the trail tread, sensitive meadows and wildlife habitat. The Idaho Conservation League and The Wilderness Society also documented illegal four-wheeler use along...
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the entire length of the trail. Forest Service records that are part of the travel management plan revision also indicate that ATV users illegally graded portions of the trail with machinery to a wider tread width. All of these activities have lessened the natural character of the area and opportunities for primitive and unconfined types of recreation.

In the Pioneer Mountains RWA, an old mining road in Wildhorse Canyon is open to use by all vehicles. While the rough conditions of the road formerly limited use by motorized vehicles to some degree, the increasing use of four-wheelers has made motorized access easier in Wildhorse Canyon. Increased motorized access in Wildhorse Canyon has also increased dispersed camping and noise levels. Consequently, opportunities for solitude and primitive and unconfined types of recreation have declined.

The 2009 travel plan did not take into account increasing trends in the size, use and capabilities of off-road vehicles since the 1993 travel management plan was adopted. The 2009 plan did not analyze these trends in the context of the existing designated routes in all three RWAs and how those trends would affect the wilderness character of each area.

Caribou-Targhee National Forest

There are six RWAs on the Caribou-Targhee National Forest. Management of off-road vehicle and snowmobile use varies in each area. For example, the 2003 Forest Plan for the Caribou National Forest identified two RWAs, including Mt. Naomi and Caribou City. The plan prohibits the use of off-road vehicles in both areas during the “snow-free” season but permits cross-country snowmobile use during the winter months. These travel management designations remained unchanged in the 2005 Caribou National Forest Travel Plan.

The 1997 Forest Plan for the Targhee National Forest identified four RWAs, including the Diamond Peak, Italian Peak, Lionhead and Palisades RWAs. Between 80 and 100% of each of these RWAs is open to snowmobile use (Table 1). Consequently, opportunities for solitude and primitive and unconfined types of recreation are limited, and impacts to wintering wildlife are ongoing.

Off-road vehicle use also varies between each RWA. There are no designated off-road vehicle trails in the Diamond Peak or Lionhead RWAs. However, 72% (31 miles) of the trails in the Italian Peaks RWA are open to off-road vehicle use, offering few opportunities for primitive and unconfined types of recreation. The inconsistency in the management of each RWA has also led to public confusion about how the Forest Service regulates uses of RWAs. User conflicts also occur between backcountry skiers and snowmobilers.

Snowmobiling in the Palisades RWA is degrading wilderness character, including ecological integrity and solitude. Photo by Thomas Turiano.
Conclusions

As this report demonstrates, the Northern and Intermountain Regions of the Forest Service have sharply contrasting management approaches for recommended wilderness. Since 2003, the national forests of the Northern Region have been phasing out uses of RWAs that are impairing or have the potential to impair wilderness values as defined by the Wilderness Act of 1964. Draft plans on the Idaho Panhandle and Clearwater National Forests propose phase-outs of off-road vehicles and snowmobiles in RWAs.

In contrast, every national forest within the Intermountain Region allows some level of off-road vehicle and/or snowmobile use in one or more of their RWAs. For example, approximately 92% of the Boulder-White Clouds RWA managed by the Sawtooth National Forest is open to snowmobiles. Similarly, approximately 33% of the trails in the Secesh and Needles RWAs on the Payette National Forest are designated for off-road vehicle use.

These contrasting management strategies result in public confusion, inconsistent administration and user conflicts. As on-the-ground evidence indicates, allowing off-road vehicles has degraded wilderness character within the RWAs of the Intermountain Region. Deep ruts, stream bank erosion, impacts to wildlife habitats, illegal use of hiking trails by off-road vehicles, decreased opportunities for primitive and unconfined types of recreation, diminished solitude and user-conflicts are increasingly widespread throughout the RWAs in the Intermountain Region.

A national policy is needed for consistent management of Forest Service RWAs throughout the country. This policy should reflect the original intent of Congress in passing the Wilderness Act—to recommend additions to the National Wilderness Preservation System and to protect the wilderness character of such lands until Congress considers the agency’s recommended additions to the NWPS. If the Forest Service finds particular lands suitable for wilderness designation, then the agency should support its own recommendations by allowing only the uses that are consistent with wilderness designation. At a minimum, a national policy that protects the wilderness character of RWAs should require the following:

- Adoption of a desired conditions statement in land and resource management plans that RWAs should be managed to reflect the definition of wilderness found in the Wilderness Act of 1964.

- Adoption of standards in land and resource management plans that require each national forest to prohibit uses of RWAs that are inconsistent with uses allowed per the Wilderness Act of 1964.

- Phase-out incompatible uses through land and resource management planning or travel management planning.

- Approval by the Chief of the Forest Service of any exceptions to this policy.
### Appendix A  Data regarding motorized recreation in each RWA

<table>
<thead>
<tr>
<th>Area</th>
<th>Forest</th>
<th>Motorized Trails (mi)</th>
<th>Non-motorized Trails (mi)</th>
<th>% Motorized Trails</th>
<th>Acreage</th>
<th>Acres Open to Snowmobiles Yearlong</th>
<th>Acres Open to Snowmobiles Seasonally</th>
<th>% Open to Snowmobiles</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanson Lakes</td>
<td>Boise</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>13,600</td>
<td>13,600</td>
<td>0</td>
<td>100.0%</td>
<td>Approximately 9,797 acres are also open to snowmobiles on designated routes only. These areas are not counted toward the total acres open to snowmobiles.</td>
</tr>
<tr>
<td>Needles</td>
<td>Boise</td>
<td>0.9</td>
<td>4</td>
<td>18.4%</td>
<td>4,300</td>
<td>4,300</td>
<td>0</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Red Mountain</td>
<td>Boise</td>
<td>47</td>
<td>3.8</td>
<td>92.5%</td>
<td>86,100</td>
<td>86,100</td>
<td>0</td>
<td>100.0%</td>
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</tr>
<tr>
<td>Tenmile - Black Warrior</td>
<td>Boise</td>
<td>3</td>
<td>31.7</td>
<td>8.6%</td>
<td>79,900</td>
<td>79,900</td>
<td>0</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Caribou City</td>
<td>Caribou-Targhee</td>
<td>0</td>
<td>32</td>
<td>0.0%</td>
<td>29,201</td>
<td>29,201</td>
<td>0</td>
<td>100.0%</td>
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<tr>
<td>Diamond Peak</td>
<td>Caribou-Targhee</td>
<td>0</td>
<td>14</td>
<td>0.0%</td>
<td>29,521</td>
<td>23,407</td>
<td>0</td>
<td>79.3%</td>
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<tr>
<td>Italian Peak</td>
<td>Caribou-Targhee</td>
<td>31</td>
<td>11.8</td>
<td>72.4%</td>
<td>49,406</td>
<td>44,981</td>
<td>0</td>
<td>91.0%</td>
<td>Approximately 6,182 acres are also open to snowmobiles on designated routes only. These areas are not counted toward the total acres open to snowmobiles.</td>
</tr>
<tr>
<td>Lionhead</td>
<td>Caribou-Targhee</td>
<td>0</td>
<td>12.8</td>
<td>0.0%</td>
<td>11,314</td>
<td>11,314</td>
<td>0</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Mt. Naomi</td>
<td>Caribou-Targhee</td>
<td>3.2</td>
<td>13</td>
<td>19.8%</td>
<td>13,246</td>
<td>13,246</td>
<td>0</td>
<td>100.0%</td>
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</tr>
<tr>
<td>Palisades</td>
<td>Caribou-Targhee</td>
<td>1.1</td>
<td>104.9</td>
<td>1.0%</td>
<td>61,173</td>
<td>57,660</td>
<td>0</td>
<td>94.3%</td>
<td>Approximately 7,836 acres are also open to snowmobiles on designated routes only. These areas are not counted toward the total acres open to snowmobiles.</td>
</tr>
<tr>
<td>Great Burn</td>
<td>Clearwater</td>
<td>1.2</td>
<td>117.7</td>
<td>1.0%</td>
<td>113,000</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Mallard - Larkins</td>
<td>Clearwater</td>
<td>0</td>
<td>48.7</td>
<td>0.0%</td>
<td>66700</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>
In Need of Protection: How Off-Road Vehicles and Snowmobiles Are Threatening the Forest Service’s Recommended Wilderness Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Forest</th>
<th>Motorized Trails (mi)</th>
<th>Non-motorized Trails (mi)</th>
<th>% Motorized Trails</th>
<th>Acreage</th>
<th>Acres Open to Snowmobiles Yearlong</th>
<th>Acres Open to Snowmobiles Seasonally</th>
<th>% Open to Snowmobiles</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Selway - Bitterroot Additions</td>
<td>Clearwater</td>
<td>0</td>
<td>23.1</td>
<td>0.0%</td>
<td>18,500</td>
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<td>0</td>
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<tr>
<td>Mallard - Larkins</td>
<td>Idaho Panhandle</td>
<td>0</td>
<td>106.8</td>
<td>0.0%</td>
<td>78,500</td>
<td>49,963</td>
<td>0</td>
<td>63.6%</td>
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<td>Salmo - Priest</td>
<td>Idaho Panhandle</td>
<td>0</td>
<td>12.1</td>
<td>0.0%</td>
<td>17,600</td>
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<td>0.0%</td>
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<tr>
<td>Scotchman Peaks</td>
<td>Idaho Panhandle</td>
<td>0</td>
<td>8.4</td>
<td>0.0%</td>
<td>9,400</td>
<td>9,400</td>
<td>0</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Selkirk Crest - Long Canyon</td>
<td>Idaho Panhandle</td>
<td>0</td>
<td>27.9</td>
<td>0.0%</td>
<td>26,700</td>
<td>2,666</td>
<td>0</td>
<td>10.0%</td>
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<tr>
<td>Needles</td>
<td>Payette</td>
<td>25.1</td>
<td>60</td>
<td>29.5%</td>
<td>91,900</td>
<td>8,177</td>
<td>0</td>
<td>8.9%</td>
<td></td>
</tr>
<tr>
<td>Secesh</td>
<td>Payette</td>
<td>36.2</td>
<td>62.1</td>
<td>36.8%</td>
<td>115,400</td>
<td>78,583</td>
<td>0</td>
<td>68.1%</td>
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<tr>
<td>Borah Peak</td>
<td>Salmon-Challis</td>
<td>12.5</td>
<td>24.5</td>
<td>33.8%</td>
<td>119,000</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>Pioneer Mountains</td>
<td>Salmon-Challis</td>
<td>4.8</td>
<td>42.5</td>
<td>10.1%</td>
<td>48,000</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
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</tr>
<tr>
<td>Boulder - White Clouds</td>
<td>Salmon-Challis</td>
<td>0</td>
<td>12.8</td>
<td>0.0%</td>
<td>34,000</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>Hanson Lakes</td>
<td>Sawtooth</td>
<td>9.3</td>
<td>14.7</td>
<td>38.8%</td>
<td>18,500</td>
<td>18,500</td>
<td>0</td>
<td>100.0%</td>
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<tr>
<td>Pioneer Mountains</td>
<td>Sawtooth</td>
<td>6.7</td>
<td>52.9</td>
<td>11.2%</td>
<td>61,000</td>
<td>44,780</td>
<td>3,945</td>
<td>79.9%</td>
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<tr>
<td>Boulder - White Clouds</td>
<td>Sawtooth</td>
<td>50.7</td>
<td>115.9</td>
<td>30.4%</td>
<td>184,400</td>
<td>157,103</td>
<td>12,730</td>
<td>92.1%</td>
<td></td>
</tr>
</tbody>
</table>

In addition to 7.2 miles of motorized trails in the Borah Peak RWA, there are also 5.3 miles of designated roads.

While there are no motorized trails in the Pioneer Mountains RWA, there are 4.8 miles of designated roads.
THE FIFTIETH ANNIVERSARY OF THE WILDERNESS ACT: 
THE NEXT CHAPTER IN WILDERNESS DESIGNATION, 
POLITICS, AND MANAGEMENT 

Martin Nie* and Christopher Barns**

In commemorating the fiftieth anniversary of the Wilderness Act, we examine what might be the next chapter in wilderness politics, designation, and management. In Parts I and II of the Article, we review the base of wilderness-eligible lands managed by the U.S. Forest Service and Bureau of Land Management. These two parts evaluate inventoried roadless areas, lands with wilderness characteristics, wilderness study areas, and recommended wilderness areas. These are the lands from which future wilderness and other protected land designations may come, and we analyze the interim management measures, planning processes, and politics that determine whether or not these lands will be protected in the future. In Part III, we examine three interrelated factors that will largely shape future wilderness politics: extreme political polarization, the use of collaboration, and increasing demands for the manipulation of wilderness areas. Congressional polarization may push wilderness politics onto different political pathways, including action by the executive branch aimed at protecting wilderness-eligible lands. Outside of Congress, collaboration will also continue to shape wilderness politics in the future, with questions focused on the scope and degree of compromise in wilderness legislation. There will also be increasing demands to control and manipulate wilderness in the future. These three factors will complicate the politics surrounding future wilderness designations and influence how these lands are managed in the future. Yet despite these challenges, the reasons for adding to the Wilderness Preservation System are stronger in 2014 than they were fifty years ago.

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INTRODUCTION

September 3rd, 2014 commemorates the fiftieth anniversary of the Wilderness Act of 1964. Instead of looking back at the history of this law, or celebrating its success, we look forward and survey what might be the next chapter in wilderness designation, politics, and management. The focus of the Article is on lands managed by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM). We focus on these two agencies because, compared with the National Park Service and U.S. Fish and Wildlife Service, they have more areas suitable for wilderness designation, and we believe contentious future debates will center around lands within the purview of these agencies’ management.

Which lands remain eligible for wilderness designation? How are they currently managed? And what factors will determine whether these lands will receive protection in the future? We answer these questions in the following pages and scout some of the rapids that lie ahead and some of the different routes that can be taken through them.

The Article first reviews the base of roadless and wilderness-eligible lands as managed by the USFS and BLM. These agency-focused sections of the Article examine several issues related to the management of inventoried roadless areas, lands with wilderness characteristics, wilderness study areas, and recommended wilderness areas. These are the lands from which future wilderness and other protected land designations may come, and their interim management will determine whether or not they are protected in some form in the future. Part III of the Article then discusses three interrelated factors that will shape wilderness politics in the future: extreme political polarization, the use of collaboration, and increasing demands for the manipulation of wilderness areas. We finish by making the case for additional wilderness and other protected land designations in the future. The reasons for adding to the National Wilderness Preservation System are stronger in 2014 than they were fifty years ago.

I. WILDERNESS-ELIGIBLE LANDS IN THE NATIONAL FOREST SYSTEM

A. Inventoried Roadless Areas

The Wilderness Act included a congressional mandate that the USFS inventory its land for possible wilderness designation. This led to the USFS conducting its Roadless Area Review and Evaluation (RARE I) in the early 1970s. This evaluation was criticized by conservationists on both substantive and procedural grounds and eventually gave way to

The primary goal of RARE II, as it was called, was “to select appropriate roadless areas to help round out the National Forest System’s share of a quality National Wilderness Preservation System and, at the same time, maintain opportunities to get the fullest possible environmentally sound use from other multiple use resources and values.” RARE II was completed in 1979 and its recommendations fell into three categories: (1) USFS roadless lands for wilderness designation by Congress; (2) areas that were to be further studied by the agency; and (3) areas that should be released to non-wilderness, multiple use management. 

California sued the USFS over the adequacy of the RARE II EIS process, successfully arguing that before an inventoried area could be released for development, an EIS for each area would have to be prepared. There were also some questions about how to legislatively proceed with the USFS’s wilderness recommendations: should wilderness be designated in a piecemeal fashion like it had in the past or should these multiple areas be combined and voted on in one big omnibus bill? In retrospect, California’s EIS challenge made certain that there would be no tidy ending to the RARE II process: conservationists wanted more wilderness and industry wanted more non-wilderness multiple use management, and no one seemed too excited about a RARE III.

