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

Objection submitted electronically via:
https://cara.ecosystem-management.org/Public/CommentInput?project=44589, Attachments hand-delivered.

OBJECTION – Helena - Lewis & Clark Revised Forest Plan and Final Environmental Impact Statement

Dear Objection Reviewing Officer,

Pursuant to 36 CFR 219 Subpart B, and by means of this letter the parties listed below object to the revised Land Management Plan for the Helena - Lewis & Clark National Forest (Revised Plan) and corresponding Final Environmental Impact Statement (FEIS). The responsible official is Helena - Lewis & Clark National Forest Supervisor William Avey.

The arguments in support of our objection and exhibits are submitted herein. Reference materials used in our arguments that the Forest Service does not already have are attached with this letter. The notice for Opportunity to Object to the Revised Land Management Plan for the Helena-Lewis & Clark National Forest was printed in the Helena Independent Record on May 21, 2020; therefore, this objection is timely.

References when identifying prior comments (objection requirement to tie objections to issues identified in previous comments):

- 2015 Scoping Comment (WildEarth Guardians, Western Watersheds Project, Alliance for the Wild Rockies)

- 2016 DEIS Comment (WildEarth Guardians, Western Watersheds Project, Alliance for the Wild Rockies)

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OBJECTIONS

I. Sustainable minimum road system

The infrastructure plan components are inconsistent with the 2012 planning rule requirements and Forest Service directives, and the Forest Service fails to sufficiently analyze the environmental consequences of the transportation system. In our previous comments, we urged the Forest Service to comply with the substantive mandates of the 2012 planning rule and Forest Service directives.[1] Yet, the revised plan components fail to do so because the Forest Service did not consider the best available scientific information, did not provide standards and guidelines consistent with the sustainability and diversity requirements, omitted a sufficient monitoring program, and failed to provide for a realistic and sustainable desired infrastructure.

A. Failure to Provide for a Sustainable Minimum Road System

In our previous comments, we explained how the Travel Management Rule under Subpart A intersects with the 2012 Planning Rule, and how it is necessary for the Revised Plan to include infrastructure components "...to maintain or restore the ecological integrity of terrestrial and

[1] Guardians DEIS Comment at 3, 6-10, 15.

aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity."[2] Without the identification and implementation of a sustainable minimum road system, the Forest Service will be unable to achieve many of the Revised Plan's components. Unfortunately, our biggest concern we noted in our past comments remains, namely outside of grizzly bear PCA, there is a lack of road density thresholds to ensure an ecologically sustainable road system.[3] This omission makes no sense in light of best available science showing road density thresholds are crucial to protecting wildlife and water quality.[4] We explained previously the importance of including road density standards, especially in order to improve Watershed Condition Framework road and trail indicator scores, and to provide for the protection of riparian areas.[5] The Forest Service failed to incorporate road or motorized route density standards within its components for the riparian management zone or the watersheds section.[6] The Revised Plan lacks any standards for the Conservation Watershed Networks.

Further, the plan components lack direction to work towards a minimum road system, consistent with subpart A of the agency's own rules. Specifically, the Revised Plan fails to ensure the road system provides for the protection of Forest Service system lands and direction for improving habitat and aquatic connectivity. While we recognize the desired conditions call for a "cost-effective" road system that "protects natural resources" and has "minimal impacts on resources," the Revised Plan lacks sufficient corresponding objectives, standards and guidelines.[7] For example, the Revised Plan provides an objective to decommission or place into storage just 50 miles of road.[8] The Forest Service manages 3,651 miles of road in the planning area, and 1,082 miles are currently closed.[9] The agency states closed roads do not receive routine maintenance (i.e. basic custodial maintenance) as directed by the Forest Service directives, while another 2,500 mile receive some level of maintenance as funding allows.[10] The Forest Service fails to provide specific analysis, namely disclosing or discussing how many miles meet their operational and objective maintenance levels, or how many miles currently fail to meet their overall road management objectives. It also fails to disclose past or anticipated funding levels for annual road maintenance, or the amount of the current deferred maintenance backlog. As such, it

[2] 36 C.F.R. § 219.8(a)(1), Guardians Draft Plan comments at 1-2, Guardians Scoping comments at 6-15.
[3] Guardians Draft Plan comments at 4.
[4] In previous comments we provided the Forest Service with the paper explaining the benefits of road density thresholds titled "The Wilderness Society, Transportation Infrastructure and Access on National Forests and Grasslands: A Literature Review (May 2014)." Here we provide an update to this paper with 59 additional references in a report titled, "The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System (March 2020)," see Attachment A.
[5] See Guardians scoping comments at 9-10, Guardians DEIS comments at 3.
[6] Revised Plan at 17, (FW-WTR-STD 01-03); and at 18-19 (FW-RMZ-STD 01).
[7] Revised Forest Plan at 103.
[8] *Id.*
[9] FEIS Part 2 at 178.
[10] *Id.*

is not possible to determine how much maintenance is necessary to protect natural resources, or how many miles would constitute a "cost-effective" road system, one that reflects long-term funding expectations as required under subpart A of the TMR.[11] As we raise in previous comments, the only place the Forest Service discusses its road maintenance capacity is in the Assessment for the Revised Plan.

Further, without any discussion of the deferred maintenance backlog, it is not possible to determine if the Revised Plan objective to reduce the backlog by 15% is reasonable.[12] In other words, the analysis fails to provide enough information to allow for meaningful comment and support for the objective to decommission or store just 50 miles over the life of the plan, which averages to only 3.5 mile/year and represents just 1.4 percent of all forest system roads. Further, providing the option to store rather than decommission a road means the Forest Service can retain and expand its existing system, which is hardly cost-effective or provides for the protection of natural resources. In fact, we commented that the lack of direction to remove roads ignores the agency's own rules instructing the Forest Service to prioritize unneeded roads for decommissioning.[13] The objective also fails to even begin to address the gap between the existing road system on the HLC's landscape and what the agency can afford to maintain based on long-term funding expectations. Further, the Revised plan lowered the range of roads it proposes to reconstruct (from 100-300 miles to just 100 miles) and the range of roads it proposes to maintain (from 100-300 miles to just 100 miles).[14] Lowering the objectives compounds the Revised Plan's inadequacy that we explain in previous comments further hindering the agency's ability to make progress toward the Desired Condition of a "safe and cost effective transportation system" given the 3,600 miles of system roads on the HLC, growing deferred maintenance backlog, and declining funding for road maintenance.

As we stated in our previous comments, the Forest Service needs to provide clear direction to remove roads, especially those that pose high or moderate resource risks. As it stands, the Revised Plan retains the same components in which we commented previously as being insufficient to ensure the Forest Service actually improves habitat and aquatic connectivity.[15] Therefore, our previous comments apply to the Revised Plan and, again, fail to actually improve habitat and aquatic connectivity. Similarly, the Revised Plan components are insufficient to ensure compliance with the CWA, including the Forest Service's duty to not cause or contribute to a violation of Montana water quality standards.[16] While the Revised Plan includes numerous guidelines, they do not carry the force or effect as would standards, which precludes the agency

[11] 36 C.F.R. § 212.5(b)
[12] Revised Plan at 103, (FW-RT-OBJ 06).
[13] 36 C.F.R. § 212.5(b)
[14] See Guardians' DEIS comments at 4 compared with Revised Plan road objectives at 103.
[15] See Guardians DEIS comments at 4-5.
[16] See Guardians DEIS comments at 4-5.

from identifying or working towards an ecologically and fiscally sustainable minimum road system, contrary to Subpart A of the Travel Management Rule and the 2012 Planning Rule.

Suggested Resolution: Establish road and motorized trail density standards to provide for the protection of National Forest Service System Lands, and clear direction to identify and implement a minimum road system over the life of the plan. In addition to establishing road and motorized trail density standards, the Forest Service should convert guidelines FW-RT-GDL 01-13 into standards.

B. *Best Available Science*

The Forest Service must use the best available scientific information to inform the planning process, and in doing so must determine what information is the most accurate, reliable, and relevant. 36 C.F.R. § 219.3. It must document how the best available information was used, and explain how the information was applied to the issues considered. As set forth below in the sections outlining how the analysis of infrastructure plan components fails to comply with NEPA or the ESA, the Forest Service fails to use the best available scientific information.

C. Sustainability & Diversity

In our previous comments, we clarified the agency's duty under the 2012 Forest Planning Rule to include appropriate provisions related to ecosystem integrity, sustainability, and diversity of plant and animal communities.[17] We explained the draft revised forest plan improperly relied on flawed population estimates and flawed habitat-based recovery criteria; failed to adequately measure motorized route density and failure to account for impacts; and erroneously refers to grizzly bears as recovered.[18] The final Revised Forest Plan fails to correct these deficiencies. Notably, the final revised plan lacks sufficient standards or guidelines for sustainable infrastructure to maintain or restore the ecological integrity of terrestrial ecosystems in the plan area.[19] It fails to include adequate infrastructure standards or guidelines to maintain or restore the diversity of ecosystems and habitat types throughout the plan area.[20] The revised plan components (forest-wide and species-specific) do not provide the ecological conditions necessary to contribute to the recovery of federally threatened grizzly bears.[21]

[17] Guardians Draft Plan comments at 7, 10.
[18] *Id.* at 10.
[19] 36 C.F.R. § 219.8(a)(1).
[20] 36 C.F.R. § 219.9(a)(2).
[21] 36 C.F.R. § 219.9(b)(1).

The Forest Service explains the Revised Forest Plan retains grizzly bear management direction from the Forest Plan Amendments to Incorporate Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population (Grizzly Bear Amendments).[22] The Forest Service suggests grizzly bear recovery is successfully proceeding with over 1,000 bears in the NCDE and geographic expansion well outside the recovery zone.[23] In reality, the NCDE grizzly bear population is still listed as threatened, and the Forest Service erroneously suggests the Grizzly Bear Amendments incorporated into the Revised Forest Plan will be sufficient for both the survival and recovery of the species.[24] The fundamental flaw with this assumption is that instead of working towards maintaining or restoring the ecological integrity of terrestrial ecosystems and diversity of ecosystems and habitat types, the applicable infrastructure plan components focus on sustaining baseline road levels from 2011. Specifically, PCA-NCDE-STD 03 applies a "no net increase" standard for maintaining baseline (2011 level) open motorized route density and total motorized route density during the non-denning season, and a "no net decrease" for secure core areas.[25] Undermining this standard are numerous exemptions from the baseline calculation, including "updated or improved data on a motorized route without an actual change on the ground;" and "temporary roads."[26] The only standard that limits the length of time a temporary road may remain on the ground is RM-CMA-STD-02 that directs temporary road restoration within three years of project completion.[27] Within the remainder of the PCAs, and indeed forest wide, no limits exist for how long a temporary road may persist on the ground, and the Revised Plan fails to require full removal and recontouring of temporary roads. Even with a three year time frame for "restoration," a temporary road may remain on the ground for several years during project implementation, especially for large, landscape scale projects that may take 5, 10 or even 15 years to complete. The Forest Service must include temporary roads in its baseline calculations total motorized route density and habitat security when those roads may physically exist on the ground and include them in open motorized route density calculations when being used for project implementation. In addition, the Forest Service must clarify that unauthorized roads, whether their status is undetermined or some other internal label, must not be added to the road system as a matter of simply updating or improving motorized route data, even if such roads existed in 2011.