This litigation notwithstanding, the RARE inventory set the stage for Congress to pass several wilderness laws covering particular states, such as the Washington State Wilderness Act. Between 1980 and 1990, Congress passed thirty statewide national forest

3. The final RARE II EIS (1979) called for wilderness designation of 624 areas totaling 15,008,838 acres (five million of these acres were on Alaska’s Tongass National Forest), allocation to nonwilderness of 1981 areas totaling 36,151,558 acres, and further planning for 314 areas totaling 10,796,508 acres. Id. at 3.
laws with release language. Idaho and Montana are the only two states having large roadless areas but no statewide wilderness law with release language. The typical compromises in these laws concerned how much inventoried roadless land would be designated as wilderness, how the boundaries would be drawn, and how much inventoried land would be “released” to non-wilderness multiple use management—and whether these releases would permanently (so-called “hard release”) or temporarily (“soft release”) preclude wilderness designation in the future.

Roadless lands not designated as wilderness continued to cause controversy throughout the 1980s and 1990s. Since RARE II was completed in 1979, roads had been constructed in an estimated 2.8 million acres of inventoried “roadless lands,” and as of 2001 approximately 34.3 million acres (out of 58.5 million acres of inventoried roadless areas) had prescriptions allowing for road construction and reconstruction. Some roadless areas remained roadless because of the economic costs associated with building roads in steep, rugged, challenging locations to access relatively marginal timber. Nonetheless, the future of these areas was precarious without some form of protection, and this helps explain the controversy and litigation focused on roadless areas after the untidy ending of RARE II.

In 1999 the USFS began another inventory of its roadless lands, which culminated in its 2001 roadless rule. This decision protected 58.5 million acres—thirty-one percent of Forest Service land, and two percent of the total U.S. land base—from road building and most types of timber cutting. The roadless rule prohibits road (re)construction and timber


11. Id.


16. Roadless Rule, supra note 13, at 3246.

17. Id.
harvesting in inventoried roadless areas, except for stewardship purposes. Various exceptions and mitigations include when a road is needed: (1) to protect public health and safety (in cases of an imminent threat of flood, fire, or other catastrophic event); (2) to conduct a response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and (3) to access a reserved or outstanding right as provided by statute or treaty.\textsuperscript{18}

Unless an exception applies, the roadless rule essentially restricts only two activities: road construction and commercial timber harvesting.\textsuperscript{19} These lands are not de facto wilderness areas. There are several activities permitted in roadless areas that are prohibited by the Wilderness Act, such as prohibitions on “commercial enterprise,” “motorized equipment or motorboats,” “form[s] of mechanical transport,” and any “structure or installation,” unless an exception applies.\textsuperscript{20} The 2001 rule also does not prohibit the use of off-highway vehicles (OHVs) in Inventoried Roadless Areas (IRAs), and their use in these areas can be extensive. For example, within Montana’s six million acres of USFS roadless areas, motorized use is permitted on between three and four million.\textsuperscript{21} The roadless rule is also more permissive than the Wilderness Act when it comes to mining and accessing mineral resources. The rule grants exceptions when a “road is needed pursuant to reserved or outstanding rights, or as provided for by statute or treaty” and when needed “in conjunction with the continuation, extension, or renewal of a mineral lease on lands that are under lease [as of 2001] or for a new lease issued immediately upon expiration of an existing lease.”\textsuperscript{22}

The 2001 rule immediately faced a barrage of lawsuits from an assortment of states and other interests.\textsuperscript{23} Alaska fought a prolonged legal battle over the rule, with the state once

\textsuperscript{18} U.S. DEP’T OF AGRIC., FOREST SERVICE, FOREST SERVICE ROADLESS AREA CONSERVATION: FINAL ENVIRONMENTAL IMPACT STATEMENT, VOL. 1 3-21 (2000) [hereinafter ROADLESS FEIS].
\textsuperscript{19} Id. at 3-21.
\textsuperscript{20} 16 U.S.C. § 1133(c) (2006). For a complete analysis of differences between the Roadless Rule and the Wilderness Act, see Wyoming v. U.S. Dep’t of Agric., 661 F.3d 1209 (10th Cir. 2011).
\textsuperscript{21} Martin Nie & Michael Fiebig, Managing the National Forests Through Place-Based Legislation, Society and Conservation Faculty Publications, 37 ECOLOGY L.Q. 1, 8 (2010).
\textsuperscript{22} Special Areas; Roadless Area Conservation, 66 Fed. Reg. 3272-73 (Jan. 12, 2001).
\textsuperscript{23} Kristina Alexander & Ross W. Gorte, Cong. Research Serv., RL30647, NATIONAL FOREST SYSTEM (NFS) ROADLESS AREA INITIATIVES (2011).
exempted from the rule, but then covered by it once again. The rule’s application to the Tongass National Forest was particularly controversial because roughly 9.5 million acres of inventoried roadless areas are outside of federally designated wilderness in the Tongass, and because a substantial amount of timber harvesting on the forest was planned to take place in roadless areas of the Tongass. The State of Alaska argued that the roadless rule violated multiple laws, including those which specifically applied to Alaska, such as the Alaska National Interest Lands Conservation Act (ANILCA) and the Tongass Timber Reform Act.


28. ANILCA includes what is often referred to as the “no more” clause, which states:

This Act provides sufficient protection for the national interest in the scenic, natural, cultural and environmental values on the public lands in Alaska, and at the same time provides adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people; accordingly, the designation and disposition of the public lands in Alaska pursuant to this Act are found to represent a proper balance between the reservation of national conservation system units and those public lands necessary and appropriate for more intensive use and disposition, and thus Congress believes that the need for future legislation designating new conservation system units, new national conservation areas, or new national recreation areas, has been obviated thereby.


Often cited along with this provision is language prohibiting future executive branch action that withdraws more than 5,000 acres of public lands in the state unless approved by a joint resolution of Congress. Id. § 1326(a). ANILCA also states that “[n]o further studies of Federal lands in the State of Alaska for the single purpose of considering the establishment of a conservation system unit, national recreation area, national conservation area, or for related or similar purposes shall be conducted unless authorized by this Act or further Act of Congress.” Id. § 1326(b). Alaska views ANILCA as providing some finality to protected lands in the state and thus views efforts to administratively protect more of the Tongass and Chugach National Forests as reneging on a promise.
At the time of this writing, the roadless rule’s application to the Tongass is legally uncertain.\(^\text{29}\)

As illustrated in the Tongass case, the roadless rule was also subject to shifting executive branch priorities and powers.\(^\text{30}\) The Bush Administration sought a more state-based approach to resolving the roadless issue, and it proposed replacing the 2001 rule with a state petitioning process providing governors an opportunity to seek establishment of management requirements for roadless areas within their states.\(^\text{32}\) A variation of this state petitioning process, using the Administrative Procedures Act, was used successfully by Idaho and Colorado.\(^\text{33}\)

Conservationists, on the other hand, argue that the USFS has a statutory obligation, spelled out in NFMA, to review lands for possible wilderness and wild and scenic rivers designation. See Martin Nie, Governing the Tongass: National Forest Conflict and Political Decision Making, 36 ENVTL. L. 385, 402-03 (2006), referencing Sierra Club v. Lyons, Civil Case No. J00-0009-JKS, slip op. at 31 (D. Alaska 2001). Conservationists also argue that there are millions of acres of federal lands in Alaska qualifying as wilderness that have yet to be reviewed, as called for by Congress, and that several sections of ANILCA require additional wilderness reviews, including those for the national forests. Alaska National Interest Lands Conservation Act of 1980, Pub. L. No. 96-487, § 708, 94 Stat. 2371 (1980).


Outside of Alaska, Idaho has the most roadless acreage in the nation, and it will manage these 9.3 million acres in accordance with the Idaho Roadless Rule. Instead of a uniform approach to all NFS roadless lands in the state, the Idaho rule uses different categories and management themes, each with its own set of permitted and prohibited uses. According to the USFS, the Idaho Rule provides more protection to 3.25 million acres of Idaho Roadless Areas (IRAs) that are managed as “wildland recreation,” “special areas of historic and tribal significance,” and “primitive” than the 2001 roadless rule. Less protection is provided to 5.26 million acres of land managed as “backcountry/restoration” in the Idaho Rule, as this management theme allows for temporary roads and logging to reduce the threat of wildfire. And finally, 405,900 acres managed as “general forest, rangeland, and grassland” are managed according to forest plan direction with allowances provided to access phosphate deposits.

Roughly 4.2 million acres in Colorado are also managed by a state-specific roadless rule. According to the USFS the Colorado Rule provides a greater degree of protection than the 2001 rule for approximately 1.2 million acres of “upper tier” roadless areas. Unlike the 2001 rule, the state rule also restricts the use of “linear construction zones,” such as pipe, transmission and telecommunication lines within roadless areas. But outside of upper-tier roadless areas, the Colorado Rule provides for more exceptions for road building than the 2001 rule does to protect “at risk” communities from wildfires and for use within a designated coal mining area. In addition, 8,300 acres found within permitted ski area boundaries were also excluded by the Colorado Rule, opening the possibility for future ski area expansion.

This condensed history sets the stage for future wilderness politics on USFS lands. After years of litigation and executive branch pendulum swings, the 2001 roadless rule was

34. Special Areas; Roadless Area Conservation; Applicability to the National Forests in Idaho, 73 Fed. Reg. 61, 456 (Oct. 16, 2008).
35. Id. at 61,460.
36. Id.
37. Id.
39. Id. at 39,578.
40. Id. at 39,580.
41. Id. at 39,578.
42. Id.
eventually upheld by the Ninth and Tenth Circuit Courts of Appeals. Outside of Idaho and Colorado, which have their own state-specific roadless rules, the 2001 roadless rule governs how roadless lands will be managed by the USFS. Though the 2001 rule was in legal purgatory for more than a decade, the rule has been very successful in doing what it set out to do—keep roadless areas roadless. From 2001 to 2009, roughly seventy-five miles of road (re)construction occurred in roadless areas because of the rule’s various exceptions, such as allowing timber sales or mineral leases that were authorized before 2001. The USFS also permitted twelve projects in roadless areas associated with mining under the General Mining Law of 1872, a statutory right that the 2001 rule did not change.

Also important to note at this point are the ecological values associated with lands protected under the 2001 rule. These areas differ in important respects from lands protected as wilderness or in some other form. For instance, one study focused on the Northern Rockies region of Montana, Idaho and Wyoming showed that roadless areas protect “a wider range of land-cover types [such as aspen, whitebark pine, sagebrush and grassland communities] and elevation ranges than protected areas alone, especially those characteristics of mid-to-low elevations that are underrepresented in protected areas.” These lands, in short, differ from existing wilderness areas and we believe that this will help explain some of the controversy pertaining to their future management, such as conflicts associated with some preexisting uses.

From the base of roughly fifty-nine million acres of roadless areas are two additional categories of land that will be the focus of attention in the future: wilderness study areas (WSAs) and recommended wilderness areas (RWAs). We discuss each in turn.

B. Wilderness Study Areas

43. See Kootenai Tribe of Idaho v. Veneman, 313 F.3d 1094 (9th Cir. 2002) abrogated by Wilderness Soc. v. USFS, 630 F.3d 1173 (9th Cir. 2011); see also Wyoming v. USDA, 661 F.3d 1209 (10th Cir. 2011).
45. News Release No. 0260.10, USDA, Agriculture Secretary Vilsack Announces Decision on Fourteen Roadless Area Projects (May 13, 2010).
46. The study also showed how roadless areas increase the connectivity across the region, reducing the distance between protected areas in the Northern Rockies, and thus playing a central role in the conservation of biological diversity. See Michele R. Crist, Bo Wilmer & Gregory H. Aplet, Assessing the Value of Roadless Areas in a Conservation Reserve Strategy: Biodiversity and Landscape Connectivity in the Northern Rockies, 42 J. Applied Ecology 181, 187 (2005).
The USFS currently manages thirty-three areas, totaling 3,255,531 acres that Congress has designated as wilderness study areas (WSA) in fourteen different public land laws. More than eighty percent of this acreage is located in Alaska and Montana. Several of these laws use similar language pertaining to how a WSA is to be managed. For example, a New Mexico wilderness law enacted in 1980 designated certain lands to be managed “to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System.” However, Congress also added that within these areas “current levels of motorized and other uses and improvements shall be permitted to continue subject to such reasonable rules and regulations as the Secretary of Agriculture shall prescribe.”

WSA laws with similar provisions have caused considerable controversy and litigation because of how the USFS has managed these areas. In 1977, for example, Congress passed the Montana Wilderness Study Act, which mandates the USFS manage nearly a million acres of WSAs “to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System.” This law does not, however, prohibit the use of off-road vehicles in these areas, and motorized use has the potential of diminishing those wilderness characteristics that Congress intended to protect. The Montana District Court aptly summarized the resulting legal question and managerial dilemma: “The controversy at hand questions what it means to ‘maintain’ these areas-in-limbo. Did Congress intend to keep the land and its use as it was in 1977? Or did Congress intend to preserve the potential of the land without major concern for its use while it was studied?” In this case, the Ninth Circuit held that the law requires the USFS to manage the

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47. Numbers calculated by author from data provided by USFS, last updated March 2013 (on file with author). Note that out of this total, 1,968,730 acres are found within the large Nellie Juan-College Fiord WSA managed by the Chugach National Forest in Alaska.


50. Id.


wilderness character of one of these areas as it existed in 1977, pending a congressional decision on whether to designate it as wilderness.\textsuperscript{53}

\textbf{C. Recommended Wilderness Areas}

Inventoried roadless lands that have been recommended for wilderness designation through national forest planning processes are more widespread than WSAs managed by the USFS. Recommended wilderness areas (RWAs) are lands that have been identified, evaluated, and found suitable for wilderness designation by the USFS. The agency follows a process whereby a Regional Forester recommends wilderness designation to the Chief via a forest plan, and the Chief decides whether to forward the recommendation to the Secretary of Agriculture, who then may advance the recommendation to Congress.\textsuperscript{54} As of 2012, the USFS manages 5,076,045 million acres of recommended wilderness, covering 188 different areas in fifty national forests.\textsuperscript{55} As several national forests revise their forest plans in the near future, this figure will likely change, with some forests recommending more or less acreage.

Areas recommended for wilderness will be the focus of several wilderness campaigns in the future. Several of these places have been part of wilderness bills that have not successfully made it through the lawmaking process. But more immediate conflict and litigation will revolve around how these areas are managed pending congressional action.\textsuperscript{56} USFS policy states that “any inventoried roadless area recommended for wilderness or designated wilderness study is not available for any use or activity that may reduce the wilderness potential of an area [and] [a]ctivities permitted may continue, pending designation, if the activities do not compromise wilderness values of the area.”\textsuperscript{57} Different administrative regions of the USFS interpret this policy differently, with serious implications for possible future wilderness designation.\textsuperscript{58} Of fundamental concern is whether the USFS

\begin{footnotesize}
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\item\textsuperscript{53} Montana Wilderness Assoc. v. McAllister, 666 F.3d 549, 551 (9th Cir. 2011).
\item\textsuperscript{54} See U.S. FOREST SERV., FOREST SERVICE HANDBOOK, 1909.12, Ch. 70 (2014).
\item\textsuperscript{55} Data supplied by the Washington Office of the USFS, current as of April 2012 (on file with author).
\item\textsuperscript{57} U.S. FOREST SERV., FOREST SERV. MANUAL, Ch. 1920 § 1923.03.
\item\textsuperscript{58} Megan Wertz & C. Denise Ingram, Issue Paper: Recommended Wilderness in the Forest Service (2011) (unpublished report) (on file with author).
\end{enumerate}
\end{footnotesize}
allows motorized and mechanized (mountain bike) use in RWAs, two uses that are prohibited by the Wilderness Act and create a precedent of “historic use” in these areas.  