Further watering down PCA protections are forest-wide standards under PCA-NCDE-STD 04 that allows temporary changes in the open motorized route density, total motorized route density, and secure core for project roads in the NCDE primary conservation area during the non-denning season, based on estimated changes for each year of the project, which are then incorporated into

[22] FEIS Part 1 at 315
[23] *Id.* at 318
[24] FEIS Part 1 at 335
[25] Revised Forest Plan at 59
[26] *Id.*
[27] *Id. at 184*

the 10-year running average required by PCA-NCDE-STD-03.[28] We further discuss the Revised Plan's failings to provide components that will recover grizzly bears in Section III below. All together, these plan components are insufficient to maintain or restore the ecological integrity of terrestrial ecosystems, diversity of ecosystems and habitat types, or the recovery of threatened grizzly bears.

D. Connectivity

Compounding this fundamental flaw with the Revised Plan is the lack of sufficient plan components that will ensure grizzly bears and other at-risk species have secure habitat within areas of connectivity as required by the 2012 Planning Rule, all of which we explained in our previous comments.[29] The guidelines provided for grizzly bear connectivity in the Divide and Upper Blackfoot GAs lack the necessary specificity to provide adequate habitat security and, as we explained, guidelines do not hold the legal strength of a Standard, and as such these plan components are insufficient to ensure habitat connectivity. What is required is the same habitat security standards for grizzly bear connectivity areas as those provided in the PCA.[30] The Forest Service describes at length the amount of grizzly bear habitat with Zones 1, 2 and 3 that fall within some protected status as a demonstration of the amount of connectivity areas that already fall within secure grizzly bear habitat.[31] What is missing from the analysis are the number of acres within areas of connectivity outside of a protected status. More glaring is the fact that the Revised Plan lacks any standards that provided for habitat security within these unprotected areas, and therefore cannot provide for the maintenance or restoration of grizzly bear connectivity areas. For example, the Forest Service states, "The goal for zone 2 is to maintain the potential for genetic connectivity between adjacent ecosystems."[32] Yet, the Revised Plan lacks any standards or sufficient guidelines within zone 2 to provide grizzly bears the requisite habitat security necessary to utilize areas of connectivity.

E. Monitoring

Under the 2012 planning rules, the Forest Service must develop a monitoring program that enables the responsible official to determine if a change in plan components is needed. 36 C.F.R. § 219.12(a). Monitoring is meant to increase knowledge and understanding of changing conditions, uncertainties, and risks identified in the best available scientific information as part of an adaptive management framework. The requirement to consider best available science is

[28] *Id.*
[29] Guardians Draft Plan comments at 13-14.
[30] FEIS at 325, ("For this analysis secure habitat includes areas that are > 500m from any motorized route and that are >2500 acres in size)." Revised Plan at 59, PCA-NCDE-STD-03.
[31] FEIS at 327-329, and 334.
[32] FEIS, Appendix G at 93.

meant to help identify indicators that address associated monitoring questions, and to further development of the monitoring program. FSH 1909.12, § 07.11. According to the Forest Service's planning directives, the objective of a plan monitoring program is to, inter alia, enable the responsible official to determine if a change in plan components or other plan content applicable to the plan area may be needed, and to inform the management of resources on the plan area, through means such as testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving the plan's desired conditions or objectives. FSH 1909.12, ch. 30.2.

As we commented previously, the Forest Service's proposed monitoring plan components for Roads and Trails is extremely limited, and proposes to track only Desired Conditions and Objectives.[33] It fails to comply with the 2012 Planning Rule requirements and is inconsistent with the agency's own planning directives. As just one example, to monitor progress towards achieving the Desired Condition FW-RT-DC-01 of a safe and cost-effective transportation system, the Forest Service proposes to measure the number of miles decommissioned *or converted.*[34] Road miles converted but not decommissioned will remain on the system, and therefore do not work towards a safe and cost-effective transportation system. By lumping this number with the number of road miles decommissioned, the Forest Service's monitoring plan will mask any real progress towards a cost-effective road system. The other measurement lacks the necessary context and therefore also masks any progress towards the desired condition. By focusing on the percent of decommissioned roads that were identified by subpart A, as opposed to the percent of decommissioned roads out of the total system road miles on the landscape (3,600), the Forest Service's proposed monitoring will mask any progress. To be clear, we support the Forest Service tracking how much it is achieving compliance with subpart A, however, the percent of roads decommissioned fails to achieve this measure. Rather, the monitoring plan should include the following:

- miles of road identified as part of the minimum road system and the corresponding percent compared to the overall road system;
- the number of acres where the agency has identified the minimum road system and the corresponding percent compared to all the roaded acres on the forest;
- the miles of unnecessary roads decommissioned and the corresponding percent compared to all roads identified as unnecessary.

Further, the monitoring plan lacks any mechanism to track how well the Forest Service is achieving a cost-effective road system (FW-RT-DC-01) because the indicators for MON-INFRA -02 lack context. In other words, simply reporting the miles of roads and trails improved

[33] See Final Plan, Appendix B at 19.
[34] Id., emphasis added.

or maintained does little to measure if the road system is actually cost-effective or if it reflects long-term funding expectations. Specifically, the monitoring plan must ask how many road miles meet their Road Management Objectives, and how many miles are maintained to their objective maintenance level.

Further, the monitoring plan fails to ask questions or provide indicators pertaining to the capacity for road maintenance. The monitoring plan needs to ask what are the current funding levels for annual road maintenance and how does that compare with the need for annual maintenance. It also must ask how much is the deferred maintenance backlog and how much is it being reduced on an annual basis. Without tracking the agency's capacity for maintaining its road system there is no way to determine if it's actually cost-effective.

As it stands, the monitoring plan will not enable the responsible official to determine if a change in plan components or other plan content applicable to the plan area may be needed.

F. Forest Service Directives

This revised plan fails to comply with Forest Service directives. For example, under the Forest Service's planning directives, plan components should "reflect the extent of infrastructure that is needed to achieve the desired conditions and objectives of the plan" and "provide for a realistic desired infrastructure that is sustainable and can be managed in accord with other plan components including those for ecological sustainability."[35]

But here, the revised plan components for infrastructure fail to even consider whether the desired condition of maintaining 2011 baseline levels for roads is needed to achieve the desired conditions and objectives of the plan. And the desired infrastructure is not sustainable. Forest-wide objective FW-RT-OBJ 03 seeks to annually maintain just up to 100 miles of roads.[36] In 2019, the Forest Service maintained just 178 miles of system roads—that's only 4.9 percent of the total 3,651 miles on the forest.[37] Given the economic realities and limited agency capacity acknowledged in the FEIS analysis, the 2011 baseline level for roads is not sustainable and cannot be managed in accord with other plan components including those for ecological integrity. The infrastructure plan components are not "within . . . the fiscal capability of the unit."[38] Indeed, the forest-wide objective FW-OBJ-IFS 01 to decommission or place into storage only 50 miles of roads further demonstrates how the revised plan components for infrastructure fail to comply with the directives.

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[35] FSH 1909.12, ch. 20 § 23.231(1)(b), 23.231(2)(a).
[36] Revised Plan at 103.
[37] FEIS Part 2 at 178.
[38] FSH 1909.12, ch. 20 § 23.231(1)(c)

Suggested Resolution: Revise the infrastructure plan components to reflect best available scientific information, comply with the 2012 planning rule requirements for sustainability and diversity, and include a monitoring plan with meaningful timelines and parameters that enables the responsible official to determine if a change in plan components is needed. Revise infrastructure plan components to work towards a realistic desired infrastructure that is sustainable and can be managed along with plan components for ecological sustainability, consistent with the planning directives.

II. Sustainable Recreation Planning and Management

The 2012 planning rule establishes ecological sustainability as the overarching goal of planning, and directs that land management plans should provide people and communities with ecosystem services and multiple uses that provide a range of benefits – including recreational, educational, and spiritual – for the present and into the future.[39] To achieve this, the rule requires the Forest Service to provide for "sustainable recreation," which the rule defines as "the set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations."[40]

In regard to the intersection between sustainable recreation and protecting environmental resources, the planning rule requires plan components, including standards or guidelines, to ensure achievement of the substantive provisions related to ecological integrity, sustainability, and diversity.[41] The planning rule also requires the plan to include "plan components, including standards and guidelines, to provide for…[s]ustainable recreation, including sustainable settings...."[42] The Forest Service, therefore, has an obligation to develop plan components guiding the management of recreation settings, opportunities, infrastructure, and access that enable the agency to achieve these substantive provisions.

As it stands, the sustainable recreation plan components fail to comply with the 2012 Planning Rule as we urged they do in previous comments. The 2012 planning rule requires plan components, including standards and guidelines, to ensure achievement of the substantive provisions related to ecosystem integrity, sustainability, and diversity of plant and animal communities.[43] By failing to provide meaningful direction for managing motorized recreation,

[39] 36 C.F.R. § 219.1(c).
[40] Id. § 219.19.
[41] 36 C.F.R. §§ 219.8(a) and 219.9
[42] 36 C.F.R. § 219.10(b)(1)(i)
[43] 36 C.F.R. §§ 219.8, 219.

the revised plan components for sustainable recreation fail to comply with the 2012 planning rule requirements.

A. Failure to incorporate the minimization criteria

In our previous comments we explained the need for the Revised Plan to include components, especially standards and guidelines, that will ensure consistency with the Travel Management Rule or Executive Orders 11644 and 11989 (ensuring travel management planning consistent with the minimization criteria). The Forest Service failed to adequately respond to this comment as evidenced by the lack of such components in any of the specific recreation sections of the Revised Plan. Subparts B and C of the Travel Management Rule (TMR) require that motorized use occur only on a designated system of roads, trails and areas. The Executive Orders establish that off-road vehicle trails and areas must be located to minimize damage to forest resources and existing and potential recreation uses. The executive orders also include protective mechanisms designed to ensure that off-road vehicle designations are not impairing the protection of public lands. Specifically, they obligate the Forest Service to: 1) periodically monitor the effects of off-road vehicle use, and based on the data amend or rescind the off-road vehicle designations, and 2) immediately close areas and trails to off-road vehicle use if the Forest Service 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 … until such time as [the agency] determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence."

Although travel management for the most part is decided in conforming project-level plans and decisions, land management plans should reinforce the travel management rule's provisions and requirements in standards, and provide the necessary detail on how the Forest Service will carry out and comply with the executive order provisions. Additionally, to the degree land management plans allocate areas as suitable for motorized use, these allocations are subject to the minimization criteria established in the executive orders. Yet, the Revised Plan lacks components incorporating the minimization criteria, which are necessary to meet the 2012 Planning Rule's sustainability and diversity requirements. Specifically, the plan must include standards that establish the Forest Service will apply the Executive Order minimization criteria to projects that propose to create or modify off-road vehicle area or trail designations. Application of the criteria requires the Forest Service to demonstrate how each area and trail as well as the aggregate system minimizes – not just considers – impacts to forest resources and other existing and projected recreation uses.

To the extent that motorized recreation occurs on system roads, plan components must ensure that such access and use is sustainable. To that end, it is necessary to also apply the minimization

and monitoring concepts in the Executive Orders to motorized recreation occurring on roads. Specifically, standards and guidelines should ensure that:

- all motorized designations minimize impacts;
- are periodically monitored, reviewed, and modified as needed; and
- are modified immediately when considerable adverse damage is occurring.

These plan components are necessary to ensure that recreation is sustainable regardless whether it occurs on a trail, in an area, or on a road. Yet, the Revised Plan lacks any components incorporating the minimization criteria. Such failure means that the Forest Service has not met its requirements to provide for sustainable recreation.