Management of RWAs in Idaho provides an example of the inconsistent approach taken by the USFS in managing RWAs and the implications for wilderness designation. National forests in Idaho are managed by two regions of the USFS, the Intermountain (Region 4) and Northern (Region 1). Forests located within the former permit off-road vehicle and snowmobile use in every RWA in the region. But the Northern Region of the USFS has supplemented national RWA policy with additional guidance that allows only recreation uses that are consistent with wilderness designation so to maintain the area’s suitability for wilderness. This means that motorized use is not allowed in RWAs in the Northern Region. Data supplied by the USFS show that the agency allows motorized or mechanized use on 45 out of 188 (23.9%) areas recommended for wilderness. (Our research suggests that this figure is likely low, as we know of some forests in the Northern Region that allow for mechanized recreational use in RWAs, even though the USFS reports that none of the forests in the region allow such use.)  

There is considerable controversy over USFS management of RWAs. Wilderness proponents emphasize that motorized and mechanized use is generally prohibited in wilderness areas; therefore, allowing such use in RWAs is obviously inconsistent with maintaining the wilderness character of these places. Wilderness advocates also believe that motorized and mechanized use in these areas creates a pattern of “historic use” that will make it more politically difficult to designate these areas as wilderness, since Congress has  

59. The USFS and BLM include bicycles in their definitions of “mechanical transport,” which is prohibited in Wilderness areas. See Forest Service Manual § 2320.5(3) (2007) and 43 C.F.R. § 6301.5 (2008) (pertains to BLM).  


63. For example, the Kootenai National Forest Plan draft EIS notes that “no recommended wilderness is currently closed to bicycles or other nonmotorized mechanized transport.” U.S. Forest Service, Draft Environmental Impact Statement for The Draft Land Management Plan, Kootenai National Forest, 302 (2011).  

64. See ICL, In Need of Protection, supra note 60, at 3.
often been reluctant to designate areas as wilderness if motorized use has been established.\textsuperscript{65} As one study summarizes, the allocation to off-road vehicles (ORVs) creates a “history of use and a constituency with a vested and rhetorically-potent interest in opposing wilderness designation.”\textsuperscript{66} We found examples where the USFS, in revising their forest plans, proposed to no longer recommend an area for wilderness designation because of existing motorized use in these areas—uses that the agency allowed.\textsuperscript{67} In other cases, “historic” uses have been used to justify the redrawing of wilderness boundaries or to legislatively designate special management areas that allow for such use.\textsuperscript{68}

The issues of maintaining wilderness characteristics in RWAs and historic use are likely to become more prevalent as forests throughout the system write new travel management plans and revise their land and resource management plans, two separate but interconnected planning processes with implications for future wilderness designation. In 2005 the USFS adopted a Travel Management Rule requiring the designation of roads, trails, and areas that are open to motor vehicle use.\textsuperscript{69} In making such designations the Rule requires national forests to “consider effects on [NFS] natural and cultural resources, public safety, provision of recreational opportunities, access needs . . . [and] . . . [c]onflicts between motor vehicle use and existing or proposed recreational uses of [NFS] lands . . . .”\textsuperscript{70} Part of this NEPA-based analysis includes a duty by the USFS to sufficiently analyze impacts of motorized use on “wilderness values and roadless characteristics in the recommended wilderness areas and inventoried roadless areas,” with one court already finding such analysis lacking.\textsuperscript{71} Both issues will also be in the foreground when roughly half of the national forests

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\item[66.] \textit{Id}. at 56.
\item[67.] \textit{See}, e.g., the draft decision to not recommend the Ten Lakes WSA for wilderness designation. U.S. FOREST SERV., DRAFT LAND MANAGEMENT PLAN: KOOTENAI NATIONAL FOREST, 47 (2011). \textit{See also supra} note 63 and accompanying text.
\item[69.] Travel Management; Designated Routes and Areas for Motor Vehicle Use, 70 Fed. Reg. 68,264 (Nov. 9, 2005).
\item[70.] \textit{Id}. at 68,289-90.
\end{itemize}
in the system begin revising their forest plans under the 2012 planning regulations. As of 2012, sixty-eight forest plans (out of 127) are past due for revision. Among other provisions, the 2012 planning regulations require that plan components be used for “management of areas recommended for wilderness designation to protect and maintain the ecological and social characteristics that provide the basis for their suitability for wilderness designation.”

These issues are currently playing out on the Clearwater (now Clearwater-Nez Perce) National Forest in Idaho, a forest that is at the forefront of these issues because of its position in writing a travel management plan and being one of the first forests to revise its forest plan under the 2012 NFMA regulations. The Clearwater’s EIS analysis noted that:

The increase in vehicle capability, numbers, and local use, puts areas of recommended wilderness at far greater risk of degradation and loss of wilderness character than they were when the Forest Plan was written [and] other areas recommended for wilderness have not received serious consideration for designation once motorized use has become established.

The Forest also noted in its Record of Decision that the “continuing or expanding use of vehicles will do nothing but reduce the chances of these areas being designated as Wilderness.” For these reasons, the Clearwater restricted motorized and bicycle use in most RWAs on the forest.

On the other hand, the USFS has been criticized and litigated by motorized users for managing RWAs as “de facto” wilderness. For example, motorized users of the Clearwater National Forest challenged the Clearwater’s 2011 Travel Management Plan for imposing “the equivalent of a Wilderness management scheme on the four RWA’s and [prohibiting] almost all historic, pre-existing motorized and mechanized use.” Among other

73. Id. at 21,164.
claims, these groups argue that “Congress has not delegated to the Forest Service, through the Wilderness Act, NFMA, or otherwise, the power to impose Wilderness management prescriptions or proscriptions in RWA’s or elsewhere through administrative regulation, decision, or other final agency action.”

So prevalent is this conflict over managing RWAs that several members of Congress entered the fray in 2010. Representative Raul Grijalva, a democrat from Tucson Arizona, and seventy-one members of Congress sent a letter to USFS Chief Tom Tidwell expressing concern that the agency’s management of RWAs was impacting the wilderness character of these places and thus making future wilderness designation more difficult. These members of Congress urged the USFS to manage such places in such fashion “to preserve the congressional prerogative to designate wilderness by issuing national guidance on the management of agency-recommended wilderness.”

This correspondence was followed by a letter from Representative Doc Hasting, a republican from Washington State, and seventeen members of Congress, who viewed Grijalva’s request as contrary to the Wilderness Act and Congress’s power over wilderness designation: “The law is crystal clear that the power to designate wilderness rests squarely and solely with the Congress. It is a baseless, twisted reading of the law to suggest that Congress intended to allow an agency to administratively declare an area as recommended for wilderness designation and then to manage that area exactly as if Congress had taken action to make such a designation.”

II. WILDERNESS-ELIGIBLE LANDS MANAGED BY THE BUREAU OF LAND MANAGEMENT

A. Inventoried Roadless Areas

The end result of identifying wilderness-eligible lands—congressional action to consider designating an area as a unit in the National Wilderness Preservation System—is the same for both the Forest Service and the Bureau of Land Management (BLM). However, the paths taken by each agency reveal telling differences as well as parallels.

78. Id. at 34.
The BLM was not mentioned in the Wilderness Act as having any mandate to inventory or recommend lands for wilderness suitability, or to manage lands as wilderness once designated by Congress. These mandates were extended to the BLM in 1976 with the passage of the Federal Land Policy and Management Act (FLPMA).\textsuperscript{81} Section 201 of FLPMA required the BLM to inventory public lands for a variety of resources. In Section 603(a), Congress directed the BLM to review those roadless areas of at least 5,000 acres (and roadless islands), identified in the inventory as having “wilderness characteristics described in the Wilderness Act of September 3, 1964.”\textsuperscript{82} Within fifteen years (by the end of 1991), the BLM was to report to the Secretary of the Interior (and, consequently, to the President) “as to the suitability or nonsuitability of each such area or island for preservation as wilderness.”\textsuperscript{83} The President then had two years (until 1993) to submit his recommendations to Congress upon receipt of each report from the Secretary.\textsuperscript{84} This direction closely followed that given to the National Park Service and Fish and Wildlife Service in Section 3(c) of the Wilderness Act; however, the BLM was given an additional five years—perhaps as a concession to the enormity of the task presented to the Bureau.\textsuperscript{85}

\textsuperscript{82} See id. § 1782(a). When the inventory was started, areas under 5,000 acres were also inventoried for wilderness characteristics if they were: (1) contiguous with land managed by another agency which has been formally determined to have wilderness or potential wilderness values, (2) contiguous with an area of less than 5,000 acres of other federal lands administered by an agency with authority to study and preserve wilderness lands, and the combined total is 5,000 acres or more, or, (3) subject to strong public support for wilderness identification and of sufficient size to make practicable their preservation and use in an unimpaired condition and of a size suitable for wilderness management. In 1982, Secretary of the Interior James Watt ordered that such areas be dropped from wilderness study area consideration. That order was overturned in court which found that they could be managed so as not to impair the wilderness characteristics—not under Section 603 of FLPMA, but under Section 202 and 302. See Sierra Club v. Watt, 608 F. Supp. 305, 342 (E.D. Cal. 1985).
\textsuperscript{83} 43 U.S.C § 1782(a).
\textsuperscript{84} Id. § 1782(b).
\textsuperscript{85} In 1976, the BLM managed approximately 450 million surface acres—more than the Forest Service, Fish & Wildlife Service, and the National Park Service combined. After an initial screening to determine if an area warranted field review, 174 million acres received the intensive inventory for wilderness characteristics. See Wilderness Inventory for the 14 Contiguous Western States, 45 Fed. Reg. 75,574 (Nov. 14, 1980) & Managing the Public Lands: A Snapshot of pre- and post-FLPMA Management, http://www.blm.gov/flpma/snapshot.htm# (last visited Nov. 7, 2013).
As in the Wilderness Act, FLPMA required an Act of Congress to designate of wilderness for management by the BLM, and made it clear that once designated, “the provisions of the Wilderness Act which apply to national forest wilderness areas shall apply” to BLM wilderness areas. Congress, however, had an additional mandate for the BLM: “During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands . . . in a manner so as not to impair the suitability of such areas for preservation as wilderness.”

With the passage of FLPMA, the BLM had three major tasks with respect to wilderness-eligible lands: (1) organize and conduct an inventory on hundreds of millions of acres of public lands; (2) identify which areas possessed wilderness characteristics; and (3) determine how to manage lands identified as having wilderness characteristics “in a manner so as not to impair [their wilderness] suitability.”

Within two years, the BLM had published its procedures for conducting the wilderness inventory on the public lands. Cognizant of the problems associated by the RARE I inventory by the USFS, and in keeping with the spirit of the recently passed Endangered American Wilderness Act, the BLM’s inventory or roadless areas consisted of examining three questions: (1) Does it have sufficient size? (2) Does it appear to be sufficiently natural, with the imprint of humans substantially unnoticeable? and (3) Is there an outstanding opportunity for solitude or primitive recreation? Within another two years,

86. 43 U.S.C § 1782(b).
87. Id. § 1782(c).
88. Id.
89. BUREAU OF LAND MGMT., WILDERNESS INVENTORY HANDBOOK: POLICY, DIRECTION, PROCEDURES, AND GUIDANCE FOR CONDUCTING WILDERNESS INVENTORY ON THE PUBLIC LANDS. (1978) [hereinafter 1978 INVENTORY HANDBOOK].
90. Endangered American Wilderness Act of 1978, Pub. L. No. 95-237 § 1(a), 92 Stat. 40 (“[L]ands exhibiting wilderness values are immediately threatened by pressures of a growing and more mobile population, large-scale industrial and economic growth, and development and uses inconsistent with the protection, maintenance, restoration, and enhancement of their wilderness character….Such immediately threatened areas are . . . not being adequately protected or fully studied for wilderness suitability by the agency responsible for their administration.”).
91. For details on how these factors were evaluated, see Bureau of Land Mgmt., supra note 89, at 12-14. To compare and see how little these factors have changed over time, see Bureau of Land Mgmt., Conducting Wilderness Characteristics Inventory on BLM Lands, 6310 (2012).
the BLM, with public input as required by FLPMA and the Wilderness Act, identified over 800 so-called “Wilderness Study Areas” (WSAs) totaling over twenty-six million acres.92

B. Wilderness Study Areas

Having identified wilderness-eligible lands, the BLM proceeded to “study” them as part of its land use planning. This process included public involvement to determine if these areas known to possess wilderness characteristics would be more suitable for designation as wilderness or more suitable for other uses. A wide range of criteria, including mineral values, manageability, and public opinion, were considered. Between July 1991 and the end of his term in January 1993, President George H. W. Bush submitted state-by-state recommendations to Congress, totaling just under twenty-three million acres.93

In addition to identifying areas with wilderness characteristics, FLPMA required that “the Secretary . . . from time to time report to the President his recommendation as to the suitability or nonsuitability of each such area.”94 That is, FLPMA recognized that even though an area might possess wilderness characteristics, there might be some other potential use of the area that would make it unsuitable for designation—thereby implying, in essence, two classes of WSAs. The areas with wilderness characteristics found “nonsuitable” often had high (though undeveloped) mineral potential. By the end of the review process in early 1993, the BLM had recommended 335 areas totaling 9,660,922 acres as suitable, and 594 areas totaling 13,161,664 acres as nonsuitable.95 (Some areas had portions that were both suitable and non-suitable, and so while the acres are additive, the numbers of areas are not.) In addition, 1,610,363 acres had already been designated by Congress as wilderness.96

94. 43 U.S.C § 1782(a).
95. PRESIDENTIAL RECOMMENDATIONS, supra note 93.
96. There is no record of what happened to the other 1.5 million acres from the original inventory. Presumably, they were “released” from WSA review status during the designation of the sixty-one areas created by Congress prior to the Presidential recommendations. See Wilderness
Though FLPMA called for the President to make wilderness recommendations, the direction “not to impair” the wilderness suitability did not differentiate between the two classes of recommendations as to how they should be managed. In 1979, the BLM issued its first policy on how all WSAs were to be managed—regardless of recommendation—until Congress decided whether or not to designate them as wilderness. This Interim Management Policy (commonly referred to simply as “the IMP”) was so called because it set forth management direction “in the interim” between inventory and congressional disposition. In contrast with policies in the Fish and Wildlife Service and National Park Service, the BLM chose not to manage a WSA as if it were wilderness, but rather to essentially “freeze” conditions on the ground pending a decision by Congress on the ultimate fate of the area. The IMP was revised in 1983, 1987, and 1995. In 2012, the BLM recognized that Congress was taking so long to decide what to do with the WSAs that “freezing” their management was not particularly good stewardship, so revised the policy for managing these lands once again. Throughout all these revisions, however, the same basic non-impairment standard was set: unless allowed by some exception (such as for valid existing rights or to improve wilderness characteristics), permitted activities had to be temporary activities creating no new surface disturbance.

However, Wilderness Study Areas designated by this initial inventory of BLM lands were not the only areas managed under the IMP. Section 201 of FLPMA requires BLM to “maintain on a continuing basis an inventory of all public lands and their resource and other values . . . . This inventory shall be kept current so as to reflect changes in


97. BUREAU OF LAND MGMT., INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW (1979) [hereinafter 1979 IMP].
100. BUREAU OF LAND MGMT., INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW, H-8550-1 (1983) [hereinafter 1983 IMP].
103. BUREAU OF LAND MGMT., MANAGEMENT OF WILDERNESS STUDY AREAS, 6330 (2012) [hereinafter 2012 WSA MANUAL].
conditions and to identify new and emerging resource and other values.”

These inventories were to be the basis for making decisions about the use of these areas “with public input and consistent with the terms and conditions of this Act” in land use plans as outlined in FLPMA Section 202. These sections of FLPMA formed the legal background for inventorying and using land use plans to designate additional WSAs after the initial inventory was completed. Many small (under 5,000 acres) areas were found adjacent to designated Wilderness or wilderness-eligible lands managed by other agencies, and land exchanges or acquisitions also accounted for identifying these “new” areas. They are commonly referred to as “202 WSAs” to differentiate them from the “603 WSAs” that were designated under that section of the law. But all WSAs were—and are—managed under the same policy. The BLM stopped designating 202 WSAs by 2001. Prior to then, 102 areas totaling 279,672 acres were added to the Wilderness Study Area management portfolio.