B. Sustainability, Diversity of Plant and Animals

The lack of standards to incorporate the minimization criteria compounds the Revised Plan's additional failure to ensure recreational components comply with the 2012 Planning Rule's requirements for sustainability and diversity of wildlife.[44]

In particular, components for the grizzly bear primary conservation area include a standard related to OSV use. It requires no net increase in percentage of area or miles of routes designated for OSV use on National Forest Service lands within modeled grizzly bear denning habitat in the NCDE primary conservation area during the den emergence time period.[45] This "no net increase" approach allows for changes to OSV routes and areas within the NCDE primary conservation area, thereby ignoring cumulative impacts and residual effects to grizzly bears during den emergence time period. By allowing new disruption and habitat fragmentation as a result of changes to routes or areas within a "net" existing footprint, this standard fails to maintain or restore the ecological integrity of terrestrial ecosystems, contrary to the 2012 planning rules. In addition, ***outside*** of the primary conservation area the revised plan lacks any standards or guidelines to protect denning grizzly bears from winter motorized recreation; to protect grizzly bears emerging from dens that are outside of Montana state's modeled denning habitat; or to protect grizzly bears denning or emerging from dens. The revised plan lacks standards and guidelines to maintain or restore ecological conditions on the HLC to maintain a viable population of grizzly bears within its range.[46]

[44] 36 C.F.R. §§ 219.8(a) and 219.9.
[45] Revised Plan at 61, (PCA-NCDE-STD 09).
[46] 36 C.F.R. § 219.9(b)(2).

Moreover, the revised plan fails to include standards or guidelines for sustainable recreation to maintain or restore the diversity of ecosystems and habitat types throughout the plan area.[47] For example, it lacks any standards protecting Canada lynx or wolverine from recreational use, in particular over-snow vehicle use. In fact, certain recreation plan components—like the "no net increase" standard for grizzly bear primary conservation area expose threatened wildlife species to new harms and threaten key characteristics associated with terrestrial and aquatic ecosystem types. Further, while the Revised Plan includes some general guidelines in specific geographic areas, these fall short of ensuring existing motorized use is sustainable and fails to adequately protect from expanding motorized recreation given they are merely guidelines and not standards. For example, in the Upper Blackfoot and Divide GAs the Revised Plan includes a guideline that states, "[m]otorized access should not be increased."[48] By failing to include specific standards, or even guidelines for the protection of lynx and wolverine from winter motorized use, and direction to ensure current use is consistent with the minimization criteria as we note above, the Revised Plan fails to provide for sustainable recreation or to maintain or restore the diversity of ecosystems and habitat types, and provide ecological conditions necessary to contribute to the recovery of threatened species, and conserve proposed species.[49]

C. Monitoring

As explained above, the objective of a plan monitoring program is to, inter alia, enable the responsible official to determine if a change in plan components or other plan content applicable to the plan area may be needed, and to inform the management of resources on the plan area, through means such as testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving the plan's desired conditions or objectives.[50] As we explained in our previous comments, none of the recreation monitoring questions or indicators track whether recreational uses on the forest are sustainable.[51] While the monitoring plan does include indicators to measure reported instances of resource damage or social conflict, it is not clear if those reports originate from the Forest Service law enforcement databases or what mechanism the agency will use to track such reports.[52] The monitoring plan should specify the source of such reports. Further, the monitoring plan should clarify how reports of damage and social conflict will be generated. The Forest Service cannot simply rely on public

[47] 36 C.F.R. § 219.9(a)(2).
[48] Revised Plan at 151, 201, (DI-WL-GDL 01, UB-WL-GDL 01).
[49] 36 C.F.R. § 219.9.
[50] FSH 1909.12, ch. 30.2.
[51] See Draft Plant, Appendix B at 15 (unclear what the Forest Service is measuring for ROS, noted above or measuring sites and facilities "changed or improved" without explaining how those improvements will be assessed or whether those improvements represent more sustainable recreation); 19 (measuring miles of trails maintained or improved, without comparison to the total number of trail miles on the forest or number of trail miles the Forest Service can afford based on long-term funding expectations).
[52] Revised Plan, Appendix B at 16, (MON-REC-02).

reports or complaints, but in fact, the agency must include specific actions to proactively monitor for motorized violations through law enforcement patrols and overflights, as well as other efforts with cooperating agencies and partners. Without robust and proactive monitoring, the Forest Service cannot track compliance with the guidelines and standards within the Revised Plan. As such the Forest Service's monitoring plan components for sustainable recreation fail to comply with Forest Service directives.

Suggested Resolution: Incorporate the minimization criteria as desired conditions and standards. Provide specific standards to protect winter wildlife habitat from over-snow vehicle use. Improve the monitoring plan to better track compliance with plan components that provide protections from motorized use.

III. The Revised Plan fails to protect fish and wildlife or corresponding habitat

The 2012 Planning Rules require Forest Plans to maintain the diversity of plant and animal communities and the persistence of native species in the plan area.[53] In particular, the HLC's Forest Plan must include plan components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types throughout the plan area.[54]

In addition, the Forest Service must also ensure that its actions comply with the Endangered Species Act (ESA). Best available science demonstrates that forest roads and motorized use (including winter OSV use) negatively impact bull trout, Canada lynx, wolverine, and grizzly bear, species that are listed or proposed for listing under the Endangered Species Act (ESA). Section 7 of the ESA imposes a substantive obligation on federal agencies to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of" habitat that has been designated as critical for the species.[55] The Forest Service must consult with the U.S. Fish and Wildlife Service (FWS) under section 7 of the ESA as to the impacts of the project on species listed under the ESA and designated critical habitat. The process is different where a species is proposed for listing (like the wolverine) or critical habitat is proposed. Section 7(a)(4) of the ESA requires a Federal action agency to conference with the Services if a proposed action is likely to jeopardize a proposed species, or destroy or

[53] 36 C.F.R. § 219.9.
[54] Id. § 219.9(a)(2).
[55] 16 U.S.C. § 1536(a)(2); Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917, 924 (9th Cir. 2008).

adversely modify proposed critical habitat.[56] The agencies must record any results of a conference.[57]

At the time of this objection period, the FWS Biological Opinion is not available for public review, and as such, the Forest Service must provide an additional opportunity for the public to provide meaningful comment on the Revised Plan Bi-Op before issuing a final decision on the Revised Plan.

A. Bull Trout

The Revised Plan components do not provide the ecological conditions necessary to contribute to the recovery of federally threatened bull trout and its designated critical habitat as required by the 2012 Planning Rule.[58] In our previous comments we outlined the legal framework protecting bull trout, and explained how the Forest Service's Draft Plan ignores and weakens INFISH's management direction. Further, we explained the need to strengthen INFISH standards given the FWS's 1998 Bull Trout Biological Opinion that "[t]he species will persist, but most likely not recover under [INFISH's] direction."[59] Rather than strengthening the INFISH management direction or incorporating the plan components we provided in previous comments, the Revised Plan omits the necessary standards or guidelines to ensure bull trout recovery and the protection of designated critical habitat. As it stands, the Revised Plan components weaken bull trout protections, which is especially concerning given that migratory bull trout numbers are declining on the west side of the planning area due to changes in climate, habitat alterations, and invasive species.

For example, the Revised Plan attempts to incorporate some INFISH management direction into its standards for Riparian Management Zones, but splits them into inner and outer zones explaining, "[s]ome activities are prohibited or restricted in the inner zone, whereas more active management can occur in the outer zone. RMZs are not intended to be "no touch zones," but rather "carefully managed zones" with an increase in protections in close proximity to water resources."[60] Yet, the Revised Plan and FEIS fail to demonstrate how such "careful management" provides for bull trout recovery. This is especially problematic given the

[56] 16 U.S.C. § 1536(a)(4); 50 C.F.R. § 402.10(a). See also 50 C.F.R. § 402.02 (defining "[c]onference" as "a process which involves informal discussions between a Federal agency and the Service under section 7(a)(4) of the [ESA] regarding the impact of an action on proposed species or proposed critical habitat and recommendations to minimize or avoid the adverse effects.")
[57] Id. at § 401.10(e) ("The conclusions reached during a conference and any recommendations shall be documented by the Service and provided to the Federal agency").

[58] 36 C.F.R. § 219.9(b)(1).
[59] Guardians scoping comments at 26.
[60] Revised Plan at 19.

allowances and exemptions in the Revised Plan standards and guidelines as we noted in previous comments. For example, salvage logging is permissible within the outer RMZ, as is other vegetation management "so long as project activities within RMZs do not prevent attainment of desired conditions for wildlife and the inner RMZ."[61] Yet, the desired conditions for RMZs do not include the recovery of threatened, endangered or other at-risk species. Rather, other sections of the Revised Plan are meant to address bull trout recovery, but fail to do so.

In particular, the Forest Service fails to include sufficient desired conditions, standards or guidelines to achieve or ensure protection and recovery of bull trout and its habitat on the HLC NF. In Fisheries and Aquatic Habitat (FAH) the Revised Plan includes the following Desired Condition: "[s]treams, lakes, and rivers provide habitats that contribute toward recovery of threatened and endangered fish species and address the habitat needs of all native aquatic species, as appropriate."[62] Yet, the Forest Service fails to provide the necessary direction to clarify what is "appropriate," and further, fails to provide standards that would quantify what the agency means by "contribute." In practice, the corresponding objectives, standards, and guidelines could perpetually contribute to bull trout recovery without ever actually achieving it.

Similarly, the Conservation Watershed Network (CWN) lacks standards and includes insufficient guidelines to achieve its desired condition, which is all the more glaring since the Revised Plan explains, "[t]he conservation watershed network is a specific subset of watersheds (10 or 12-digit hydrologic unit codes) where prioritization for long-term conservation and preservation of water quality, bull trout, and pure westslope cutthroat trout occurs."[63] The CWN objectives and guidelines fail to direct removing unnecessary roads, or those that pose a high and moderate risk of sedimentation to fish occupied streams. Rather, the guidelines direct that there should be "no net increase" in stream crossings and road lengths within the Riparian Management Zone, and that roads in CWN subwatersheds should be prioritized for decommissioning, but that closure, relocation and "other strategies" are acceptable.[64] To be clear, adding new stream crossings and increasing road lengths runs counter to established science and evidence demonstrating the harm from forest roads, culverts and stream crossings. Simply calling for a no-net increase will do little to protect bull trout or its designated critical habitat from new disturbance or exacerbating ongoing sedimentation from any remaining roads or stream crossings. In fact, these guidelines all but guarantee that existing road densities, including those that result in degraded ecological integrity and the hindrance of bull trout recovery, will persist within these subwatersheds. This is especially true given that the guidelines allow for roads to remain in the watershed rather than requiring their removal through decommissioning treatments that fully recontour or obliterate the

[61] *Id.*
[62] Revised Plan at 22, (FW-FAH-GO 01).
[63] *Id.* at 23-24
[64] Revised Plan at 24 (FW-CWN-GDL 01 and 02).

road. Just as concerning is the lack of any standards that ensure stream temperatures along bull trout occupied streams do not exceed tolerance levels within CWN subwatersheds.

The need for more protective plan components is evident when looking at past FWS Biological Opinions and management direction in other areas occupied by bull trout. For example, the former Flathead National Forest Plan Amendment 19 required the agency to reclaim roads according to stringent requirements to meet road density standards throughout the Forest. One of these reclamation requirements was to remove all stream-aligned culverts from the reclaimed roads so that orphaned culverts in otherwise closed parts of the road system would not cause sedimentation in trout streams.[65] Although Amendment 19's primary purpose was to protect grizzly bears, managers also concluded that the Amendment 19 standards were important to conserve bull trout and other fish species in the Forest.[66] In addition to the Amendment 19 requirements, under a 2015 programmatic biological opinion governing road maintenance activities throughout western Montana, the Forest Service was required to inspect annually any culverts remaining on closed roads.[67] Given the Forest Service's reliance on project design criteria or features to mitigate harmful effects to bull trout, management direction for individual projects within bull trout habitat are particularly relevant, such as the Chilly James Restoration Project that included annual culvert monitoring.[68] Yet, the Revised Plan lacks adequate road reclamation and culvert monitoring requirements, thereby subjecting bull trout to new threats of erosion and sedimentation when culverts are left in place on unused roads.[69] Further, the Revised Plan fails to adequately consider the fact that roads increase rates of water transport during storm or snowmelt events, elevating water yields well above natural, with damaging effects.

In fact, the Revised Plan and FEIS fail to account for the damage roads and motorized use cause or the fact that road density standards are an effective means to minimize harm to at-risk fish species and bull trout in particular.[70] In previous comments we provided evidence of this fact, in particular Frissell, 2014.[71] In Section I above, we discuss the Forest Service's failure to disclose,

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[65] Amendment 19 EA, app. D at 2.
[66] See A19 Decision Notice at 65-67.
[67] See FWS, Biological Opinion on the Effects to Bull Trout and Bull Trout Critical Habitat from the Implementation of Proposed Actions Associated with Road-related Activities that May Affect Bull Trout and Bull Trout Critical Habitat in Western Montana, at 99 (Apr. 15, 2015) (Appendix E).
[68] See Flathead National Forest, Chilly James Restoration Project, Decision Notice / FONSI, at DN-2 (Apr. 2016).
[69] Revised Plan, Appendix B at 5, (MON-FAH-02 that pertains only to constructed/upgraded/removed culverts, but not those that remain in place outside of project area boundaries.
[70] See also The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System (March 2020) at 9.
[71] *See* Frissell, C.A. 2014.Comments on the Revised Draft Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus), U.S. Fish and Wildlife Service Portland, Oregon. Submitted to USFWS 14 December 2014. *See also* Attachment B, Frissell, C.A. 2015 Comments on the USFWS Revised Draft Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus) (Changes in Bull trout Recovery Criteria) and Associated Draft Recovery Unit Implementation Plans, June 2015.

discuss or analyze the lack of capacity for road maintenance and the deferred maintenance backlog, all of which exacerbates the harmful effects roads cause to bull trout. A fact that the FEIS fails to analyze and the Revised Plan fails to address.

Further, the Forest Service fails to analyze or provide sufficient plan components to address unauthorized motorized use and its effects on bull trout as well as other at risk species. The Alliance for the Wild Rockies recently sent a FOIA request to the Forest Service for records of road closure violations between mid-2014 and mid-2019. In response, the Forest Service disclosed over hundreds of road closure violations in the bull trout habitat. Significantly, this data only includes the witnessed and reported violations. It is fair to assume that there are many more violations that regularly occur and are not witnessed and reported. It is also fair to assume that the Forest Service has made no effort to request this available information from its own law enforcement officers, much less incorporate it into the Revised Plan's analysis. This is a fatal flaw in the analysis and the Revised Plan considering the agency's own admissions that road density is the primary factor that degrades elk and grizzly habitat, but also bull trout habitat. The Forest Service's own law enforcement division has records that demonstrate that within the five-year period from mid-2014 to mid-2019 it found hundreds of violations of road restrictions. It is unknown how many other violations occurred that were either not witnessed, or witnessed but not reported to law enforcement. Nonetheless, these recurring violations demonstrate that illegal road use is a chronic problem. Accordingly, all road density calculations by the Forest Service that ignore these recurring violations are likely inaccurate and therefore significantly underestimating both the amount of actual road use on National Forest lands and actual effects on bull trout and other at risk species. Although the law enforcement division of the Forest Service maintains these records, there is no analysis of this information in any type of monitoring report by the management divisions of the Forest Service. Therefore, the agency has never quantified the number of miles of additional motorized use that these hundreds of violations represent. This is particularly troubling because such monitoring reports are legally required by at least three different Biological Opinions/Incidental Take Statements in addition to the Biological Opinions/Incidental Take Statements for the Revised Plan. By acting with deliberate indifference to these monitoring report requirements, the Forest Service renders these ESA consultations empty and meaningless paper exercises that undermine the very purpose of the Endangered Species Act.

In response to these issues and previous comments, the Forest Service asserts the following:

> The 2020 Forest Plan was developed following the 2012 Planning Rule and is in-tended to protect aquatic resources. The 2020 Forest Plan contains standards, guidelines and objectives to meet obligations under the Clean Water Act, Endangered Species Act (ESA), NFMA, and Federal Land Policy and Management Act. While any management

> or development carries risk to aquatic resources, the standards and guidelines in the 2020 Forest Plan as well as National BMPs and State of Montana SMZ rules were developed to mitigate potential impacts to aquatic ecosystems. The Forest agrees that native trout species that inhabit the plan area are important to protect and that roadless areas provide important refugia that minimize sediment and maintain temperatures and habitats in the face of climate change.[72]

We disagree. The Forest Service violated the ESA, NEPA, NFMA, the Clean Water Act, and the APA by arbitrarily dismissing the threat to bull trout posed by road building, road use (both authorized and unauthorized) and the proliferation of human use of roads and trails permitted under the Revised Plan.

Suggested Resolution: Withdraw the draft Decision for the 2020 Forest Plan and the Forest must re-consult with the FWS on the effects of the road closure violation and the 2020 Forest Plan on bull trout. After this is done the Forest Service should write a supplemental EIS for the 2020 Forest Plan that fully complies with the law.

B. Grizzly Bear

Grizzly bears are an iconic species in the Crown of the Continent landscape. Grizzly bears in the Northern Continental Divide Ecosystem ("NCDE") are currently listed as "Threatened" under the ESA. Accordingly, the Forest Service is required to provide necessary habitat protections to aid the species' recovery. We wrote extensively in our previous comments about the effects to grizzly bears from the revised Forest Plan including potential disturbance or displacement due to human presence, road construction and use, motorized use and other mechanized equipment. We commented that the presence of these activities and the presence of roads may lead grizzly bears to avoid otherwise suitable habitat. In response to our comments the Forest Service asserts:

> The 2020 Forest Plan includes several components related to motorized route density that are associated with the Northern Continental Divide Ecosystem Grizzly Bear Amendment. Standard Z1-NCDE-STD-01 limits motorized route density in zone 1 (see plan for definition) to the baseline level, while standards PCA-NCDE-STD-01 through 04 collectively set limits on open and total motorized route density in the primary conservation area (see 2020 Forest Plan glossary for definition). As noted in section 3.14.5 of the FEIS, motorized route density is a widely used measure of grizzly bear habitat security and numerous studies have found a relationship between open road density and grizzly bear occupancy, mortality risk, and abundance. A more thorough discussion of the scientific basis for these standards and their effects on wildlife can be found in the Final EIS. The impact of road density on elk is described in section 3.15.5 of the FEIS.

[72] FEIS, Appendix G at 48.

> Additionally, road density is limited even in areas that are not affected by plan direction related to grizzly bear due to the fact that 20% of the forest is in designated wilderness and 50% is in IRAs. As noted in section 3.14.6 of the FEIS, plan components associated with these designated areas provide large areas of high-quality habitat for a wide variety of wildlife species. Additional plan components such as DI-WL-GDL-01, UB-WL-GDL-01, and RM-CMA-STD-01 limit road construction or motorized access in specific areas to help provide for wildlife habitat and connectivity.
>
> Desired conditions Z1-NCDE-DC-01 and PCA-NCDE-DC-01 both express a desire to continue providing motorized access within zone 1 and the primary conservation area for a variety of public uses.[73]

The response is inadequate and fails to account for our previous comments and the objection we submitted regarding the Grizzly Bear Conservation Strategy Amendments as part of the Flathead Forest Plan Revision comment process. As such, the HLC repeats the mistakes made by the Flathead National Forest, including but not limited to: (1) improper reliance on the now final NCDE Conservation Strategy; (2) improper reliance on flawed population estimates and flawed habitat-based recovery criteria; and (3) failure to adequately measure motorized route density and failure to account for impacts. Since grizzly are listed as threatened under the Endangered Species Act, management decisions shall favor the needs of the grizzly bear when grizzly habitat and other land use values compete. The DROD and FEIS for the Revised Plan fails to properly disclose if adverse project or cumulative impacts are consistent with the requirement to prioritize the needs of the grizzly bear for the applicable Management Situations. Further, additional direction in the Interagency Grizzly Bear Guidelines (IGBG) (1986) for MS1 habitat included the following for timber management:

> Logging and/or fire management activities which will adversely affect grizzly bear populations and/or their habitat will not be permitted; adverse population effects are population reductions and/or grizzly positive conditions; adverse habitat effects are reduction in habitat quantity and/or quality.

The Revised Plan and FEIS fail to properly account for or incorporate this management direction.

In addition, Schwartz et al. (2010) noted that management for grizzly bears require not only the provision of security areas, but control of open road densities between security areas. Otherwise, grizzly bear mortality risks will be high as bears attempt to move across highly roaded landscapes to another security area. As we discussed above in Section I, there needs to be

[73] FEIS, Appendix G at 86.

direction regarding existing motorized route densities located outside of and between security areas, which the Revised Plan fails to include.

Grizzly bears are winter-sleepers rather than true hibernators. The Revised Plan and FEIS fails to adequately account for the fact that high motorized route densities are known to disturb, displace, habituate, and raise mortalities among grizzlies in spring, summer, and fall, there's no logical, or scientific reason to believe they don't do the same to sleeping bears in winter. The Biological Opinion for the Kootenai National Forest Plan is particularly relevant here and states:

> In the CYE and NCDE, incidental take may occur where late season snowmobiling overlaps with grizzly bear post-denning habitat. The incidental take is expected to be in the form of harassment to individual female grizzly bears and/or cubs caused by premature den emergence or premature displacement from the den site area, resulting in reduced fitness of females and cubs. We expect the amount and extent of take would be very low.

The Revised Plan and FEIS subsequently fail to demonstrate that such incidental take is in fact low, admitting that snowmobile effects are expected to increase because of the logging.

Further, the Revised Plan's desired condition for patches which includes a range of larger opening sizes, may result in adverse effects if lack of cover leads to under use of foraging habitat or increased risk of human-grizzly bear conflicts causing mortality of a grizzly bear. Openings created by timber harvest, depending on site conditions, may retain features that interrupt the line of sight and provide cover for bears.[74]

The Revised Plan and FEIS fail to show that the openings to be newly created by such projects do not exceed levels of current incidental take.

The current management strategy allows "temporary" reductions in Core and "temporary" increases in road density as if the habitat would then get reprieve from such "temporary" adverse effects. However, the FS recognizes no genuine limitations on how much, how often and for how long these "temporary" adverse effects will occur or persist.

Hammer, 2016 explains how the proposed post-delisting NCDE conservation strategy "will (not) maintain bear habitat security levels that existed in 2011, it is instead lowering the goal posts on what is considered secure bear habitat." The NCDE conservation strategy would lower current protections by allowing such harmful activities in Security Core as the opening of roads to public motorized uses like firewood gathering, unlimited amounts of non-motorized trails and human activity, and logging projects that reduce Security Core for half a decade. Moreover, the strategy would excuse logging roads from limits on Total Motorized Route Density even though they

[74] (J. Anderson 03/12/2012 pers. comm.).

have not been decommissioned, have not been removed from the road system, and are instead being "stored" for future logging—which also makes them more vulnerable to continued use as trails. (Hammer, 2016.)[75]

We also incorporate McLellan, et al (2000), Hammer, 2013, Natural Resources Defense Council, 2013; and Bader, 2016 which support the conclusions of Hammer, 2016.[76]

Within our previous comments, we incorporated AWR's February 12, 2018 Objection to the draft Record of Decision for the Amendments to the Forest Plans of the Lolo, Kootenai, and Helena-Lewis and Clark National Forests concerning habitat management direction for the Northern Continental Divide Ecosystem grizzly bear population. This is necessary because the 2020 Forest Plan will be implementing the Grizzly Amendments and subsequent to our Objection, the Forest Service did not provide adequate relief to rectify the deficiencies in law, policy and regulation our Objection identified.