As of January 1, 2014, the BLM managed 221 wilderness areas totaling 8,710,640 acres, and 528 WSAs totaling 12,760,472 acres. Of the designated wilderness areas, twenty-eight were 202 WSAs. Perhaps more telling, ninety-eight of the BLM WSAs designated as wilderness by Congress were recommended—either in whole or in part—as non-suitable by the agency. That’s just under forty-five percent of all BLM wilderness areas. As BLM Director Bob Abbey testified to the House Natural Resources Committee Subcommittee on National Parks, Forests and Public Lands:

[The] recommendations are now twenty years old, and the on-the-ground work associated with them is as much as thirty years old. In that time, resource conditions have changed, our understanding of mineral resources has changed,

105. Id. § 1712.
109. See BUREAU OF LAND MGMT., 202 WSAs designated as Wilderness (undated) (on file with author).
110. See BUREAU OF LAND MGMT., BLM’s “non-suitable” WSAs subsequently designated by Congress as Wilderness (undated) (on file with author).
and public opinion has changed. If these suitability recommendations were made today, many of them would undoubtedly be different.111

C. Lands with Wilderness Characteristics

In the decades since the first BLM accounting, further inventories of wilderness characteristics were subject to the repetitive seesaw of both political ideology and court orders. The fight started in Utah in 1996, where Secretary of the Interior Bruce Babbitt started a second round of inventories, and the next Secretary, Gale Norton, stopped them. A decade later, court decisions in Oregon made it clear that wilderness characteristics were a resource like any other, subject to the same inventory and planning requirements as other resources. And after another halting episode, the BLM has settled into a process for identifying additional lands that have wilderness characteristics, and deciding how to protect (or not) those characteristics in land use planning.

1. The second Utah inventory

Through the original Section 603 inventory in Utah, the BLM found approximately 2.5 million acres possible for designation as WSAs on the 23 million acres managed by the agency in the state.112 Utah conservation groups filed a series of appeals with the Interior Board of Land Appeals (IBLA), and in 1983 the IBLA ruled that the Utah inventory erred in the vast majority of the lands under appeal.113 In response, the BLM eventually increased the Utah WSA acreage, and the Presidential recommendation listed slightly less than 2 million acres of suitable WSAs and about 1.3 million acres of non-suitable WSAs.114

Simultaneously, several wilderness advocacy groups formed the Utah Wilderness Coalition (UWC) and did their own inventory of BLM lands in Utah—primarily the eastern, central, and southern portions of the state. The result,115 published in 1989, claimed to find 5.7 million acres of wilderness-quality land and formed the basis of America’s Red Rocks Wilderness Act, first introduced that year by Utah Congressman Wayne Owens.

111. Statement of Robert Abbey, supra note 92.
112. For one detailed description of the inventory process in Utah, see THE UTAH WILDERNESS COALITION, WILDERNESS AT THE EDGE: A CITIZEN PROPOSAL TO PROTECT UTAH’S CANYONS AND DESERTS 34-40 (1990).
113. Id.
114. Presidential Recommendations, supra note 93.
115. UTAH WILDERNESS COALITION, supra note 112.
In 1996, Secretary of the Interior Bruce Babbitt ordered the BLM to update its inventory of land with wilderness characteristics in Utah. According to the court record in *Utah v. Babbitt*:

On July 24, 1996, Secretary Babbitt sent a letter to Utah Congressman James Hansen acknowledging the ‘stalemate’ on the Utah wilderness issue and informing him that ‘a small team of career professionals, who have substantial expertise in addressing wilderness issues in Utah and elsewhere,’ were going to ‘take a careful look at the lands identified in the 5.7 million acre bill [H.R. 1500] that have not been identified by the BLM as wilderness study areas, and report their findings. . . ’ Babbitt noted the team was ‘explicitly instructed to apply the same legal criteria that were used in the original inventory’ and estimated the work would be completed within six months.116

The BLM had never undertaken such an action, and it is not known exactly what prompted Secretary Babbitt to make such an order at that time. According to BLM legend, Secretary Babbitt and Utah Representative Jim Hansen were discussing the merits of the Red Rocks Wilderness bill and Hansen “dared” Babbitt to find 5.7 million acres of wilderness-quality lands where the UWC said they were. Or perhaps Babbitt’s interest in the wildlands of Utah was in concert with President Clinton’s designation of the Grand Staircase-Escalante National Monument, which would be made just two months later. Whatever the reason, BLM started the inventory in the late summer of 1996, using essentially the same criteria as had been used in the initial inventories eighteen years before.117

Before the inventory was completed, the State of Utah sued the Secretary of the Interior in the United States District Court for the District of Utah.118 The State alleged eight causes of action, which the court of appeals eventually combined into five types of injuries stemming from: (1) BLM’s lack of legal authority for conducting the inventory; (2) BLM’s failure to allow the public to be involved in the inventory; (3) BLM changed the inventory procedures from those used in 1978; (4) BLM failed to prepare an Environmental Impact Statement (EIS) prior to initiating the inventory; and (5) in preparation for the inventory, the BLM was applying de facto wilderness management to non-WSA federal lands.119

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117. *Utah Wilderness Review Procedures, Bureau of Land Mgmt.*, 3-10 (Sept. 9, 1996) [hereinafter 1996 *Utah Procedures*]; see also *supra* note 89.


119. *Id.* at 1200, 1206-17.
The State was granted a preliminary injunction by the Utah District Court, stopping the inventory on November 15, 1996. In its reasoning, the district court determined that neither FLPMA section 201 nor FLPMA section 603 authorized the inventory. The court then noted that even if section 201 did authorize the inventory, BLM violated the section by failing to allow public participation, and then concluded that the State would be irreparably harmed if the inventory was not stopped—even though "it is not presently known what the results of the reinventory will be or for that matter whether the Plaintiffs will disagree with those results." The district court concluded the State of Utah was likely to prevail on their legal claims, and prohibited BLM "from further work on the Utah Wilderness Review until this case is finally adjudicated on its merits."

BLM appealed the injunction to the Tenth Circuit Court of Appeals. On March 3rd, 1998, the Tenth Circuit found: (1) the State had offered no evidence to support its claim that the BLM lacked the authority to conduct the inventory; (2) FLPMA section 201 does not require public participation during the inventory process—only at the point of land use planning (where the results of inventories are used to determine use allocations) as required by section 202; (3) that the State failed to show how any alleged change in the inventory procedures caused injury, particularly since there is no right of participation in the inventory process; and (4) merely conducting an inventory does not constitute “a 'major federal action significantly affecting the quality of the human environment,'” since “FLPMA section 201 expressly provides that an inventory ‘shall not, of itself, change or prevent change of the management or use of public lands’” and that therefore, no EIS was necessary to conduct an inventory.

The Tenth Circuit vacated the injunction and remanded to the district court “to dismiss those causes of action related directly to the inventory.” However, the Circuit remanded one cause of action for further consideration: the State’s claim that the BLM had already started imposing a de facto wilderness management standard on non-WSA public lands without public involvement as required by FLPMA section 202. (The circuit court made no determination on whether the State’s claim should succeed on its merits, but reasoned that the State did have standing to attempt to prove this in court. However, since the management standard was not a result of the still-incomplete inventory, this cause of

120. *Id.* at 1197.
121. *Id.* at 1201.
122. *Id.*
123. *Id.* at 1206-10.
124. *Id.* at 1215.
125. *Id.* at 1216.
action was independent of conducting the inventory, and could not be used as a basis for stopping it.)\(^\text{126}\)

The BLM resumed its inventory process, and in November 1999 published its findings: approximately 2.6 million acres in the inventory area (not already designated as a wilderness or WSA) were found to have wilderness characteristics.\(^\text{127}\) On January 10, 2001, the BLM issued Handbook H-6310-1, outlining procedures for maintaining wilderness characteristics inventories, essentially following the procedures used in Utah between 1996 and 1999 (and consistent with the procedures first described in the 1978 Inventory Handbook).\(^\text{128}\) No decision had yet been made on the disposition of the areas identified in the Utah Wilderness Inventory Report.

The State claim of de facto wilderness management remained in the district court. With the change of administration in 2001, the name of the case was changed—now, Utah v. Norton. Rather than go to trial, the new administration chose to settle with the State of Utah. In the settlement agreement filed on April 11, 2003\(^\text{129}\)—rife with factual errors and technical inconsistencies\(^\text{130}\)—the BLM agreed that the agency had indeed implemented de facto

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126. See id. at 1216.

127. U.S. DEPT OF THE INTERIOR, BUREAU OF LAND MGMT., UTAH WILDERNESS INVENTORY, 1999. When coupled with the 3.3 million acres of Utah WSAs (supra note 93), this means that approximately 5.9 million acres of lands managed by the BLM in Utah were found to have wilderness characteristics—far more than Hansen thought Babbitt could find.


129. Stipulation and Joint Motion to Enter Order Approving Settlement and to Dismiss the Third Amended and Supplemented Complaint at 1, Utah v. Norton, 2:96CV00870 (D. Utah Apr. 14, 2003) [hereinafter Setttlement].

130. Jarvis, Jeff. Briefing for the Group Manager. Apr. 21, 2003 (on file with author). Jarvis, at the time the Senior Wilderness Specialist in the BLM, and later Division Chief of the National Landscape Conservation System, detailed twenty errors in a four-page briefing paper soon after the settlement. The mistakes in the Settlement included: repeatedly confusing the direction in section 603 of FLPMA with the direction in section 202; erroneously stating the nonimpairment mandate only applied to the WSAs recommended to Congress for designation; claiming the 1978 Inventory Handbook had expired when it had been extended through a series of Instruction Memoranda; asserted that only section 603 WSAs could be managed by the IMP, when the court in Sierra Club v. Watt made it clear that the IMP could also be used to manage section 202 WSAs; misquoted the requirements for incorporating new inventory information and amending Land Use Plans found in the 2001 Inventory Handbook; claimed both the 1996 UTAH PROCEDURES and the 2001 Inventory
wilderness management on non-WSA lands without public involvement. In addition, the BLM re-opened the other causes of action and stated: (1) the BLM had no authority to conduct wilderness reviews after 1993; (2) the BLM has no authority to establish WSAs outside of the process outlined in section 603; (3) the BLM would apply the Interim Management Policy only to section 603 WSAs, since the BLM could manage no lands as WSAs if they had not been identified by the section 603 process without direct authorization from Congress; and (4) consequently, the BLM would rescind its inventory manual H-6310-1.

The Settlement was legally binding in Utah, and adopted as policy for the rest of the BLM outside Alaska. The Settlement did not divest BLM of the authority granted by FLPMA section 201 and section 202 to continue to inventory public lands for wilderness Handbook changed the criteria for establishing new WSAs, when in fact the criteria were consistent all previous versions of the Handbook; and repeatedly confused the various iterations of the Inventory Handbooks with the various IMPs (the latter having nothing to do with inventory, only management). The most serious error was the assertion that Congress gave BLM fifteen years to identify roadless lands and that the “window of opportunity” to identify additional areas was closed. In fact, as subsequent court cases found, the fifteen years cited in FLPMA section 603 was a deadline for review of the initial inventory, not an end to all inventories (see supra notes 1-6 and accompanying text).

131 At the time of the Settlement, there were eighteen WSAs totaling almost 30,000 acres throughout Utah established under the authority of section 202 of FLPMA. Although part of the Settlement stipulated that the IMP would no longer apply to section 202 WSAs, on September 29, 2003 the BLM issued an Instruction Memorandum (“BLM Implementation of the Settlement of Utah v. Norton Regarding Wilderness Study,” IM 2003-274) which stated that the IMP would still apply to those section 202 WSAs which had already been reported to Congress along with the section 603 WSAs. This became the agency’s “no more wilderness study areas” policy. Since the settlement, Congress has passed two laws (Pub. L. No. 109-163, § 384 and Pub. L. No. 111-11, § 1972) designating fifteen areas totaling 230,175 acres as wilderness in Utah. Of this, only five areas and about sixty percent of the acreage is from the original section 603 inventory, with seven areas and about two percent of the acreage from section 202 WSAs. The 1999 inventory found acreage having wilderness characteristics, which consequently was incorporated into the designation of four of the eleven WSAs existing at the time of the Settlement (one WSA was a section 603 area with a section 202 area added to it). (One section 202 WSA with adjacent 1999 Inventory acreage was transferred to the NPS to be incorporated into the Zion Wilderness.) Three wilderness areas were entirely made up of lands identified in the 1999 Inventory. Approximately twenty-five percent of the land designated as wilderness by these two bills was found as a result of the 1999 Inventory. (Interestingly, one area, as well as significant acreage in another, was made of land not identified in any inventory as having wilderness characteristics.)
characteristics and to use the results of those inventories in land use planning. The Settlement also permitted the BLM to develop “directives, guidance and policies” on implementing these authorities.\textsuperscript{132} The guidance that did so\textsuperscript{133} contained no inventory procedures and, since no more WSAs could be designated, suggested that discrete wilderness-like characteristics identified in land use planning could be protected through other designations, such as Areas of Critical Environmental Concern.

2. Oregon and the need for current inventories

Ultimately, BLM’s failure to keep its inventories of wilderness characteristics current found the agency back in court in 2006 (\textit{ONDA v. Rasmussen}\textsuperscript{134}). The BLM had approved several grazing developments in Oregon’s Lakeview Resource Area. The Oregon Natural Desert Association (ONDA) sued, claiming the BLM had not kept its inventory of wilderness characteristics current, and had failed to address the ONDA-prepared inventory in the approval process. The Oregon District Court ruled:

\begin{quote}
[The BLM] was obligated under NEPA to consider whether there were changes in or additions to the wilderness values within the [project area], and whether the proposed action in that area might negatively impact those wilderness values, if they exist. The court finds BLM did not meet that obligation by relying on the one-time inventory review . . . . Such reliance is not consistent with its statutory obligation to engage in a continuing inventory so as to be current on changing conditions and wilderness values.\textsuperscript{135}
\end{quote}

In 2008, the Ninth Circuit went even further in \textit{ONDA v. BLM},\textsuperscript{136} rejecting both BLM’s contention that wilderness inventory was only a “one-time duty” tied to the section 603 process and the agency’s denial that wilderness characteristics constitute one of the values of the public lands which it may manage under the multiple-use mandate in its land use plans:

Read carefully and in context, the FLPMA makes clear that wilderness characteristics are among the values which the BLM can address in its land use plans, and hence, needs to address in the NEPA analysis for a land use plan governing areas which may have wilderness values . . . . [FLPMA] specifically

\begin{itemize}
\item \textsuperscript{132} Settlement at 15.
\item \textsuperscript{133} \textit{Consideration of Wilderness Characteristics in Land Use Planning (Excluding Alaska), BLM Instruction Memorandum No. 2003-275, Sept. 29, 2003.}
\item \textsuperscript{134} \textit{ONDA v. Rasmussen, 451 F. Supp. 2d 1202 (D. Or. 2006).}
\item \textsuperscript{135} \textit{Id. at 1213.}
\item \textsuperscript{136} \textit{ONDA v. BLM, 531 F.3d 1114 (9th Cir. 2008).}
\end{itemize}
contemplates that the [section 201] inventory process includes identification of wilderness characteristics—including those that are ‘new and emerging’ or which arise from ‘changes in conditions’—and that it will do so continuously, with no time limit. . . . Once the statute is so understood, it becomes evident that permanent preservation of wilderness using the [section 603] process is just one aspect of the BLM’s broader management authority for lands with wilderness characteristics.\(^{137}\)

So, at the time of the change of administrations in 2009, the BLM had clear direction from the courts that it needed to keep its inventory of wilderness characteristics current; address impacts to these characteristics in project analyses;\(^ {138}\) and take the results of these inventories into account in the development of land use plans. If an area’s wilderness characteristics were to be protected, it could not be as a Wilderness Study Area or through applying the Interim Management Policy—a management scheme based on the legal settlement in Utah, and extended by policy elsewhere in BLM (except Alaska).