Please note that AWR's Objection to the Grizzly Amendments itself incorporated other objections and comments, and so those are likewise incorporated herein. Those include the objections by Swan View Coalition (SVC), Friends of the Wild Swan (FOWS), and Brian Peck.[77]

That was also an Objection to the Flathead National Forest Land and Resource Management Plan and the Flathead National Forest Species of Conservation Concern determination and list, and to the degree the science, law, and policy we discuss therein apply to Forest Plan implementation of Helena National Forest projects, it also applies to the 2020 Forest Plan.

In sum, the Grizzly Amendments remain controversial and contested. We believe the FS has not applied the best available science in adopting the Grizzly Amendments and therefore in applying them to the 2020 Revised Plan and FEIS is not in compliance with NEPA, NFMA, and the ESA.

The DROD and FEIS fails to disclose how effective road closures are for the purpose of eliminating human access behind the closures. We incorporate the Amended Complaint for case 9:18-cv-00067-DWM for the purposes of explaining how roads affect wildlife and that ineffective closures on national forest land are all too common.[78]

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[75] See Attachment C - Letters and Supporting Documents re: Flathead Revised Forest Plan and Grizzly Bear Amendments.
[76] *Id.*
[77] See Attachment C - Letters and Supporting Documents re: Flathead Revised Forest Plan and Grizzly Bear Amendments.
[78] See Attachment D - 9:18-cv-00067-DWM

The DROD and FEIS violate NEPA by not providing an accurate scientific baseline when considering grizzly bear habitat by failing to consider the loss of vegetative cover from recent massive clearcutting on the HLC NF, which has affected security for grizzly bears and other wildlife depending upon seclusion from humans.

This 2020 Forest Plan abandons a longstanding Forest Service commitment to limit road development in key grizzly bear habitat in the HLC National Forest and to limit human uses of grizzly bear secure habitat. The Forest Service and FWS have sought to dismiss the impact of this new management direction by asserting that the Forest Service will maintain the habitat conditions, but the agencies ignored that the amendment does not constrain the construction of new road mileage as long as the Service takes minimal measures to block or obscure the entrances to the new roads even though the federal district court just ruled that Forest Service road closures are not effective.[79]

By law, the logging roads and illegal user-created roads on National Forests are supposed to be securely and effectively closed. Unfortunately, the Forest Service has interpreted this requirement to allow it to put a pile of dirt in front of the road and call it good. We showed the court that this strategy is failing. Road use on closed roads and illegal user-created roads is a pervasive and chronic problem and it is keeping these endangered grizzly bears on the brink of extinction.

By law, the logging roads and illegal user-created roads on National Forests are supposed to be securely and effectively closed. The AWR recently filed a 60-day notice under the ESA regarding known violations of road restrictions.[80] Unfortunately, the Forest Service has interpreted this requirement to allow it to put a pile of dirt in front of the road and call it good. We showed the court that this strategy is failing. Road use on closed roads and illegal user-created roads is a pervasive and chronic problem and it is keeping these endangered grizzly bears on the brink of extinction.

[79] *Id.*

[80] See Attachment E - 60-day Notice Of Intent To Sue; Road Violations On Helena-lewis & Clark National Forest

This represents a major departure from prior management requirements and threatens to significantly degrade grizzly bear habitat security. The revised Plan also abandons limits on human uses of roads and trails in secure bear habitat.

By relying on the Grizzly Bear Amendments currently being challenged, the HLC NF is subject to the same violations found in the Grizzly Bear Amendments incorporated into the Flathead National Forest (FNF) Revised Land Management Plan. In conducting its review of these amendments to the Forest Plan under the ESA, FWS did not rationally grapple with the impacts of this new management direction, as the law requires, before concluding in the FNF's Revised Forest Plan Biological Opinion that the revised amendment will not jeopardize grizzly bears in the Helena-Lewis and Clark National Forest. The FNF Revised Plan and corresponding Biological Opinion therefore violate section 7 of the ESA. 16 U.S.C. § 1536. Please see the attached 60 day notice EarthJustice filed on the grizzly bear amendment and the revised Flathead Forest Plan.[81] The HLC NF is risking the same violations by adopting the Grizzly Bear Amendments.

FWS and the Forest Service violated the ESA by arbitrarily dismissing the threat to grizzly bears and bull trout posed by road building and the proliferation of human use of roads and trails permitted under the final Record of Decision for the Forest Plan Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population.

The Forest Service must reconsult with the USFWS on the impact of the 2020 Forest Plan and the Grizzly Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population on grizzly bears and bull trout and give the public a chance to comment on this consultation. It is a violation of NEPA, NFMA, the APA, and the ESA to not do so.

Suggested Resolution: Reissue the ROD and FEIS after the public has a chance to see and comment on the Forest Service's reconsultation with the USFWS on the impacts of this project and the Forest Plan Amendments (Helena – Lewis and Clark, Kootenai, and Lolo National Forests) to Incorporate Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population.

C. Canada Lynx

In previous comments we urged the Forest Service to ensure the final, revised plan for the

[81] See Attachment F - Sixty-Day Notice of Intent to Sue to Remedy Violations of the Endangered Species Act in the Revised Forest Plan for the Flathead National Forest and in the U.S. Fish and Wildlife Service's Biological Opinion on the Plan.

HLC incorporates the best available science and adequately conserves lynx and designated lynx critical habitat on the forest. We also urged the Forest Service to manage not just for survival, but for the recovery of lynx and to avoid any adverse modifications to the physical and biological features of critical habitat. Finally, we provided numerous actions necessary to provide for lynx recovery and protection of critical habitat. As we detail below, the Forest Service failed to adequately respond or include sufficient plan components as we directed.

When Canada lynx (lynx) were listed as a threatened species under the Endangered Species Act (ESA) in March, 2000, the U.S. Fish and Wildlife Service determined the lack of regulatory mechanisms, specifically the lack of direction for lynx management in forest plans and resource management plans was the most significant threat to the species. But today, the best available science reveals the most serious threats facing lynx are from climate change (loss of habitat, changes in snow cover, changes in prey distribution and abundance, and changes to the lynx's climate envelope) and the loss of habitat and increased habitat fragmentation from logging and wildfires.[82] See Lynx Conservation Assessment and Strategy (LCAS)(2013 update).
Other threats to lynx occur from trapping, illegal shooting, disturbance from recreation, development, and vehicle collisions. *Id.*

The small lynx population remaining in western Montana likely has an effective population of less than 100 and currently exists in a number of small subpopulations of relatively few individuals. This makes lynx in Montana and within the Helena-Lewis and Clark National Forest highly susceptible to environmental and demographic factors. This already small lynx population is also likely in decline.

Today, the Helena-Lewis and Clark National Forest remains one of the few areas in the contiguous United States still occupied by a persistent population of lynx. Portions of the forest are also located in the heart of an area designated critical habitat for lynx and identified as a "core" area for lynx recovery purposes thereby highlighting the forest's importance to lynx conservation in Montana and throughout the contiguous United States. The forest is therefore in a unique (and important) position in terms of lynx conservation. It is thus imperative that the Service take lynx conservation seriously and ensure that any final, revised plan incorporates the best available science and adequately conserves lynx and designated lynx critical habitat on the forest. This means managing not just for survival, but the recovery of the species and avoiding and adverse modifications to the physical and biological features of critical habitat.

[82] All of the documents referenced in this objection were either: (a) already provided and submitted to the Service during scoping and public comments on the draft EIS; or (b) are cited in the draft EIS, final EIS, biological assessment and other documents relied on by the agency and, as such, are already part of the project file. Any documents that do not fall into these two categories are attached to this objection.

As written, however, the revised forest plan, as written and adopted by the draft ROD falls short. So too does the Service's EIS analysis of impacts to lynx. Therefore, we provide the following objection points on the Helena-Lewis and Clark National Forest Plan revision with respect to lynx. All of these objection points were raised in previous substantive comments during the scoping process and in commenting on the draft EIS.

1. *The revised forest plan fails to provide ecological conditions necessary to "contribute to the recovery" of lynx*

The Service's 2012 planning rule tasks the Helena-Lewis and Clark National Forest ("forest") with the duty to determine whether or not the ecological components included in the revised plan – including whether the proposed standards, objectives, desired conditions, and guidelines – provide the ecological conditions or site-specific components necessary to "contribute to the recovery" of listed species like lynx. 36 C.F.R. § 219.9 (b). Recovery means providing the ecological components necessary to improve the status of a listed species to the point at which listing under the Endangered Species Act ("ESA") is no longer appropriate. *Id*.

This duty to contribute to the recovery of lynx, therefore, must be the focus of the revised forest plan and must drive and inform all management decisions concerning lynx. Providing for the persistence and survival of lynx is insufficient; the revised forest plan must go further and provide ecological conditions necessary to "contribute to the recovery" of lynx.

As written, however, the revised forest plan fails to comply with this recovery obligation. In terms of lynx management, for example, the forest relies solely on compliance with the Northern Rockies Lynx Management Direction ("lynx direction") which is outdated, fails to properly manage (and recruit) lynx winter habitat, and is no longer consistent with the best available science including, but not limited to Kosterman (2014), Kosterman (2018), Squires (2010), the LCAS, and recommendations from the 2017 Species Status Assessment ("SSA"), Thomas (2019), Holbrook (2017), Holbrook (2018), and Holbrook (2019).

In the EIS, the Service says this science will only be considered and utilized "at the project level when site-specific actions are carried out" but the revised forest plan is the controlling land use document and must utilize the best available science now (not at a later date) at the planning level to ensure the plan components conserve (recover) lynx and protect and restore lynx habitat and critical habitat. Relying on and continuing to utilize the outdated lynx direction for the 2020 revised forest plan is arbitrary and a violation of NFMA and the 2012 planning regulations.

Suggested Resolution: Revise the forest plan to ensure the "recovery" of lynx (not just survival or persistence) and update the plan components in the lynx direction to reflect the best available science on lynx conservation.

2. *The revised forest plan fails to properly manage for connectivity and movement of lynx between subpopulations of lynx within the forest, region, and Canada*

Lynx in the Northern Rockies and Montana are connected to populations in Canada and are known to "disperse in both directions across the Canada-U.S. border." 78 Fed. Reg. at 59434 (citations omitted). This "connectivity and interchange with lynx populations in Canada is thought to be essential to the maintenance and persistence of lynx populations in the contiguous United States." 78 Fed. Reg. at 59434 (citations omitted). Squires (2013) notes that lynx conservation in the contiguous United States hinges in part on maintaining population connectivity between Canada and the United States.

Maintaining such connectivity, however, is becoming increasingly difficult due to climate and anthropogenic change, as evidenced by reduced connectivity of other boreal species. Squires (2013) at 187. Results from Squires (2013)'s population level model indicate that "changes to vegetation structure can increase landscape resistance to lynx movement, however, there is no evidence that this is currently causing genetic isolation." *Id.* at 194. "Although lynx are capable of crossing hundreds of kilometers of unsuitable habitat, as evidenced by verified locations in prairie ecosystems, lynx in the Northern Rockies are sensitive to changes in forest structure and tend to avoid forest openings." Id. Lynx are also vulnerable to highway-caused mortality. *Id*. In Colorado, for example, 20% of the lynx mortalities (13 out of 65) were due to vehicle collisions. *Id.* In New York, 19% of lynx mortalities in the Adirondack Mountains were attributed to vehicle collisions. *Id*.

In the forest, Squires (2013) identified a number of important north-south corridors that extends from the Canadian border and traverses the eastside of Glacier National Park and connects with the northern portions of the Bob Marshall Wilderness and includes some portions of the Helena-Lewis and Clark National Forest. See id. at Figs. 4, 5. Additional areas important for connectivity include the north-south corridor on the Divide Landscape along the Continental Divide. It is therefore critical that the last remaining areas that still provide good habitat and connectivity for lynx in the forest are sufficiently protected and preserved from development, logging (as well as thinning), and motorized use and increased human access. This is the only way to properly manage for recovery of lynx as required by the Forest Service's planning regulations, 36 C.F.R. § 219.9 (b). As explained in Squires (2013), "[l]ong-term population recovery of these species requires maintenance of short and long distance connectivity."

It is also extremely important for the Service, in concert with other federal (BLM, National Park Service) and state land management agencies to take any and all available steps to maintain, protect and restore connectivity between subpopulations of lynx in the contiguous United States, Northern Rockies, Montana and within the Helena-Lewis and Clark National Forest. New and existing and potential corridors and/or "linkage zones" between subpopulations of lynx in the forest – many of which have already been identified and mapped (see lynx direction map)- should be identified and protected in the revised forest plan. Focusing narrowly on individual lynx analysis units ("LAUs") or adjoining LAUs is insufficient. A broader landscape scale approach that ignores administrative, political, and Forest Service boundaries is needed.

The revised forest plan, as written, fails to properly protect and manage important areas for connectivity for lynx. The revised forest plan also fails to ensure information on lynx connectivity is updated to reflect changes in lynx habitat, movement, trend and status. The Service concedes in the EIS that it is not tracking lynx numbers (actual and trend) or movements in the forest. The Service must (but has failed) to also carefully review and analyze how the revised plan directly, indirectly, or cumulatively (and in addition to vegetation management, including treatments inside the WUI) impacts connectivity for lynx on the forest.

Suggested Resolution: Review the best available science and identify and protect (via enforceable standards) corridors, habitat linkage zones, and "least cost paths" that help connect the lynx populations within the Helena Lewis-Clark National forest with lynx in the Flathead National Forest, Lolo National Forest, and Beaverhead-Deerlodge National Forest and larger Northern Rockies region, including Canada and carefully analyze how the revised forest plan directly, indirectly, and cumulatively impacts movement and connectivity for lynx.

3. *The revised forest plan fails to properly identify, manage, and recruit for winter lynx habitat.*

An important component to lynx conservation is ensuring that lynx winter habitat is adequately protected. Squires (2010) found that, in contrast to populations in Canada and lynx in other areas in the contiguous United States, lynx in the Northern Rockies selected mature, multistoried forests composed of large-diameter trees with high horizontal cover during winter, which is the most constraining season for lynx in terms of resource use. For this reason, Squires recommends that land management agencies like the Service prioritize retention and recruitment of abundant and spatially well distributed patches of mature, multistoried forest stands.

As noted by Squires in his September 27, 2002 comments on the lynx direction, "the few areas that support lynx populations need to be identified and managed accordingly; these actions may be greater than those described in the [Lynx Conservation Assessment and Strategy ("LCAS")]. This issue is especially important relative to forest thinning. Although the total percentage of thinned acres may be low at a regional scale, the critical issue relative to lynx conservation is the amount of thinned acres in areas that currently support lynx populations."

The Service should therefore prioritize retention (not management) of mature, multilayer spruce-fir forest stands which provide important habitat for lynx on the Helena-Lewis and Clark National Forest. As explained by Squires, this means avoiding management actions in these stands (including precommercial thinning) that reduce horizontal cover and degrade lynx habitat. Squires (2010) at 1657. "Recovery of high elevation, spruce-fir forests following harvesting or thinning tend to be slow due to short growing seasons, cold temperatures, high winds, and deep snow . . . Therefore, reducing horizontal cover within multistory spruce-fir forest through thinning or harvest may degrade lynx habitat for many decades." *Id.*

In revised forest plan, the Service fails to properly identify, manage, and recruit these mature, multistory forest stands that are so important for lynx winter habitat and lynx conservation in the

region. Nor does the Service manage forest stands in a manner that would allow younger stands to eventually become good lynx winter habitat, even in areas designated as critical habitat within the forest. Nor has the Service properly analyzed the direct, indirect and cumulative impacts of the revised forest plan and its vegetative prescriptions on winter lynx habitat.

The Service routinely notes that it will use timber harvest methods (including regeneration, group selection, or intermediate harvest and pre-commercial thinning) to "create lynx habitat" in forest stands that currently do not have dense understory conditions (stem exclusion stage) and that it will utilize salvage logging in areas that do not have live understory and use precommercial thinning to promote development of future mature, multi-storied winter hare habitat. But no scientific literature supports these approaches as valid management for winter lynx habitat.

Timber harvest of stem exclusion stands simply resets the successional clock and acts as a roadblock to recruitment by keeping forest stands from moving towards a more mature, multistoried structure. In support of precommerical thinning, the Service often relies on Bull (2005), but the Interagency Lynx Biology Team notes in the LCAS that the findings of Bull (2005) conflict with other, more recent studies and that the use of pre-commercial thinning as a management technique to "fill in" the understory is "unproven." LCAS at 73. Homyack (2007) found that snowshoe hare densities were reduced following precommercial thinning for 1-11 years post thinning. *Id.* The study further suggests that "after precommercial thinning, the stands did not regain the structural complexity in the understory that would be needed to support snowshoe hare densities to the level that were present pre-treatment." *Id.*

In sum, the best available science reveals timber harvest, salvage logging and precommercial thinning in lynx habitat will not benefit the species or hares, especially in the long-term. The Service thus fails to utilize and present the best available science on this topic and presents a misleading and biased approach (contrary to NEPA, NFMA, and the 2012 Planning Rule) that conflicts with the best available science on habitat management for lynx in the Helena-Lewis and Clark National Forest.

As long as land management agencies like the Service – which control the vast majority of lynx habitat in the western United States – think they are properly managing winter lynx habitat by authorizing clearcuts, seedtree cuts, shelterwood cuts or even thinning that removes the important understory for lynx and hares because they are creating young regenerating stands (that may be good hare (not lynx) habitat in 20-30 years), lynx will never recover in the contiguous United States.

Suggested Resolution: Adopt standards – beyond the outdated lynx direction - to ensure lynx winter habitat on the Helena-Lewis and Clark National Forest is properly managed and conserved. The Service should also adopt standards and prescriptions designed to ensure that coniferous forest stands in the forest are given a chance to become good lynx winter habitat in the coming years and decades. The Service must also properly analyze the direct, indirect and

cumulative impacts of the revised forest plan and its vegetative prescriptions on winter lynx habitat.

4. *The revised forest plan fails to maintain dead/beetle-killed forest stands for lynx.*

As documented in Squires (2006), one of the most important variables in describing lynx habitat is the amount of horizontal cover. Lynx tend to avoid sparse/open forest stands and stands dominated by small diameter trees, especially during the winter, and forage and den in areas with high horizontal cover. As such, dead and beetle-killed forest stands that retain a sufficient understory of horizontal cover may still function as suitable lynx habitat.

In the fall of 2014 Colorado Parks and Wildlife initiated a long-term lynx occupancy monitoring program in the San Juan Mountains and collaborated with the Rio Grande National Forest, including John Squires, on a lynx project designed to evaluate the impacts from spruce beetle kill on lynx and snowshoe hares.[83]

The monitoring efforts indicate that lynx are still present in nearly all of the areas they inhabited prior to the spruce beetle outbreak on the Rio Grande National Forest (roughly 4-6 years ago). In fact, in 2015, two GPS-collared female lynx produced kittens within beetle-killed forest patches. To date, the researchers have found that after spruce trees die, young fir trees take advantage of the extra space and sunlight and are densely populated in some parts of the beetle-kill area. Preliminary findings show that the lynx like and continue to use these areas. These results are so striking that Colorado Parks and Wildlife has commented to the Service that it needs to review these findings before approving logging projects in beetle-kill forests in Colorado. In 2017, Dr. Squires and his colleagues released a progress report on their research titled "Response of Canada Lynx and Snowshoe Hares to Spruce-Beetle Tree Mortality and Wildfire in Spruce-fir Forests of Southern Colorado." The preliminary findings (which are attached to this objection) should be reviewed and incorporated into the final forest plan.[84] Also relevant is Thomas (2019), which explains how salvage logging after insect outbreaks negatively impacts lynx and reduces use of the forest by lynx and their primary prey, snowshoe hares (as a copy of this paper is attached to this objection).[85]

The revised forest plan – as written – fails to include sufficient standards that recognize the importance of and preserve dead forest stands (both fire and beetle kill) for lynx and snowshoe hares.

Suggested Resolution: Adopt forest plan standards and guidance on protecting and preserving (and restricting salvage logging) in dead forest stands (both fire and beetle kill) for lynx.

[83] See http://www.fs.fed.us/blogs/what-happens-lynx-when-beetles-eat-forests; see also http://www.chieftain.com/news/4259319-119/lynx-beetle-forest-spruce.
[84] See Attachment G - Squires, 2017.
[85] See Attachment H - Thomas, 2019.

5. *The revised forest plan (and lynx direction) fails to ensure increases in the amount of mature forest and decreases in the amount of young generating forests within female lynx home ranges.*

The best available science, including a new research papers – Kosterman (2014) and Kosterman (2018) – reveal the Service's current approach in the revised forest plan for managing forest stands in occupied lynx habitat (as directed by the lynx direction) is insufficient to ensure lynx reproductive success.

Kosterman (2014) found that lynx reproductive success is related to forest structure abundance and spatial configuration at the female home range scale. A "habitat mosaic comprised of higher percentages and connectivity of mature forest interspersed with patches of young regenerating forest will likely support and enhance lynx reproductive success." Specifically, Kosterman (2014) notes that female lynx home ranges consisting of >50% mature forest and approximately 10-15% young regenerating forest and greater connectivity of mature forests (with small young generating patches) appears to be the optimal composition of forest structure types. The authors suggest that greater than 15% young regenerating forests may negatively affect lynx reproductive output.

Kosterman (2014) is important and has significant implications for the revised forest plan because the recommended numbers differ from the current approach outlined in the lynx direction and utilized by the Service. Pursuant to the lynx direction (VEG S1), no greater than 30% young regenerating forest is allowed within an LAU (approximately the same size of a female lynx home range). This is too high – nearly twice the amount recommended by Kosterman (2014) – and needs to be updated. The Service must therefore work towards protecting and recruiting more mature forests, reducing the amount of young regenerating forests, and ensuring more connectivity between mature forest stands. This is the only way to recover the species. Kosterman (2018) is consistent with these earlier findings, noting that the highest quality core areas for female lynx are provided with habitat mosaics that include mature forest in a connected configuration and intermediate amounts of small-diameter forest.

Suggested Resolution: Update the lynx direction for the revised forest plan (instead of simply adopting the old lynx standards and approach) and, in particular, VEG S1, to reflect the best available science, including Kosterman (2014)'s and Kosterman (2018)'s recommendations and adopt as a new forest plan standard in the revised forest plan.

6. *The revised forest plan fails to take necessary actions within its authority and control to conserve lynx.*

The Service should have (but failed) to use the revised forest planning effort as a springboard to take affirmative steps to ensure the long-term survival and recovery of lynx and increase the probability of the species' persistence in the Helena-Lewis and Clark National Forest and lower 48.