3. Wild lands and its aftermath

Soon after his confirmation as Secretary of the Interior, Ken Salazar rescinded oil and gas leases on seventy-seven parcels in eastern Utah, and the history of that rescission is tangential to the history of WSA management in the BLM. As a result of Salazar’s rescission, Senator Robert Bennett of Utah placed a hold on the nominations of David Hayes as Interior Deputy Secretary and Hilary Tompkins as Interior Solicitor. As a condition of removing the hold, Bennett asked for written answers to a series of questions. While most of these concerned the seventy-seven leases, some of them concerned the *Utah v. Norton* Settlement and the authority to establish new WSAs. Among other questions, Bennett specifically wanted to know if Salazar agreed that: (1) the Department’s authority to establish new WSAs under section 603 of FLPMA expired in 1993; (2) the Department has had no authority to create new WSAs since that date; and (3) that the *Utah v. Norton* Settlement “is consistent with FLPMA.” Christopher Mansour, writing the response to these questions on

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137. *Id.* at 1133-35.

138. Several court cases remanded BLM decisions where updated inventories were absent or ignored and upheld decisions where the updated inventories were considered—even when the BLM’s inventory was at odds with the appellant’s inventory. For an example of each, compare Southern Utah Wilderness Alliance v. Norton, 457 F. Supp. 2d 1253 (D. Utah 2006), with ONDA v. Shuford, 2007 U.S. Dist. LEXIS 42614 (D. Or. 2007).
behalf of Secretary Salazar, answered “Yes” to all these questions, adding, “We do not expect our position on this question to change.”

When made public, this response brought a strong rebuttal from over fifty of the country’s leading natural resource law professors:

The 2003 agreement between the Department of the Interior and the State of Utah is an unpublished and unenforceable out-of-court settlement, whose legal effect was nothing more than to terminate the litigation that it purported to settle. It did not bind the new administration brought in by the 2008 election, and the new administration is free to adopt the same interpretation of FLPMA that was followed by all previous administrations from the passage of FLPMA in 1976 until 2003, namely, that the BLM has continuing authority under section 202 of FLPMA to designate WSAs and to manage them so as not to impair their suitability for preservation by Congress as wilderness.

But Salazar had gone on record that new WSAs would not be designated. Fifteen months later, Secretary Salazar issued Secretarial Order 3310, the seminal document of the so-called “Wild Lands Policy.” This appeared to be an attempt to reconcile three factors: court direction to update inventories of wilderness character and to use the results in land use planning decisions; the compelling argument from the natural resource legal experts that WSAs could be designated outside the section 603 process; and Salazar’s statement that he would not designate WSAs or use the Interim Management Policy to manage areas not already designated as WSAs. The Secretarial Order directed the BLM to “maintain wilderness resource inventories on a regular and continuing basis” and “to protect wilderness characteristics though land use planning and project-level decisions unless the BLM determines . . . that impairment of wilderness characteristics is appropriate.” The Order directed BLM to develop inventory and management policies for “Wild Lands” within sixty days.

140. Letter from Robert Adler, Professor of Law, University of Utah S.J. Quinney College of Law, et al., to the Honorable Ken Salazar, Sec’y of the Interior, U.S. (Sept. 30, 2009).
142. Id.
Consequently, the BLM drafted three manuals. Manual 6301, the Wilderness Inventory Manual, followed the general procedures for determining if an area had wilderness characteristics that had always been used by the BLM. Manual 6302, Consideration of Lands with Wilderness Characteristics in the Land Use Planning Process, covered how Wild Lands would be addressed in land use plans. Manual 6303, Consideration of Lands with Wilderness Characteristics in Project-Level Decisions for Areas Not Analyzed in Accordance with BLM Manual 6302, covered how the resource would be considered in project analyses where an inventory had not yet been done. Key aspects of these second two manuals included the following: a de facto protection of wilderness characteristics where present, unless there was a compelling reason that they not be protected; a partial list of actions (which did not duplicate the proscriptions of the IMP) that could be implemented to protect an area with wilderness characteristics as “Wild Lands” in revising a land use plan; and descriptions of situations where inventories would or would not be required in project analyses. Because “all BLM offices shall place a high priority on the protection” of wilderness characteristics, “the BLM shall avoid impairing such wilderness characteristics unless, as part of its decision-making process, the BLM concludes that impairment of wilderness characteristics is appropriate.”


146. MS-6302 § .06; MS-6303 § .06.

147. Id. § .13.

148. MS-6303 §§ .11-.12.

149. Id. § .14; see also MS-6302 § .13.
authority for approving a project in an area with wilderness characteristics. Projects which would degrade wilderness characteristics to the point where the BLM would be precluded from exercising its discretion to designate the land identified as having wilderness characteristics as “Wild Land” in subsequent land use planning would, in essence, have to be approved by the BLM Director. Finally, the policy tasked each State Director with the determination of whether the BLM should develop a recommendation for Congress to designate identified Wild Lands as wilderness areas within the National Wilderness Preservation System.

Naturally, some members of Congress took exception to a policy that Utah Representative Rob Bishop described as one which “would lock up millions of acres of public lands” and “destroy thousands of jobs.” As part of the budget negotiations to keep the government from shutting down in April 2011, the appropriations bill contained a rider prohibiting the use of any funds to implement the Wild Lands Policy.

And yet, as various courts had determined, BLM still had an obligation to inventory wilderness characteristics and take the results into consideration in land use planning and project approvals. As a result, the manuals 6301, 6302, and 6303 were put in abeyance, and a revised set of policies was released in July. Inventory procedures remained the same. The substantive differences in the planning section of the policies were that BLM would no longer place a priority on the protection of wilderness characteristics above other BLM resources; Bureau-wide plan conformance reviews to determine consistency with the policy would no longer be conducted; and special review by the BLM Director of projects that


151. Department of Defense and Full-Year Continuing Appropriations Act of 2011, Pub. L. No. 112-10, § 1769 (“For the fiscal year ending September 30, 2011, none of the funds made available by this division or any other Act may be used to implement, administer, or enforce Secretarial Order No. 3310 issued by the Secretary of the Interior on December 22, 2010.”).

impacted or impaired lands that have wilderness characteristics would no longer be required. However, BLM still will consider lands with wilderness characteristics in plans and project-level decisions and make decisions to either protect or not protect these lands, as provided for under FLPMA section 202.

Since the 2011 Instruction Memorandum, and as of the end of June 2014, BLM has issued Records of Decision for seven Resource Management Plans in five states, not including Alaska.\footnote{BUREAU OF LAND MGMT., LITTLE SNAKE RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2011); BUREAU OF LAND MGMT., TAOS RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2012); BUREAU OF LAND MGMT., POCATELLO RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2012); BUREAU OF LAND MGMT., SONORAN DESERT NATIONAL MONUMENT RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2012); BUREAU OF LAND MGMT., LOWER SONORAN DECISION AREA RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2012); BUREAU OF LAND MGMT., IRONWOOD FOREST NATIONAL MONUMENT RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2012); BUREAU OF LAND MGMT., CLEAR CREEK MANAGEMENT AREA RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN (2013).} The planning areas encompass approximately 4.1 million acres. Inventories found areas with wilderness characteristics not designated as wilderness or WSA on a total of 715,673 acres, with planning decisions to protect 357,679 of those acres (about fifty percent). When coupled with already-designated wilderness and WSAs in those planning areas, 741,575 acres (about eighteen percent of the planning areas) are managed in some manner that protects wilderness characteristics.\footnote{Data on file and analyzed by authors.} Because of the small number of completed plans, and the great variety among even that small number, there is no way to predict how other planning areas or the Bureau as a whole will treat its areas with wilderness characteristics not already protected as a wilderness or WSA.

D. Wilderness Characteristics in Alaska

U. S. Fish and Wildlife Service and the National Park Service were created largely out of lands in the BLM estate. ANILCA exempted the BLM from the wilderness characteristics inventory prescribed by FLPMA section 603(a):

Section 603 of the Federal Land Policy and Management Act of 1976 shall not apply to any lands in Alaska. However, in carrying out his duties under section 201 and section 202 of such Act and other applicable laws, the Secretary may identify areas in Alaska which he determines are suitable as wilderness and may, from time to time, make recommendations to the Congress for inclusion of any such areas in the National Wilderness Preservation System, pursuant to the provisions of the Wilderness Act.

On March 12, 1981, forty-nine days after his confirmation as Secretary of the Interior, James Watt determined “in light of the exhaustive wilderness reviews that have taken place . . . I have decided that no further wilderness inventory, review, study, or consideration by the Bureau of Land Management is needed or is to be undertaken in Alaska . . . .” The door to wilderness characteristics inventory of BLM lands in Alaska was closed until January 18, 2001—two days prior to the end of the Clinton administration—when Secretary Bruce Babbitt rescinded Watt’s directive, noting that wilderness inventory and recommendations could be made under ANILCA Section 1320 as part of a land use planning process separate from any Section 603(a) inventory. The inventory door was open, only to be shut by Secretary Gale Norton on April 11, 2003, using conditions unlikely to occur at that time:

[C]onsider specific wilderness study proposals in Alaska, as part of any new or revised resource management planning effort, if the proposals have broad support among the state and federal elected officials representing Alaska. Absent this broad support, wilderness should not be considered in these resource management plans.

157. Id. § 1320.
On December 22, 2010, as part of Secretarial Order 3310, Secretary Ken Salazar cited ANILCA Section 1320 as authority to undertake the “Wild Lands” inventory described above in Alaska.161 But, as noted earlier, Congress prohibited funding for implementation of that Order. Yet, the legal mandate to keep the inventory of all resources current remains. Consequently, neither IM 2011-154 nor BLM Manual 6310 exempt Alaska from the requirement of conducting inventories for wilderness characteristics.

The first inventory of BLM lands for wilderness characteristics in Alaska has been completed in only one area: the National Petroleum Reserve—Alaska (NRP-A). All 22.8 million acres in the NRP-A were found to have wilderness characteristics, and the planning decision was to protect 13,354,000 acres (about fifty-nine percent).162 Given the definition of “wilderness characteristics,”163 it is reasonable to assume that additional tens of millions of acres of the remaining fifty million surface acres managed by BLM in Alaska will be found to possess wilderness characteristics. Whether they should be managed to protect those wilderness characteristics is another question entirely. That is a political decision informed, theoretically, by the will of the landowners—the American people. And that is largely the same decision model used in determining future congressional designations of wilderness.

III. THE FUTURE OF THE WILDERNESS SYSTEM

In this section we discuss three interrelated factors that we believe will greatly influence the debate over future wilderness designation and management. We begin our assessment by focusing on the increasing polarization of Congress and its impact on wilderness politics. We do so because the Wilderness Act requires an act of Congress to designate wilderness and what happens in this institution will impact what happens to wilderness-eligible lands.

161. SECY OF THE INTERIOR, supra note 141, at 1.
163. Id. Inventory characteristics include that the area: (1) is of sufficient size to preserve the wilderness characteristics if they are found to be present; (2) must appear to have been affected primarily by the forces of nature, and any work of human beings must be substantially unnoticeable; and (3) has outstanding opportunities for solitude or primitive recreation. These are essentially the characteristics the BLM has used throughout its history of inventorying wilderness characteristics. Compare 2012 Inventory Manual, supra note 152, § .06, with 1978 INVENTORY HANDBOOK, supra note 89, at 5-7; 1996 UTAH PROCEDURES, supra note 117, at 3-10, and 2001 INVENTORY HANDBOOK, supra note 128, at 9-17, and 2011 INVENTORY MANUAL, supra note 143, at § .14.
A. Extreme Political Polarization

In July of 1964, the U.S. House of Representatives passed the Wilderness Act by a vote of 374 to 1. The previous year, the U.S. Senate passed a version of the Act by a 73 to 12 margin. Impressively as they are, these numbers fail to convey the extraordinary amount of political logrolling and compromise it took to get the Wilderness Act through Congress. One account shows that Congress considered sixty-five wilderness bills and held eighteen hearings over the “eight year legislative odyssey” it took to get the Wilderness Act signed into law. Champions of the bill included western democrats, such as Senator Frank Church of Idaho, and republicans such as John Saylor from Pennsylvania. The biggest obstacle to the Wilderness Act was Representative Wayne Aspinall, a conservative democrat from Colorado who used his seniority and committee powers to stymie wilderness legislation and extract political concessions if it were to move forward; only acquiescing to the bill when Congress voted to convene a public lands law review commission, whose work laid the foundation for FLPMA.

The history of the Wilderness Act makes clear that congressional partisanship and ideological differences have always factored into wilderness politics. But what has changed since 1964, and from the golden 1970s-era of environmental lawmaking more generally, is the degree of partisan and ideological polarization of Congress. The “orgy of consensus” that ostensibly characterized the political mobilization and environmental lawmaking of the 1960s and 1970s has all but disappeared in a loud and angry falling out of the center.

Research shows that the two parties are more polarized—or rather more ideologically consistent and distinct—now than they have been at any time in the last thirty years. The numbers show “a drastic separation between and homogenization of the parties from the 1970s to the 2000s,” with the overall trend being clear: “democrats and republicans

165. See id. at 50.
in Congress are becoming less and less alike.”\textsuperscript{170} Both chambers of Congress are being impacted by this trend, but republicans are polarizing to a greater extent than their democratic counterparts.\textsuperscript{171} A task force convened by the American Political Science Association show there to be a major partisan asymmetry in polarization.\textsuperscript{172} According to the authors, “[d]espite the widespread belief that both parties have moved to the extremes, the movement of the Republican Party to the right accounts for most of the divergence between the two parties.”\textsuperscript{173} Just pick the measure—and data will generally show a pulling apart of the parties.\textsuperscript{174} In reviewing the social science literature focused on the extreme partisan polarization that now characterizes American democracy, one comprehensive account concludes that “[w]e have not seen the intensity of political conflict and the radical separation between the two major political parties that characterizes our age since the late nineteenth century.”\textsuperscript{175}

The polarization of the parties on ideological and policy issues goes beyond Congress and includes the parties’ more widespread political coalitions and activist bases, meaning that such polarization flows in and out of the capitol.\textsuperscript{176} Americans have become more partisan and more polarized in their political and policy preferences and such polarization appears most evident amongst those who are most engaged in politics.\textsuperscript{177} An unusually large 2014 Pew Research Center poll of more than 10,000 people shows that republicans and democrats are “further apart ideologically than at any point in recent

\textsuperscript{170} Id. at 485.
\textsuperscript{171} Id. at 486-87.
\textsuperscript{172} AMERICAN POLITICAL SCIENCE ASSOCIATION, TASK FORCE REPORT, NEGOTIATING AGREEMENT IN POLITICS (Jane Mansbridge & Cathie Jo Martin eds., 2013), at 21, available at https://www.apsanet.org/media/PDFs/Publications/MansbridgeTF_FinalDraft.pdf [hereinafter APSA Task Force].
\textsuperscript{177} See Pildes, supra note 175, at 278-79 (reviewing recent scholarship focused on partisanship).
history,” while concluding that “[p]olitical polarization is the defining feature of early 21st Century American politics, both among the public and elected officials.”

1. The implications for wilderness

This polarization has a significant impact on several policy areas, including the environment, where democrats generally vote more green than republicans. The split between the parties is also pronounced on issues pertaining to federal lands management, where it remains a salient issue in the western states. Several recent votes in the House of Representatives show that chamber’s growing disdain for environmental regulations, especially if they are perceived to be an impediment to job creation or the development of oil and gas on federal lands. Even the idea of federal lands is suspect to the Republican Party.

Another sign of increasing polarization is that several western state legislatures have passed bills and resolutions that seek to convey federal lands to the states as a way to increase resource production on federal lands and to raise revenue for state budgets.