As recommended by the SSA team in the Expert Elicitation Workshop Report (attached), these actions (some of which are already discussed) include, but are not limited to, the following: (a) adjusting forest management on the forest to retain spruce and fir and reduce fire burn rates; (b) promoting and maintaining habitat connectivity with Canadian populations of lynx through coordinated cross-border land use planning; (c) restricting and properly managing salvage logging associated with fire and insect damage to minimize impacts and facilitate restoration of lynx and hare habitats; (d) configuring and designing lynx-friendly landscapes at appropriate scales and design, and maintaining a mosaic of lynx and hare habitats; (e) supporting additional research to fill knowledge gaps, particularly related to the effectiveness of conservation efforts (it remains unclear exactly what is needed for lynx across the range to achieve and maintain viability); (f) taking a hard look at the cumulative impacts to lynx from projects and activities occurring on the Helena-Lewis and Clark National Forest and on adjoining private, BLM, or state lands; (g) reducing fragmentation and promoting the reforestation of heavily fragmented areas; (h) applying strategic habitat concepts and modeling and identifying key areas and focus on those areas that are still in need of protection and management; (i) implementing fire BMPs that allow and encourage burns to occur in a way that creates high and low intensity mosaic fire patterns; (j) evaluating whether there is a need for monitoring lynx (and hares) using consistent methods throughout the forest; and (k) devoting increased funding to lynx conservation (lynx are in worse shape than other carnivore species but receive far less funding than those species that have more secure populations and appear less vulnerable to climate change).[86]

Suggested Resolution: Adopt and incorporate the SSA teams' recommended actions in the revised forest plan to ensure the long-term survival and recovery of lynx and increase the probability of the species' persistence in the Helena-Lewis and Clark National Forest.

7. *The Service fails to analyze how motorized access authorized by the revised forest plan impacts lynx.*

In the EIS the Service fails to carefully analyze how allowing motorized access (both summer and winter) into areas occupied by lynx directly, indirectly and cumulatively (in conjunction with other plan-level and site-specific level activities, including vegetative treatments/management) impacts the species. The number of routes and areas authorized for motorized recreational use should be analyzed and examined within LAUs to determine the level of stress imposed on lynx in these areas and to compare and contrast lynx occupancy within LAUs vis-a-via the amount of motorized use.

It is also important to consider that as snow levels diminish with climate change, dispersed use of over snow vehicles will become more concentrated in those snowy areas still remaining – exactly where lynx are trying to persist as well. Winter recreation will thus continually become a more serious threat to the persistence of the population over time. This must be analyzed.

[86] See Attachment I - Expert Elicitation Workshop Report

In addition, human access via forest roads can increase the potential for mortality or injury of lynx captured incidentally in traps targeting other species or through illegal shooting. The LCAS agrees that open roads can increase lynx vulnerability to hunting, trapping and/or poaching. The Service must therefore take a hard look at this indirect impact. We request that the number of miles of roads and trails open to motorized use within mapped lynx habitat be analyzed in the EIS as part of the forest plan revision. We also recommend that the revised plan's proposed "guidelines" for recreation in occupied lynx habitat and critical habitat become enforceable standards.

Suggested Resolution: Take a hard look at the direct, indirect, and cumulative impacts of motorized access on lynx and convert "guidelines" for managing lynx and lynx critical habitat into enforceable standards.

8. The revised forest plan fails to include an effective monitoring program for lynx.

Pursuant to the Forest Service's 2012 planning rule, the Service is tasked with developing a monitoring program for the revised plan that, among other things, tracks the status of all focal species to assess various ecological conditions, including conditions necessary to "contribute to the recovery of federally listed threatened and endangered species" like lynx. 36 C.F.R. § 219.12(a)(5).

Lynx monitoring should address the key ecosystem characteristics and ecological conditions for lynx by exploring the following types of questions: (1) are plan components effectively providing for healthy lynx (and hare) populations within and across the forest? (2) is there a need for a consistent lynx (and hare) monitoring strategy that can be applied across the Helena-Lewis and Clark and other forests? (3) what are the hare densities necessary to support resident lynx populations? (4) what is the influence of immigration from Canada and other regions on lynx populations in the forest? (5) are plan components contributing to the "recovery" of lynx as required by 36 C.F.R. § 219.12(a)(5)(iv)? How does the forest differentiate between monitoring for persistence and monitoring for recovery? (6) are plan components effectively providing for (and recruiting) winter lynx habitat as defined and identified by Squires (2010)? (7) are plan components effectively providing for lynx movement within and across the forest? (8) is there any indication that human disturbance or vegetative management (including precommercial thinning) is impacting the condition of lynx, lynx habitat conditions, or lynx critical habitat on the forest? (9) are measurable changes in spring snow affecting lynx persistence in the plan area? (10) what is the relationship between decreases in snow, vegetative management, demand for winter motorized recreation, and lynx persistence and recovery? (11) are plan components designed to provide for "little human disturbance" effectively providing for conserving lynx?

In terms of lynx monitoring, it is important that the Service monitor how and to what extent forest management is contributing to the conservation of lynx, mapped lynx habitat, and designated lynx critical habitat. It is also imperative that the monitoring focus not only on persistence (survival) but also recovery, see 36 C.F.R. § 219.12(a)(5)(iv), and that monitoring for

lynx and lynx critical habitat not be restricted to the lynx direction standards or desired conditions.

Also, while potential indicators for addressing various monitoring questions are generally useful, they should also be analyzed per LAU as well, as that is within the context of lynx biology and conservation. An additional indicator should also be included regarding lynx vulnerability to mortality from increased human access. The Service should determine how many miles of roads and trails are open to motorized use within mapped lynx habitat and this should have been analyzed between various alternatives in the EIS.

Suggested Resolution: Adopt and implement a new and effective monitoring program to conserve lynx on the Helena-Lewis and Clark National Forest.

9. *The Service fails to analyze how the revised forest plan impacts to lynx, lynx critical habitat, and connectivity*

As noted in our objection on big game species, habitat, and security, the revised forest plan represents a drastic change from the existing Helena National Forest Plan and Lewis and Clark National Forest Plan in terms of plan components – specifically standards – for managing big game species. These existing standards restricted road density levels and required that certain amounts of "hiding cover" be retained on the landscape to protect and restore big game habitat and security. This area also overlapped with occupied lynx habitat, lynx critical habitat, and with areas deemed important for lynx movement and connectivity (see lynx direction map). As such, lynx (and other species like grizzly bears and wolverine) indirectly benefited from the robust big game standards.

All such standards, however, were removed and replaced with vague and unenforceable guidelines and desired future conditions in the revised forest plan. The Service, however, never took a hard look at how this decision may directly, indirectly, or cumulatively impact lynx. This is a major oversight.[87]

Also, as part of the revised forest plan, the Service removed certain lynx analysis units ("LAUs") on the forest and adjusted boundaries for other LAUs. The Service made this decision, in part, based on its definition of "occupied lynx habitat." But nowhere in the EIS or draft ROD or 2020 revised plan does the Service analyze the impacts (direct, indirect, and cumulative) of this decision on lynx, lynx critical habitat, and lynx movement and connectivity as required by NEPA. Nor does the Service explain how it determined areas were not "occupied lynx habitat" (and therefore could be removed from the LAU boundaries) in the absence of any on-the-ground surveys or monitoring efforts. In the EIS, the Service concedes it has very little information on

[87] The Service also states in the EIS that a number of other "threats" or "stressors" to lynx occurring on the forest are not under their control, including incidental mortality from otherwise legal trapping (usually for bobcat). This is incorrect. See Nie (2017)(Attachment J). To conserve lynx (and other species vulnerable to trapping) the Service should adopt plan components to restrict or limit where and when the activity can occur and expressly prohibit trapping in certain, critical areas where lynx and/or lynx dens are known to occur.

lynx distribution (and presumably occupancy) in the forest. The Service also never consulted on this decision as required by section 7 of the Endangered Species Act ("ESA"), 16 U.S.C. § 1536. [88]

To date – nearly four years later – the Service has yet to comply with this remand order and reconsider and re-evaluate its lynx critical habitat designations and mapping in the Helena National Forest. Nor did it attempt to do so in the EIS or NEPA process for the revised forest plan. Because the revised forest plan includes plan components for managing lynx and lynx critical habitat (for the next 10-15 years), it is axiomatic that compliance with the remand order and a revaluation and decision on lynx critical habitat in the Helena National Forest should occur before any final, revised forest plan is implemented.

Suggested Resolution: Comply with this Court's remand order in *WildEarth Guardians* before finalizing the revised forest plan.

D. Wolverine

Our previous comments urged the Forest Service to carefully analyze and consider how the Revised Plan may impact wolverine and to take affirmative, proactive steps to eliminate or reduce the number of non-climate stressors on the species. We urged the agency to: (1) recognize and manage the wolverine as a protected species proposed for ESA listing; (2) provide for the "conservation" of wolverine; (3) designate wolverine as a species of conservation concern; (4) collect the necessary data on wolverine population, presence, denning, and movement on the HLC; (5) develop and adopt standards to conserve wolverine; (6) take a hard look at the impacts of winter recreation on denning habitat and adopt standards that restrict winter access to important denning areas; (7) minimize the risks of wolverine being caught and killed in traps and snares set for other species; (8) take into account and study the effects of forest management on wolverine; (9) maintain and restore connectivity among wolverine subpopulations on the HLC; (10) maintain and restore connectivity between wolverine in the contiguous United States and

[88] The Service must consult with the U.S. Fish and Wildlife Service pursuant to section 7 of the ESA to determine whether and how the revised forest plan – including the Service's decision to remove all forest plan standards for big game species and remove and adjust LAUs – may affect lynx and lynx critical habitat. In the draft ROD, the Service says it prepared a biological assessment concluding that the revised plan "may affect, and is likely to adversely affect" lynx and lynx critical habitat. The analysis in the biological assessment does not adequately analyze how the revised forest plan will directly (or indirectly and cumulatively) affect lynx and critical habitat but, regardless, the Service's finding in the biological assessment triggers the need for a Biological Opinion and related Incidental Take Statement on lynx and lynx critical habitat. This Biological Opinion and Incidental Take Statement may include various terms and conditions or other reasonable and prudent alternatives that will need to be incorporated into any revised forest plan. But the Service put the proverbial cart-before-the-horse by not waiting for the Biological Opinion and Incidental Take Statement before issuing a final revised forest plan. This is arbitrary and a violation of the ESA. The Service has also refused to share a copy of the Biological Opinion with the public (assuming it even obtained one). In the draft ROD, the Service says it is "expecting" a Biological Opinion for the species and critical habitat and said the document would be posted on its website in late May, 2020. As of July 13, 2020 the Biological Opinion has yet to be posted and made available for public review and comment.

Canada; (11) consider cumulative impacts to wolverine; and (12) develop an accurate monitoring program for wolverine. *Id.*

The best available science, including every published peer-review paper on the topic, reveals the wolverine – a snow-dependent species – is threatened by climate change. See Defenders of Wildlife v. Jewell, -- F.Supp.3d – , 2016 WL 1363865 (D. Mont. 2016) (discussing best available science regarding climate change threats); 78 Fed. Reg. 7864 (February 4, 2013)(proposed rule to list wolverine); McKelvey (2011); Copleland (2010).The science also reveals wolverine are threatened by an extremely small population size (only 250-300 remain in the contiguous United States) and by the cumulative effects of multiple threats. See *Id.*

Because the Helena-Lewis and Clark National Forest remains one of the few remaining places in the contiguous United States that is still home to wolverine, it is in a unique position to make positive strides in wolverine conservation. It is critical, therefore, that the revised forest plan: (a) carefully analyze and consider how its plan components directly, indirect, and cumulatively impact wolverine on the forest in both the short and long term; and (b) take affirmative, proactive steps within its control and authority to eliminate or reduce the number of non-climate stressors on the species. As written, however, the revised forest plan adopted by the draft ROD falls short. So too does the Service's EIS analysis of impacts to wolverine.