The House Republicans have also focused on wilderness in recent sessions, with one bill aimed at releasing roughly fifty million acres of USFS-managed roadless lands and BLM WSA’s to non-wilderness multiple-use management.\footnote{The Wilderness and Roadless Area Release Act of 2011, H.R. 1581, 112th Cong. (2011).} The 112th Congress was not only one of the least productive in modern history,\footnote{Stephen Dinan, \textit{Congress Logs Most Futile Legislative Year on Record}, \textit{THE WASH. TIMES}, Jan. 15, 2012.} but it was also the only Congress to actually decrease the size of the National Wilderness Preservation System.\footnote{The Quileute Tribe Tsunami Protection Act, Pub. L. No. 112-97, removed 222 acres from the Olympic Wilderness and transferred the land to the adjacent Quileute Indian Reservation to provide the Tribe with lands for housing and schools that are outside the tsunami and Quillayute River flood zones. This was the first time land had been removed from a wilderness}
the republican-controlled House also passed the Sportsmen’s Heritage Act, which included language that, according to the non-partisan Congressional Research Service, “could be construed as opening wilderness areas to virtually any activity related to hunting and fishing, even if otherwise inconsistent with wilderness values.”

Perhaps the clearest, simplest example of the anti-wilderness sentiment in the House of the 112th Congress is the fate of the Pinnacles National Park bill. On December 13, 2011, Democratic Representative Sam Farr of California introduced H.R. 3641, co-sponsored by California Republican Representative Jeff Denham. At the time, Pinnacles National Monument, approximately 26,600 acres, included almost 16,000 acres of designated wilderness. The purpose of H.R. 3641 was to recognize the importance of Pinnacles by “upgrading” it to National Park status, to rename the wilderness, and to expand the wilderness by just over 2,900 acres. Among other congressional findings, “Pinnacles National Monument provides the best remaining refuge for floral and fauna species representative of the central California coast and Pacific coast range . . . [in part] because of its long-term protected status [as] congressionally designated wilderness.”

The bill was referred to the Committee on Natural Resources, chaired by Republican Representative Doc Hastings of Washington, and the Subcommittee on Public Lands, chaired by Republican Representative Rob Bishop of Utah. When the bill was passed out of committee seven months later, the Committee had agreed that the Monument would become a park. Thus, the existing wilderness would be renamed, but the Committee would not add one acre to the wilderness without at least the same acreage added elsewhere in the bill—usually in another location in the same wilderness.

188. CONG. RESEARCH SERV., MEMORANDUM ON H.R. 4089 Section 104(e) and Its Impacts on Wilderness Management (Apr. 13, 2012) (on file with authors).
189. Wilderness designation came in two bills: the untitled Pub. L. No. 94-567 was passed in 1976, only the fourth piece of legislation to designate part of a National Park as wilderness; and the Big Sur Wilderness and Conservation Act of 2002 Pub. L. No. 107-370, added lands which had been BLM WSAs and which had been transferred to the National Park Service by Presidential proclamation in 2000.
191. The omission of the 2,900 acres proposed as wilderness in the original bill was carried through all the way to the Pinnacles National Park Act, Pub. L. No. 112-245, approved January 10, 2013.
There is little reason to believe that the polarization now characterizing Congress will abate any time soon, as the recent government shutdown and debt ceiling debates have shown. There are larger historical and institutional forces at work here, from the reshaping of southern politics to campaign finance trends that appear to exacerbate polarization. One must also consider that the Senate now operates as a sort of super-majoritarian body due to the pervasive threat and use of the filibuster. The skyrocketing use of the filibuster in recent years means that a new veto point has essentially been added to the political process, making legislation all the more difficult to pass.

2. Polarization and alternatives to wilderness designation

The polarization of the parties will impact wilderness politics in several ways. Most obvious is the policy gridlock, stalemate, or “logjam” that it has produced in environmental lawmaking in general. Congress has failed to act on a number of pressing environmental fronts, which gives doubt that the institution is currently capable of providing comprehensive and thoughtful reforms to natural resources and environmental law.

The gridlock and stalemate in Congress also helps explain some of the “alternative pathways” that have been used to protect federal lands in recent years, such as the executive branch using its powers to designate national monuments and its rulemaking powers to protect roadless areas. In other words, congressional gridlock has simply pushed some

192. By some measures, the 112th Congress was the least productive in history, and the 113th is on track to be even less productive. See Ezra Klein, Congressional Dysfunction, Vox (Aug. 5, 2014, 12:43 PM), available at http://www.vox.com/cards/congressional-dysfunction/is-congress-less-productive-than-is-used-to-be (reviewing the research on congressional polarization and dysfunction).

193. See APSA Task Force, supra note 172; McCarty, supra note 173; Pildes, supra note 175.


195. See APSA Task Force, supra note 172, at 38; Klein, Congressional Dysfunction, supra note 192.

196. Congressional gridlock and its impact on environmental law and policy has been the focus of much scholarly study; see, e.g., Carol A. Casazza Herman et al., The Breaking The Logjam Project, 17 N.Y.U. ENVTL. LJ. 1, 1 (2008) (introducing a symposium focused on the political and environmental impacts resulting from the environmental “logjam” and some of the “portaging” strategies that can be taken around it).


policy issues and disputes onto alternative decision-making paths: planning processes, appropriations, executive branch intervention, and the courts take up the slack left by a Congress that is increasingly unable to move. This is a theme characterizing American environmental policy writ large, and wilderness politics exemplifies the trend. We suspect that gridlock in Congress will continue to push wilderness politics onto these alternative pathways. For example, if Congress fails to act in protecting wilderness-eligible lands, a wilderness-friendly executive branch may likely use its powers to do so. And these powers are multi-faceted, such as the President using the Antiquities Act to designate national monuments. Consider, for example, the campaign to designate a national monument in Idaho to protect the Boulder and White Cloud Mountains, one of the largest roadless areas in the lower forty-eight states. A collaborative yet controversial wilderness bill championed by Idaho Representative Mike Simpson—the Central Idaho Economic Development and Recreation Act (CIEDRA)—lingered in Congress for nearly a decade. That a bill with so many controversial concessions could not move legislatively eventually led to the national monument campaign, which some people see as the logical portage around a log jammed Congress.

If congressional gridlock persists, another pathway that might be taken more often is provided by the Secretary of Interior’s power, as granted by FLPMA, to withdraw areas “from settlement, sale, location, or entry” or to “reserv[e] the area for a particular public purpose.” FLPMA’s withdrawal provisions are cumbersome and controversial, but they have been used in the past as a way to forestall mineral development on lands that might be


protected in some fashion in the future. Of course, these alternative pathways can be used to protect lands—but they do not result in the designation of wilderness.

B. Compromise and Collaboration

We believe that congressional polarization and gridlock will push wilderness politics into more collaborative forums in the future, and that this alternative pathway will influence the shape of future wilderness laws. Though the ultimate impact of the collaborative movement is yet to be determined, collaboration has been a game changer on federal lands because in many cases it now offers an alternative venue for politics and conflict resolution. As we explain below, collaboration offers some potential in moving wilderness designations forward, but we are fearful that those collaborating may make deals that threaten the integrity of the Wilderness System.

1. The collaborative turn in wilderness politics

Some wilderness advocates believe that collaboration will become increasingly essential to advance wilderness in the future, especially given the polarization and stalemate in Congress. For a deeply divided Congress to act on a wilderness bill, the thinking goes, the bill must be supported by a broader base of interests with stronger grassroots local support. For this reason, several conservation groups are now engaged in various collaborative efforts having a wilderness and economic development component, with the


206. Id.
latter designed to gain the support of rural communities. As discussed below, some of these initiatives are controversial, but they have also changed the dynamics of wilderness politics.

Two other issues help explain the move towards collaboration in contemporary wilderness politics. First is the nature of the remaining wilderness-eligible lands managed by the USFS and BLM. Though simplified, many wilderness battles of the past were focused on protecting so-called “rocks and ice,” high altitude alpine environments with fewer pre-existing uses than found on lower elevation lands. Many current wilderness proposals, however, now aim to protect lower elevation landscapes—and thus places with more historic extractive uses and entrenched interests associated with them.

The second factor pertains to the growing use of motorized vehicles on USFS and BLM lands and how this transformation has impacted the conflicts, litigation, and politics surrounding federal lands management. As discussed above, motorized use on wilderness-eligible lands will figure into agency decisions about whether to recommend areas for wilderness and whether Congress will designate them as such. Some wilderness advocates fear that these machines will increasingly intrude into potential wilderness areas and make their protection more difficult in the future because of associated impairments and purported evidence of “historic use.” A sense of urgency is apparent among some wilderness advocates who are willing to make concessions now rather than risk losing these lands altogether. This perspective holds that we do not have the time or luxury of waiting for the perfectly clean and unblemished large-scale wilderness law. Those stars are unlikely to align, so we must get on with more politically feasible protection strategies, and this means sitting down and cutting deals with motorized interests.


210. See, e.g., Rick Johnson, Wilderness Bill is a Test for Common-Sense Conservation in Idaho, HIGH COUNTRY NEWS (Oct. 24, 2005).
The Owyhee Public Land Management Act provides a reference point for how these factors are already shaping wilderness politics. Enacted in 2009 as part of the Omnibus Public Land Management Act, the Owyhee legislation is the first wilderness law to be passed for areas in Idaho in thirty years. Years of conflict and grazing-related litigation preceded the initiation of a collaborative endeavor between wilderness advocates, ranchers, motorized vehicle users, Owyhee County elected officials, members of the Shoshone-Paiute Tribe, and others. Some conservationists believed that “[t]he primary threat to Owyhee wildlands” was “the dramatic increase in illegal and inappropriate off-road vehicle use,” and that the designation and management of some areas as WSAs was doing little to limit or protect these places from escalating motorized use.

Within this context, and with leadership provided by Idaho Senator Mike Crapo, the group worked over eight years in developing an agreement that could be translated into legislation. The multifaceted law designates roughly 517,000 acres of wilderness and 316 miles of wild and scenic rivers while also releasing approximately 200,000 acres of BLM wilderness study areas. The collaborative process used to find agreement among some of these traditional adversaries helps explain some of the law’s more non-traditional provisions, many of which concern both the removal of livestock from certain wilderness areas and the accommodation of such use in others. This includes language pertaining to the voluntary relinquishment and retirement of grazing permits, a provision that concerned the BLM because of its long-standing belief that “grazing is a compatible use within wilderness and there is a long history of legislation accommodating grazing within wilderness designations.” But the agency acquiesced on this issue, citing the value of collaboration and cooperation in its testimony on the proposed bill.

211. Omnibus Public Land Management Act §§ 1501-08.
215. See, e.g., id. § 1503(b)(3).
216. Id.
217. Owyhee Hearing, supra note 213, at 16 (statement of Julie Jacobson, Deputy Assistant Secretary, Dep’t of Interior).
218. Id.
The Owyhee law also includes provisions related to the disposal and acquisition of selected lands, which includes a creative effort to acquire inholdings and private parcels within or adjacent to the newly established wilderness areas—an approach that may become more common as wilderness designations move into lower elevation lands with more mixed ownership patterns. Also included in the law are required planning processes related to tribal cultural resources and recreational travel management, the latter intended to expedite a more comprehensive approach to motorized use in the area. The Owyhee law, and the process used to write it, has generated a lot of attention because of its collaborative and far-reaching approach to wilderness. It involved both political “gives” and “takes,” but it also broke a long stalemate in Idaho wilderness politics. The law certainly provides a contrast to simpler wilderness legislation of the past that focused on higher elevation lands with relatively fewer conflicts associated with them.

The collaboration leading to the formation of the Owyhee law has also impacted its subsequent implementation. After the BLM released a draft Wilderness Management Plan for the Owyhee wilderness areas, the self-identified “conservation representatives for the Owyhee Initiative, Inc.” objected to certain provisions of the standard grazing management policy language in the Plan. Representatives of the Wilderness Society, Idaho Rivers United, Idaho Conservation League, and the Nature Conservancy called for the BLM to allow two grazing permittees to herd their livestock on motorcycles or ATVs because “the negotiated agreement on wilderness with livestock permittees was made with the expectation that [their] existing uses of motorized equipment . . . would continue post-wilderness designation.” Continuing, they asserted, “It is important that the BLM recognize and accommodate the unique process which produced” this legislation.

220. Id. §§ 1506-07.
223. E-mail from Gehrke et al. Owyhee Wilderness livestock management to Neil Kornze, Principle Deputy Director, Bureau of Land Management (July 19, 2013) (on file with author).
process, it seems, became more valued to the “conservation representatives” than the law itself.

Currently, routine use of motor vehicles to herd livestock is not allowed in any wilderness, and is inconsistent with the so-called Congressional Grazing Guidelines referenced in the Owyhee Public Land Management Act (as well as the majority of wilderness bills designating BLM wildernesses with pre-existing grazing since the current version of these Guidelines was first referenced in the Arizona Desert Wilderness Act of 1990). The Owyhee legislation did not include an explicit override of this prohibition, but subsequent bills backed by some of the same conservation organizations do. In the final version of the Wilderness Management Plan for the Owyhee wilderness areas, the BLM deleted the prohibition of motorized herding which had been included in the Draft. Apparently, the BLM agreed with the “conservation representatives” by valuing the collaborative process more than the law or its own policy.

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224. See H. R. REP. NO. 101-405, APPENDIX A. “The use of motorized equipment should be based on a rule of practical necessity and reasonableness” and not “where such activities can reasonably and practically be accomplished on horseback or foot.” Except for the maintenance of facilities (or other management actions such as placing large quantities of salt) where there are no practical non-motorized alternatives, motor vehicle use is limited to emergencies. “This privilege is to be exercised only in true emergencies, and should not be abused by permittees.”

225. A controversial example of this is provided by the original version of the Forest Jobs and Recreation Act. S. 1470, 111th Cong., 1st Sess. (2009), § 202(n)(3)(B); see also infra note 246 and accompanying text. This version of the bill allowed “historical motorized access to trail sheep” and unlimited “motorized access to water infrastructure for cattle” “to preserve historic access for other ranching activities” in the Snowcrest Wilderness. This level of motorized access, agreed to by the “conservation” partners who helped craft the bill, would be far beyond that envisioned in the Congressional Grazing Guidelines.

226. Compare BUREAU LAND MGMT., OYWHEE CANYONLANDS WILDERNESS AND WILD & SCENIC RIVERS MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT, at 99 (Apr. 2014) (“The Minimal Management Alternative would prohibit the use of motorized or mechanized vehicles for livestock monitoring, herding, and gathering. The Proposed Action will provide for case-specific authorization following a [Minimum requirements analysis].”), with BUREAU LAND MGMT., OYWHEE CANYONLANDS WILDERNESS AND WILD & SCENIC RIVERS DRAFT MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT, at 47 (Feb. 2013) (“Routine livestock management activities in wilderness areas, including project inspection and maintenance (e.g. minor fence repairs or small quantity salt distribution) would normally be accomplished by non-motorized, non-mechanized means.”).
Issues pertaining to collaboration and compromise will also play out in future debates over roadless lands managed by the USFS. As discussed in Part I, outside of Idaho and Colorado, these lands are subject to the provisions of 2001 roadless rule. But this rule can be viewed in two different ways: one as providing a permanent baseline administrative protection and the other as a more temporary measure designed to keep the roadless pieces in place until their permanent status and management can be negotiated in future wilderness bills. What is clear is that any weakening of protection provided by the 2001 rule will be controversial and likely litigated by those viewing the rule as non-negotiable. On the other hand, and as discussed above, roadless areas are clearly not protected to the same degree as wilderness areas; all of this meaning that political choices will have to be made in the future.

The Idaho Roadless Rule provides an example of what sort of politics may be in store for the future. Advocates of the Idaho rule laud its substance and the collaborative process used to write it, which included a broad-based fourteen member Roadless Area Conservation National Advisory Committee (RACNAC) that was used to provide advice to the USFS and review state petitions. Ray Vaughan, a well-known former environmental litigator and “gladiator” and member of the RACNAC, views the partnership between the Committee, USFS, and State of Idaho as leading to the most successful collaborative solution to a public lands management issue ever in our country’s history. This big claim is based on the roughly nine million acres covered by the rule and how far Idaho moved its position on roadless since the State’s initial litigation of the 2001 rule. Vaughan was one of several conservationists that supported the Idaho roadless rule, but others viewed the State’s rule and the process used to write it as setting a dangerous precedent and backsliding on the protections provided in the national-level roadless rule. For these and other reasons, the Idaho Rule was legally challenged by several conservation groups, though it was eventually upheld by the Idaho District Court and Ninth Circuit Court of Appeals. The politics and litigation surrounding the Idaho rule provide a glimpse of the controversy that will come along with any future wilderness negotiation that lessens protections provided by the 2001 roadless rule.

2. Compromise in wilderness politics: past, present, and future

The movement towards collaboration sharpens several questions pertaining to the nature and scope of compromise in wilderness politics. There has long been an enduring tension in wilderness politics between idealists and pragmatists in the movement, with the latter more comfortable than the former in making deals and playing politics in order to designate additional wilderness.\(^{231}\) Of course, compromise is woven into the Wilderness Act itself, as its eight year journey through Congress left it subject to numerous exceptions and special provisions, from mining to grazing to water development to fire.\(^{232}\) Compromise is also evident in subsequent laws designating particular wilderness areas, with much of the debate centered on how much land to designate as wilderness, how much to release to other multiple use management, and where to draw the boundaries. More controversial are some wilderness laws that include special management provisions and non-conforming uses that go well beyond those provided in the Wilderness Act, such as allowing motorboat use, airplane landings, or motorized access for livestock management.\(^{233}\)

That compromise is part of wilderness, as it is for politics more generally, is not the dispute. What is disputed is whether these compromises regarding how the area is managed (as opposed to where its boundary is drawn) have gone too far in recent years and what precedent they set for the future of the Wilderness System. While the first “special management provision” appeared in legislation in 1969,\(^{234}\) and the first so-called “quid-pro-

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234. See An Act of Oct. 10, 1969, Pub. L. No. 91-82, § 3, 83 Stat. 31 (requiring that the Desolation Wilderness is to be managed in accordance with the Wilderness Act “except that the owners and operators of existing federally licensed hydroelectric facilities shall have the right of reasonable access to the areas for purposes of operating and maintaining such facilities in a manner that is consistent with past practices without prior approval of the Secretary.”).
quo” wilderness bill was passed in 1978, both tactics to get a bill passed have become more common in recent years. In some cases, the deal making has become more complicated and multi-faceted, with more actors seeking legislative assurances for how a public land unit will be managed, inside and outside of the federally designated wilderness.

Some critics consider the Steens Mountain Cooperative Management and Protection Area Act of 2000 as a turning point in wilderness politics. Among other provisions, this complex legislation provides for several land exchanges in the area, designates about 175,000 acres of wilderness, and a much larger “Cooperative Management and Protection Area.” The Act mandates how both areas are to be managed, while also creating an advisory council to oversee management and make recommendations to the BLM. Depending on one’s perspective, the Steens Act provides either a positive model of how legislative packages might be crafted in the future or “a new breed of compromise” posing a serious threat to public lands management. According to some critics, the trend they identify as beginning with the Steens Act has negative implications for public lands policy and wilderness:

These deals create a quid pro quo situation wherein wilderness protection is essentially “paid for” with balancing provisions in the same piece of legislation that facilitate development, privatization, and intensified land use—even in the very “wilderness” set aside in the deals. If this trend continues, the days of the

235. See Endangered American Wilderness Act, Pub. L. No. 95-237, § 4(a)(3), 92 Stat. 40, 43-44 (1978) (requiring that, in addition to designating the Gospel-Hump Wilderness, “[c]ertain other contiguous roadless lands which comprise about forty-five thousand acres, as generally depicted on [the accompanying] map as ‘Development Areas’ shall be immediately available for resource utilization.”). Interestingly, Section 4(b) created the first wilderness citizen advisory committee to counsel on the management of the Gospel-Hump Area. “The Committee shall be comprised of two members of the timber industry . . . two members from organizations who are actively engaged in seeking the preservation of wilderness lands, and three members from the general public who otherwise have a significant interest in . . . the Gospel-Hump Area.” In contrast to subsequent similar committees, the Advisory Committee was to be terminated 150 days after the completion of the multipurpose resource development plan required by the legislation.


237. Id. §§ 101, 201.


stand-alone wilderness bill, along with the strict observance of the letter and spirit of the Wilderness Act, may be relics of the past.240

It can be argued that most legislation has some quid-pro-quo aspect to it, such as coupling crop subsidies with food stamps in the Farm Bill. In the past, perhaps with more trust and reciprocity between members of Congress, the trade-offs were understood, but the concessions did not need to be packaged in the same law. Representative Morris Udall, for example, could move the Central Arizona Project and later, in separate pieces of legislation, champion the most complete wilderness designations of any state to date. But Congress, as described earlier, is increasingly polarized, and the Steens Act ushered in an era of a number of controversial wilderness laws241 and proposed bills242 in the 2000s that conveyed or proposed to convey selected federal lands to private and state ownership in exchange for wilderness designation in other areas. Federal land exchanges and conveyances are controversial in their own right, but they become even more so when part of an omnibus bill that includes wilderness and various provisions related to economic development for communities adjacent to federal lands.

Given how difficult it is to find agreement among stakeholders, and then move legislation in a divided and increasingly polarized Congress, there is an incentive to bundle multiple provisions that go beyond wilderness into a single omnibus bill.243 But some congressional leaders find the increasingly complex nature of wilderness bills to be a “troubling trend,” partly because they signify the willingness of some Congress members to sweeten wilderness deals with special provisions and to increasingly micromanage federal

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240. Id.
lands outside of designated wilderness. Others, however, view the deal-making of the 2000s as a continuation of the give-and-take politics that has always characterized the wilderness movement. One recent assessment of wilderness politics concludes that “[t]he engagement with local stakeholders and the political pragmatism of the 2000s did not abandon the values embodied by the Wilderness Act; instead, it marked a return to it.”

These omnibus laws then set the stage for equally controversial “place-based” forest legislation, such as the proposed Forest Jobs and Recreation Act, which is focused on three national forests in Montana. Senator Tester’s bill garnered national attention because of its approach to dealing with wilderness and a range of forest management issues in a single legislative package. Though the bill would designate roughly 677,000 acres as wilderness, thus potentially ending the “wilderness drought” in Montana, it also includes a mandate that 100,000 acres on two national forests be placed under contract and be “mechanically treated.” Other provisions of the bill detail how forest management and restoration

244. Dan Berman, Bush Administration, Senator Bingamin Skeptical of Idaho, Ore. Wilderness Bills, ENERGY & ENVIRONMENT DAILY (Sept. 28, 2006). Chairman of the House Committee on Natural Resources, Rep. Nick Rahall (D-WV), called for cleaner wilderness legislation in 2005:

Wilderness designations should not be the result of a quid pro quo. They should rise or fall on their own merits . . . . We all understand that compromise is part of the legislative process, yet at the same time, I would submit that wilderness is not for sale. Simply put, I believe we should not seek the lowest common denominator when it comes to wilderness and saddle a wilderness designation with exceptions, exclusions and exemptions.


245. JAMES MORTON TURNER, THE PROMISE OF WILDERNESS: AMERICAN ENVIRONMENTAL POLITICS SINCE 1964, at 398 (2012) (“[T]o criticize the commitment to negotiation and compromise as an abandonment of a more pure or principled wilderness tradition is to overlook more than four decades of wilderness politics.”).


248. “Mechanically treated” is defined as “an activity that uses a tool to remove fiber that has commercial value to local markets in the vicinity of the area treated.” S. 268, § 102.
activities will be implemented by the USFS and the decision making process that must be used to do so.

Much of the debate over Tester’s bill focuses on his novel approach to legislating wilderness in the same law that includes what is essentially a timber harvest mandate. This sort of deal, according to its critics, signifies a dangerous trend in contemporary wilderness politics. The appropriate role, and definition, of collaboration is another central theme running through the debate. Its supporters frame the bill as an exemplary case of vision and collaboration, of “transcending partisanship to find common ground” and bringing people together “to find workable solutions to big problems.” It is this type of collaborative approach, they insist, that will finally break Montana’s wilderness stalemate. Critics, on the other hand, worry about the precedent the bill sets for future wilderness designation and national forest management more generally. Some also question the nature of this collaboration, seeing the process used as “closed door negotiations between self-appointed agents from a few carefully screened special interest groups . . . .”

We suspect that these sorts of multi-faceted negotiations, in which wilderness is but one part of a larger deal, will increase in scale and complexity in the future. The next frontier in this regard may involve negotiations pertaining to wilderness designations and energy development on BLM lands. The backdrop here is significant given the current pace and future projections for energy development on federal lands, both renewable and non-renewable. Consider, for instance, the possible development of oil shale in the Green River Formation that lie beneath parts of Colorado, Utah, and Wyoming: it contains the world’s largest deposit, an amount that could equal the entire world’s proven oil reserves—

249. See Nie, Managing the National Forests through Place-Based Legislation, supra note 247.
252. Id. (statement of Stewart M. Brandborg, former Executive Director of the Wilderness Society).
and the federal government controls two percent of this land. The tensions between energy and conservation are becoming more acute in several places in the West that wilderness advocates believe are “too wild to drill.” In some cases, agreements have been struck between wilderness advocates and the energy industry, such as in Utah’s Nine Mile Canyon. In this case, the Southern Utah Wilderness Alliance and the Bill Barrett Corporation—without significant participation from the public or the managing agency, the BLM—found agreement on where to drill in the region while also protecting some of the area’s wilderness qualities.

The scope of deal making is much wider now in Utah where Congressman Rob Bishop has proposed a “grand bargain” amongst various interests in the state as a way to “establish greater certainty about the way our public lands may be used.” The “Utah Public Lands Initiative” hopes to find resolution on several intractable land disputes in Utah. As viewed by Bishop, wilderness and other land designations act as currency in the negotiations—providing something to trade in return for more certain economic development on non-wilderness federal lands. This means the negotiations, as they are currently unfolding, center around how much wilderness to designate in exchange for more economic development elsewhere, such as the designation of more certain and predictable “energy zones,” state or local control over disputed roads, the transferring of federal lands to local control for various purposes, and the swapping of some hard-to-access school trust lands.

The move towards collaboration in wilderness politics will influence not only what lands are designated as wilderness but also how they are managed in the future. The trend in collaboration may lead to increased demands for non-conforming uses and special provisions in newly designated wilderness areas. As discussed earlier, several wilderness laws contain special provisions and allow uses that are generally proscribed by the Wilderness

This has been a long-standing issue that has troubled some wilderness advocates and managers because these compromised laws collectively threaten the integrity of the wilderness system. Precedent is also a concern in this context because of how often special provisions are replicated in wilderness laws. Once used, provisions related to such matters as water rights, buffer areas, overflights, and grazing are regularly stamped onto future wilderness bills as a matter of course. One study, for example, finds that not only are wilderness-specific special provisions increasing over time, but that “once included as a legislative provision they often appear in subsequent legislation with a related concern or situation.” Whereas it was once believed that the compromises necessary to designate an area as wilderness were made in the eight-year struggle to pass the original Wilderness Act, it is increasingly apparent that many players will call for further concessions from wilderness in order to gain designation—leading to what others might call a “WINO”—Wilderness In Name Only.

C. Wilderness Manipulation

The last issue we wish to discuss pertains to what we believe will be increasing demands to control and manipulate wilderness in contravention of the law’s mandate to preserve wilderness areas as untrammeled. Such demands will likely be made in the context of ecological restoration and efforts to mitigate and adapt to various environmental changes, such as threats posed by climate change and invasive species. We suspect that future wilderness designations and the politics surrounding them will increasingly focus on issues such as water supply, fire, insects, disease, and invasive species.

259. See Gorte, Wilderness Laws: Statutory Prohibitions and Permitted Uses, supra note 48; NATURAL RESOURCES LAW CTR., SPECIAL USE PROVISIONS IN WILDERNESS LEGISLATION (Boulder, CO, University of Colorado, 2004).


The purpose of the Wilderness Act is to preserve the “wilderness character” of areas included in the wilderness system. Though the term is not explicitly defined as such in the law, wilderness character is comprised of four required qualities (and one optional quality) that are expressed in the statute. Two of these qualities are particularly relevant to the issue of human manipulation: the direction to manage wilderness areas as “untrammeled” while also preserving their “natural conditions.” The Wilderness Act states that wilderness is “an area where the earth and its community of life are untrammeled by man,” and “generally appears to have been affected primarily by the forces of nature . . . .” The meaning here is simple: untrammeled equals wild. It means that wilderness areas are to be free of restraint, unencumbered, unhindered and free from human control and manipulation. On the other hand, the Wilderness Act also states that wilderness is “protected and managed so as to preserve its natural conditions.” Wilderness areas, in other words, are to be substantially free from the effects of modern civilization.

There has been some debate over the years regarding the tensions between these two qualities of wilderness character, with some people believing that human intervention is often necessary in wilderness to ensure the preservation of natural conditions. Proposals to intervene will become more frequent as federal land agencies and other actors seek to mitigate and adapt to various environmental changes. We suspect that some of these changes will also be debated in the context of whether or not to designate future wilderness

265. Id.
266. For a discussion of this often misunderstood word see SCOTT, THE ENDURING WILDERNESS, supra note 164, at 126-29.
267. 16 U.S.C. 1131(c).
areas. Sandra Zellmer’s work is persuasive in this regard, as she details how climate and other environmental changes are already increasing “human pressure to intervene and alter ongoing processes in wilderness areas in hopes of mitigating adverse effects or adapting to them.”

Zellmer reviews multiple initiatives involving deliberate human manipulations, such as the eradication of invasive species with mechanical, biological, or chemical treatments.

1. Manipulating water and wildlife

The relationship between water and wilderness (both existing and potential) is particularly important at the moment. National Forest System lands play a crucial role in providing the nation’s water supply, especially in the West where roughly half of the region’s water originates on the National Forests. The healthiest watersheds, as defined by the USFS, are often located in wilderness areas and inventoried roadless areas—both of which are protected from road building and other activities that are associated with water degradation. Climate change is obviously a wild card in this story because of all the uncertainties associated with future water supply. This uncertainty is one reason why there is so much interest in building water storage capacity, such as new or expanded dams and other water infrastructure. The Wilderness Act includes a water resources special provision:

[T]he President may . . . authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to the development and use thereof, upon his determination that such use or uses in the specific


271. See U.S. DEP’T AGRIC., USDA FOREST SERVICE WATER AND WILDERNESS BRIEFING PAPER, available at http://www.wilderness.net/nwps/documents/fs/chiefs-long-water.pdf (last visited Nov. 17, 2013) (referencing research showing that wilderness areas “provide a disproportionate contribution” to water supplies because “they are often situated in the headwaters of major drainages.”).


273. See Zellmer, Wilderness, Water, and Climate Change, supra note 270 at 332-36.
area will better serve the interests of the United States and the people than will its denial . . . .

This provision has not yet been used by the President, and some wilderness legislation has blocked its use. Congress has used its powers over the years to permit water infrastructure on federal land which became wilderness areas, including roughly 200 dams that are found in the system (built pre-designation). It is quite possible, then, that water will play an even more significant role in future wilderness negotiations that will take place against a backdrop of water scarcity. This is an issue, for example, debated in the context of the proposed San Juan Mountains Wilderness Act of 2011. In this case, the USFS opposed the bill's proposal to prohibit new water development projects in an area the legislation set aside for potential designation of wilderness, and suggested it might be advisable to increase the capacity of existing water control structures.

276. See Nickas, supra note 260, at 457; Zellmer, supra note 270, at 346.

With respect to water rights and water development, Section 4(d)(3) would prohibit new water development projects in the special management area. This provision is more restrictive than section 4(d)(4) of the Wilderness Act under which the President of the United States may exercise discretion to authorize such facilities within designated wilderness areas if they are determined to be in the public interest. We support amending this provision so that it is consistent with the discretion authorized by the Wilderness Act.

When Alaska Senator Murkowski asked, “Given this Administration’s beliefs about global warming and the drying of the Intermountain West, does the Forest Service think it wise to impose these restrictions on water development in this bill?” Weldon replied: “No, it may not be wise to impose water restrictions because there are existing reservoirs in these areas. Also, in general, it is preferable to expand reservoirs at high elevations (all these lands are above 10,000 feet) because substantially less evaporative water loss occurs at these elevations.” Hearing Before the Subcomm. on Pub. Lands and Forests, & the S. Comm. on [sic] of The Energy and Natural Resources, 112th Cong., S. 1635, Appendix I. March 22, 2012. Referenced at: http://www.gpo.gov/fdsys/pkg/CHRG-112shrg77160/html/CHRG-112shrg77160.htm.
Another way that the water supply issue may manifest itself is through the artificial delivery of water to wildlife populations in wilderness areas. This includes the use of water tanks and structures within wilderness areas, notwithstanding the law’s general prohibition on “structure[s] or installation[s]” unless they are necessary to meet the minimum requirements for the purpose of the Wilderness Act. For example, in an attempt to reverse the losses of bighorn sheep in the Kofa National Wildlife Refuge, in 2007 the USFWS acquiesced to the State of Arizona’s request to build two more artificial wildlife waters within the Kofa Wilderness despite the presence of over sixty such installations already in the area. However, this decision to manipulate the wilderness ecosystem did not go uncontested. In *Wilderness Watch, Inc. v. U.S. Fish and Wildlife Service* (2010), the Ninth Circuit ruled that the USFWS failed to adequately analyze whether these water delivery structures were necessary to meet the law’s minimum requirements. According to the Ninth Circuit, “[a] generic finding of necessity does not suffice . . . but the key question—whether water structures were necessary at all—remains entirely unanswered and unexplained by the record, even though the Service’s own documentation strongly suggests that many other strategies could have met the goal of conserving bighorn sheep without having to construct additional structures within the wilderness area (for example, eliminating hunting, stopping translocations of sheep, and ending predation by mountain lions).” While the latter remedy from the court would also manipulate the wilderness ecosystem, it would appear that otherwise the courts will defend the undeveloped nature of an untrammeled wilderness where the agency charged with its stewardship will not.

We suspect that agencies will be prone to intervene even more in cases where the individual wilderness laws include their own water and wildlife provisions. Several wilderness laws since 2002 include provisions authorizing “structures and facilities . . . for wildlife water development projects, including guzzlers” if they enhance wilderness values and the “visual

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278. 16 U.S.C. § 1133(c).
279. Wilderness Watch, Inc. v. U.S. Fish & Wildlife Serv., 629 F.3d 1024, 1040 (9th Cir. 2010).
280. *Id.* at 1037.
281. Motion-activated cameras at the two artificial wildlife waters in question captured more pictures of mountain lions than bighorn sheep. Perhaps the artificial water sources throughout Kofa have artificially increased the number of mountain lions, and removing the water might result in a “double untrammeled” of the wilderness.
impacts . . . can reasonably be minimized.”

Some laws attempt to go further, such as the Owyhee wilderness law that was discussed above. It includes a fish and wildlife management and restoration provision, while also specifying that the State of Idaho “may use aircraft (including helicopters) in the wilderness areas . . . to survey, capture, transplant, monitor, and provide water for wildlife populations, including bighorn sheep, and feral stock, feral horses, and feral burros.”

Recently introduced legislation goes even further than providing artificial water in the drive to manipulate populations of wildlife for hunting. The proposed Sportsmen’s Heritage Act of 2012 would guarantee that any action proposed by a state wildlife agency would automatically satisfy the “necessary to meet minimum requirements” test mandated by Section 4(c) of the Wilderness Act.

2. Wilderness and fire

Issues pertaining to fire management will also shape future debates over wilderness designation. Fire now dominates most of the discourse and politics surrounding federal


284. Omnibus Public Land Management Act of 2009, Pub. L. No. 111-11, § 1503, 123 Stat. 991 (2009). In practical terms, however, this provision does not increase the state’s ability to use aircraft. The Owyhee law references section 4(d)(1) of the Wilderness Act, which in turn limits use “subject to such restrictions as the Secretary . . . deems desirable.” In this case, BLM Policy Manual section 1.6.C.21.e makes it clear that the use is limited to the use BLM determines is the minimum necessary—exactly the degree allowed under the Wilderness Act’s section 4(c) in any other BLM-managed wilderness. This provision is an example of a trend in recent wilderness bills to obfuscate the clearer language of the original Act in favor of wording more likely to be misinterpreted by managers.


(1) The provision of opportunities for hunting, fishing and recreational shooting, and the conservation of fish and wildlife to provide sustainable use recreational opportunities on designated wilderness areas on Federal public lands shall constitute measures necessary to meet the minimum requirements for the administration of the wilderness area. (2) The term ‘within and supplemental to’ Wilderness purposes in section 4(a) of Public Law 88-577, means that any requirements imposed by that Act shall be implemented only insofar as they do not prevent Federal public land management officials and State fish and wildlife officials from carrying out their wildlife conservation responsibilities or providing recreational opportunities on the Federal public lands subject to a wilderness designation.
lands, especially on the national forests. And here too, we see politically polarized tribes having fundamentally different views of the causes, consequences, and possible remedies to large-scale fire events. Wilderness and roadless areas factor into this debate in multiple ways. Most obvious is that some interests believe that fuel reduction work and mechanical treatments should be done in some roadless landscapes, especially those at the wildland-urban-interface. This case is made even more strongly when large-scale fires pose risks to municipal water supplies.

The negotiations involved in creating the Idaho and Colorado roadless rules illustrate the predominant role played by fire in shaping the final outcomes of both rules. The Colorado Rule provides flexibility to cut trees and construct roads in order to minimize the risk of fire in some areas that are near “at-risk” communities. Tree cutting is also permitted on some roadless lands (though non-upper tier) “if a significant risk exists to the municipal water supply system or the maintenance of that system.” The rule includes a provision and set of exceptions related to linear constructive zones, which would be used to move such resources as water, oil, and gas from inside to outside roadless areas. In this context, the rule also “accommodates the development and expansion of reservoirs by the use of road construction” in non-upper tier roadless areas. The ability to treat hazardous fuel conditions played an equally large, and contested, role in the negotiation of Idaho’s roadless rule. This rule permits the USFS to reduce hazardous fuel conditions in “backcountry/restoration” areas (covering about 5.3 million acres) within “community protection zones,” and even outside of them “where there is a significant risk that a wildland fire disturbance event could adversely affect an at-risk community or municipal water supply system.”

We believe that the sorts of negotiations characterizing the Idaho and Colorado rulemakings, in which fire management issues were front-and-center, will similarly shape debates over future wilderness designations and management on the national forests. Some actors will likely argue that an area should not be designated as wilderness because its management as such will hinder efforts in fire management. The Wilderness Act already provides federal land agencies discretion in taking “such measures . . . as may be necessary in

287. Id.
288. Id. at 39,580. One exception allows for “the construction, reconstruction, or maintenance of an authorized water conveyance structure which is operated pursuant to a preexisting water court decree.” 36 C.F.R. § 294.44 (2012).
289. Id. at 39,587.
But the precise reach of this provision is still a bit unclear, with questions pertaining to the methods that can be used to control and manage fire in wilderness areas and how this provision is to be balanced with the law’s mandate to manage for wilderness character and its component parts. The question is not one of extinguishing fires that are burning in wilderness areas, as this is often done.\(^{292}\) Instead, the questions revolve around prevention and “pre-suppression” actions—what, in other words, can be done to reduce the risk and severity of fires in wilderness areas?\(^{293}\) This lack of clarity explains why some wilderness laws include additional language pertaining to fire management in wilderness, all of which gives federal land agencies even more managerial flexibility.\(^{294}\) For example, the Big Sur Wilderness and Conservation Act of 2002 authorizes the USFS “to take whatever appropriate actions in such wilderness areas are necessary for fire prevention and watershed protection consistent with wilderness values, including best management practices for fire presuppression and fire suppression measures and techniques.”\(^{295}\)

As with water and wildlife, we believe that there will be increasing demands


\(^{292}\) David J. Parsons, *The Challenge of Restoring Natural Fire to Wilderness*, in ROCKY MOUNTAIN RESEARCH STATION PUB 276 (U.S. Dep’t of Agric., et al. eds., 2000) (finding that “despite clear policy direction recognizing the importance of natural fire, suppression continues to be the dominant fire management strategy in most wilderness areas.”).


to include special provisions regarding fire management in future wilderness laws. Congress
has already started down this road with a House Report which accompanied the Endangered
American Wilderness Act of 1978, and which has been cited in several subsequent laws:

Section 4(d)(1) of the Wilderness Act permits any measures necessary to
control fire, insect outbreaks or disease in wilderness areas. This includes the
use of mechanized equipment, the building of fire roads, fire towers, fire breaks
or fire pre-suppression facilities where necessary, and other techniques for fire
control. In short, anything necessary for the protection of the public health or
safety is clearly permissible.\textsuperscript{296}

Later in the Report, referring to the “special language pertaining to the Santa Lucia
and Ventana Wilderness areas, the House Committee wrote: “The uses authorized by such
special management language should not be construed by any agency or judicial authority as
being precluded in other wilderness areas, but should be considered as a direction and
reaffirmation of congressional policy.”\textsuperscript{297} A few years later, the House Committee modified
their position: “[Wildfire control] measures should, to the maximum extent practicable, be
implemented consistent with maintaining the wilderness character of areas, while at the same
time protecting the public health and safety and protecting private property located
immediately adjacent to wilderness areas.”\textsuperscript{298} However, it is the earlier Report that often
seems to carry more weight.

The demands to manipulate wilderness ecosystems frequently involve placing
structures or installations in areas that are, by law, supposed to be undeveloped. These
structures may make the area less natural (for instance, through creating artificial sources of
water), though the law calls for the areas to be “protected and managed to preserve [their]
natural conditions.”\textsuperscript{299} And, uniformly, they manipulate areas “where the earth and its
community of life are \textit{supposed} to be] untrammeled.”\textsuperscript{300} These demands may end up as
bargaining chips in the designation process—part of the increase in collaboration and
compromise that is the hallmark of recent legislation. Manipulating wilderness ecosystems,
which now seems acceptable to some interests, may become a de facto political requirement
in an increasingly polarized political climate where it seems one side seems to not care how
an area is managed as long as it’s called “Wilderness,” and the other side doesn’t care what
it’s called as long as it’s not managed as wilderness.

\textsuperscript{297} Id.
\textsuperscript{299} 16 U.S.C. § 1131(c).
\textsuperscript{300} Id.
So, is “Wilderness” an idea whose time has come and gone?

**CONCLUSION**

The story of wilderness is far from finished. As we discuss in Parts I and II, the USFS and BLM manage millions of acres that are suitable for inclusion in the Wilderness Preservation System. Whether these lands are protected as wilderness in the future will hinge on forthcoming planning processes, interim management measures, and politics. The latter, as we discuss in Part III, is in many respects more complicated in 2014 than it was in 1964. The next generation of wilderness designations are likely to include increased deal-making around manipulating wilderness ecosystems or otherwise mandating “special provisions” not allowed in the 1964 Act, as well as the increased use of explicit quid-pro-quo trade-offs—all in the name of collaboration to get legislation through an increasingly polarized Congress.

Politics notwithstanding, we ask readers to reflect on the words used by Congress in establishing the National Wilderness Preservation System in 1964:

> In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. 301

The italicized words are emphasized because they help explain why we believe the reasons for adding to the Wilderness System are stronger in 2014 than they were in 1964. When the Wilderness Act was first introduced in 1956, the U.S. population was roughly 166 million. By the time the law was passed in 1964, it had grown to 192 million; it is now almost 319 million. 302 Along with this increasing population has come a staggering expansion of settlement, especially in the American West: the building of roads, the development of open space, the conversion of forest lands to real estate, and the loss of private rangelands to subdivision—and so much of this settlement is taking place on the fringe of federal lands, the so-called wildland-urban-interface. 303 Consider also in this context the growing

301. 16 U.S.C. § 1131(a).
mechanization since the law’s enactment. There has been a phenomenal increase of motorized use on federal lands since 1964, with more users using more sophisticated machines to transport people farther and farther into the backcountry. In short, the values of wilderness become all the more significant when one considers the development and motorized use taking place around these areas.

Beyond serving as an antidote to the physical changes in our country, wilderness also serves as a counter-balance to the societal changes in our country. As Americans become more mechanized, more plugged in, trying to control both the real and artificial worlds around us, wilderness anchors us—and the rest of life—to places where we refuse to let ourselves dominate. Wilderness serves to remind us, with the utmost humility, of our place on the Earth. Wilderness areas, and a strategy of protected lands more generally, are no conservation panacea, nor were they ever intended as such. But the law, and the system it created, remains vital in protecting values that are increasingly rare in modern society.

It is for these reasons why wilderness is more important now than it was in 1964. If all we want to do is restrict rampant OHV use or oilfield development, there are alternative conservation designations that can adequately achieve those goals: national monuments, national conservation areas, national recreation areas, and other classifications. These designations are important conservation tools and may serve as more effective designations than wilderness in achieving more limited conservation objectives and values. It is our hope that alternative conservation designations will be used more in the future when the values advocates seek to conserve are not the same as those articulated in the Wilderness Act. But when the American people require an area to be untrammeled, natural, undeveloped, and with outstanding opportunities for solitude or primitive, unconfined recreation, then the area must be designated Wilderness. Wilderness is the only designation that mandates all of these qualities by law.

At the time of the twenty-fifth anniversary of the Wilderness Act, Congress passed a short law commemorating the contributions of Clinton Anderson, former Secretary of Agriculture and one of New Mexico’s Senators at the passage of the Act. The law quotes Anderson from 1963:

304. See generally ROSS W. GORTE, CONGRESSIONALLY DESIGNATED SPECIAL MANAGEMENT AREAS IN THE NATIONAL FOREST SYSTEM (Cong. Research Serv., 2010).
305. See 16 U.S.C. § 1131(c).
There is a spiritual value to conservation, and wilderness typifies this. Wilderness is a demonstration by our people that we can put aside a portion of this which we have as a tribute to the Maker and say—this we will leave as we found it. Wilderness is an anchor to windward. Knowing it is there, we can also know that we are still a rich Nation, tending our resources as we should—not a people in despair searching every last nook and cranny of our land for a board of lumber, a barrel of oil, a blade of grass, or a tank of water.\textsuperscript{307}

Now, more than ever, we need that transcendent anchor. This is not asking for too much when we consider that roughly 5\% of the entire United States is protected as wilderness, and a mere 2.7\% when Alaska is removed from the equation.\textsuperscript{308} Nor is it too much when we consider that the majority of the U.S. has already been converted to agricultural and urban landscapes, with much of the remaining lands networked with roads.\textsuperscript{309} We are not yet so poor \textit{physically} that we must exploit every last nook and cranny of our wild legacy for perceived gain; we are not yet so poor \textit{spiritually} that we should willingly squander our birthright as Americans for temporary distractions.

This is why we must fight for “Capital W” Wilderness, as originally envisioned, and make a stand for those last remaining roadless areas with wilderness characteristics that deserve our protection. It also means pushing back against the tide of compromising away the very essence of wilderness, and resisting the urge to manipulate wild places as if they were gardens to produce some desired future as if we knew what was always best for the land.

We need Wilderness, real Wilderness. Now, more than ever.

\textsuperscript{307} \textit{Id.} § 3, 103 Stat. at 1334.
\textsuperscript{308} \textit{The Beginnings of the National Wilderness Preservation System: Trivia at a Glance}, http://www.wilderness.net/NWPS/fastfacts (June 2, 2014). Consider also that of the roughly 109 million acres of Wilderness, about forty percent of these lands are managed by the National Park Service.
\textsuperscript{309} \textit{See} Anthony D. Barnosky et al., \textit{Approaching a State Shift in Earth’s Biosphere}, 486 \textit{Nature} 52, 54 (2012); \textit{see generally} Richard T. T. Forman, \textit{Estimate of the Area Affected Ecologically by the Road System in the United States}, 14(1) CONSERV. BIOLOGY 31 (2000) (estimating that nineteen percent of the total area of the U.S. is directly affected ecologically from roads and traffic).