Therefore we submit the following objection points on the Helena-Lewis and Clark National Forest Plan revision with respect to wolverine. All of these objection points were raised in previous substantive comments during the scoping process and in commenting on the draft EIS.

1. *The revised forest plan fails to adopt meaningful standards to conserve wolverine*

The Service, more than any other land management agency, has the ability to protect wolverines by instituting protective management practices on National Forest lands, including the Helena-Lewis and Clark National Forest.

Approximately 94 percent of the currently occupied wolverine habitat in the contiguous United States is in Federal ownership, with most managed by the Service. Yet, existing forest plans – including the draft ROD and 2020 forest plan for the Helena-Lewis and Clark National Forest fails to include any meaningful standards to conserve the species and (as described in the big game section), what meaningful wildlife standards existed (in the existing forest plans) were removed.

The Service's 2012 planning rule implementing NFMA, tasks the forest with the obligation to determine whether or not the components (both ecosystem and species-specific) included in the revised plan – including whether the proposed standards, objectives, desired conditions and guidelines – "conserve" wolverine, a species currently proposed for listing under the ESA. 36 C.F.R. § 219.9 (b).

For the purposes of 36 C.F.R. § 219.9, "conserve" means to protect, preserve, manage, or restore natural environments and ecological communities to potentially avoid the federal listing of

proposed and candidate species. 36 C.F.R. § 219.19. This means the forest must do more than merely maintain the status quo and existing population numbers of wolverine on the forest (which the best available science reveals are already dangerously low). The forest – through the forest plan revision process – must take proactive steps to avoid federal listing of wolverine in order to "conserve" the species. This duty to "conserve" wolverine must inform and drive all management decisions concerning wolverine and other species proposed for listing or candidate species. Persistence and survival of wolverine is insufficient; the Helena-Lewis and Clark National Forest must provide ecological conditions necessary to avoid listing.

The revised forest plan, however, fails to include the necessary ecosystem components (standards, guidelines, desired conditions and objectives) to "conserve" wolverine. No enforceable standards exist – at all. And the existing wildlife standards (for big game) in the Helena and Lewis and Clark Forest Plans which directly and indirectly benefited wolverines were all removed and replaced with voluntary guidelines.

Further, because the revised plan's ecosystem components are insufficient to ensure the conservation of wolverine – as written – the 2012 planning regulations direct the Service to develop "species specific plan components," including specific standards and guidelines for the species. 36 C.F.R. § 219.9(b). But no such specific-specific standards are included in the draft ROD. This is major oversight. The forest must develop and adopt meaningful standards to manage wolverine (as it does with other ESA protected species, including grizzlies and lynx) and not simply rely on discretionary desired conditions and guidelines.

In addition, the forest cannot (and has not explained how it can) comply with its obligations to manage for a diversity of species, including its duty to "contribute to the recovery" of federally protected ESA species and "conserve" candidate species and species proposed for ESA listing, see 36 C.F.R. § 219.9(b), like wolverine, in the absence of enforceable and meaningful standards.

Now that a sizeable body of research about the habitat and life-cycle needs of wolverines is available, and given the importance the Helena-Lewis and Clark National Forest plays in wolverine conservation, the forest should exercise its authority under NFMA, comply with its legal obligations under the 2012 planning rule to "conserve" wolverine, 36 C.F.R. § 219.9(b), and adopt protective standards for wolverine as part of the revision process. This would include standards designed to protect denning habitat, protect wolverine from trapping, restrictions on travel planning, standards to preserve connectivity, and other standards designed to protect wolverine from human disturbance.

In addition, the Service should work with the U.S. Fish and Wildlife Service ("FWS") and other experts to prepare a Wolverine Conservation Assessment and Strategy ("WCAS"), enter into conservation agreements with the agencies, and then develop region-wide management direction for wolverine including a Northern Rockies Wolverine Management Direction that amends all Forest Plans within occupied wolverine habitat

Suggested Resolution: Develop and implement meaningful standards (not discretionary desired conditions, objectives, and guidelines) to conserve wolverine on the Helena-Lewis and Clark National Forest.

2. *The Service should designate wolverine a species of conservation concern.*

If, prior to resolution of the objection process and issuance of the final revised forest plan, the FWS elects not to list wolverine as a threatened or endangered species and the species is no longer proposed for listing (or a candidate for listing), then the Helena-Lewis and Clark National Forest should – as a fallback – designate and manage wolverine as a species of conservation concern.

A species of conservation concern is a species other than a federally protected species that is "known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area." 36 C.F.R. § 219.9 (c).

With respect to wolverine, the best available science reveals the species is unlikely to persist in the contiguous United States due to loss of habitat (and increased habitat fragmentation) from climate change and an extremely small population size (both actual and effective). See Defenders of Wildlife v. Jewell, -- F.Supp.3d – , 2016 WL 1363865 (discussing best available science regarding climate change and small population threats); 78 Fed. Reg. 7864 (February 4, 2013)(proposed rule to list wolverine).

Designating wolverine as a species of conservation concern is therefore warranted should the FWS decide not to provide protective status for wolverine under the ESA. Guardians' previous scoping comments on the revised forest plan provide extensive comments explaining – in detail – why wolverine qualify as a species of conservation concern pursuant to the Forest Service's regulatory and Handbook criteria. These comments are hereby incorporated by reference.

Suggested Resolution: Designate wolverine a species of conservation concern if FWS elects not to list wolverine (currently proposed for listing) as a threatened or endangered species under the ESA.

3. *The Service failed to acquire the data necessary to make informed forest planning decisions regarding wolverine.*

The Service concedes that very little is known about wolverine on the Helena-Lewis and Clark National Forest. This is because no recent, meaningful research or studies have been conducted on the forest even though it is likely home to one of the highest concentrations of wolverine remaining in the contiguous United States.

In order to effectively conserve and manage for wolverine on the Helena-Lewis and Clark National Forest, and properly analyze the direct, indirect, and cumulative impacts to the species from the revised forest plan (which has yet to occur), the Service must first acquire and map

information on the local population (actual and trend), where wolverine reside and are denning (both maternal and natal), and where they are traveling/moving within the forest. The Helena-Lewis and Clark National Forest should also use one methodology or model to clearly define and map wolverine denning habitat and range in the forest. The models discussed in Copeland (2010) and Inman (2013), or Weaver (2014) – which combines the verified models from the Copeland and Inman papers - are all considered valid approaches.[89]

Suggested Resolution: Acquire and map information on the local wolverine population (actual and trend) inhabiting the Helena-Lewis and Clark National Forest and information on where wolverine reside and are denning (both maternal and natal), and where they are traveling/moving within the forest.

4. The Service failed to take a hard look at the impacts from winter recreation.

The Service's final EIS and draft ROD do not adequately analyze the direct, indirect or cumulative impacts on wolverine maternal and natal denning habitat from human disturbance, specifically winter recreational activities. Nor, as noted above, does the revised forest plan include the necessary provisions and standards to protect denning habitat (both maternal and natal) from human disturbances.

Notably, many of the winter motorized uses are "grandfathered" in and included in the revised forest plan without any previous analysis or evaluation of impacts to wolverine (or other species) as required by NEPA and NFMA's travel planning regulations. A good example of this is the revised forest plan's authorization of winter mortised recreation in the 15,000 Little Prickly Pear area (east side of the Nevada Mountain IRA) in the Divide GA, an area that provides important habitat for big game species and wolverine (as well as grizzly bears, lynx, and other forest carnivores). See Gehman (2016).[90] The Service has never analyzed the impacts (direct, indirect, and cumulative) of allowing motorized activity in this roadless area and doing so is contrary to a 2005 Blackfoot-North Divide collaborative winter recreation agreement signed by the Service.

The best available science (all of which was already provided and/or is in the record) reveals that dispersed recreational activities – especially winter recreational activities – have the potential to adversely impact wolverine because they disrupt and limit use of wolverine natal denning areas. See Heinemeyer (1999), Heinemeyer (2001), Heinemeyer (2012), Heinemeyer (2013), Heinemeyer (2014), Heinemeyer (2015), Stewart (2016); Heinemeyer (2017); Heinemeyer (2019). The Service's statement in the final EIS that wolverine "may not be heavily affected by recreational activities" is misleading and inaccurate. The forest's attempt to downplay and discount the impacts to wolverine from winter recreation in the final EIS (and relatedly not develop any standards are meaningful plan components to protect wolverine denning habitat

[89] As previously noted in this objection, all of the documents referenced in this objection were either: (a) already provided and submitted to the Service during scoping and public comments on the draft EIS; or (b) are cited in the draft EIS, final EIS, biological assessment and other documents relied on by the agency and, as such, are already part of the project file. Any documents that do not fall into these two categories are attached to this objection.
[90] See Attachment K - Gehman, 2016.

from the activity) conflicts with the best available science. There is an obvious disconnect between the facts found and the decision made that needs to be corrected before issuance of a final, revised forest plan. See Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv., 378 F.3d 1059, 1065 (9th Cir. 2004).

Suggested Resolution: Take a hard look at the direct, indirect, and cumulative effects of winter recreation on wolverine denning habitat (maternal and natal) and occupied habitat and, until the impacts are better understood, adopt standards to protect denning habitat from winter recreation. An analysis of authorizing motorized uses in the Little Prickly Pear area is as required before allowing the use.

5. *The Service is failing to take proactive steps to minimize the risk of wolverine being caught and killed in traps and snares set for other species.*

In the final EIS, the Service notes that the mortality of wolverine from trapping and snaring is outside its authority and control. The Service also downplays any potential impact mortality from incidental trapping may have on wolverine. This is a mistake.

Incidental trapping of wolverines is a significant non-climate stressor that can and should be minimized by the Helena-Lewis and Clark National Forest during the forest plan revision in order to maximize wolverine resiliency and ability to adapt to the impacts of climate change. And, contrary to the Service's position in the final EIS, the forest does have broad authority to restrict and regulate activities – including trapping and snaring – on National Forest lands in order to conserve its wildlife resources. See Nie (2017).[91]

As such, in order to minimize and avoid the loss of individual wolverines on the forest, the Service should exercise its regulatory authority and, at a minimum: (a) close or restrict motorized access to remote management areas known to be occupied by resident wolverines on the Helena-Lewis and Clark National Forest, including denning sites (both maternal and natal) during the trapping season; (b) prohibit or restrict the use of Wildlife Services' federal predator control programs in areas known to be occupied by resident wolverines on the Helena-Lewis and Clark National Forest; and (c) create special management areas for areas known to be occupied by resident wolverines, including denning sites, that include standards prohibiting the use of certain types of traps, snares and baits within and adjacent to the management area. The Helena-Lewis and Clark National Forest should also explore other ways to regulate, restrict and limit all forms of trapping, snaring and poisoning in occupied wolverine habitat (including dispersal corridors) within the forest.

As mentioned earlier, 94 percent of the currently occupied wolverine habitat in the contiguous United States is federally owned, with most managed by the Service. 78 Fed. Reg. at 7874. And, the Helena-Lewis and Clark National Forest is likely home to one of the largest subpopulation of wolverines in the entire contiguous United States. Restricting all forms of trapping and snaring in

[91] See Attachment J - Nie, 2017.

occupied habitat on National Forest lands within the Helena-Lewis and Clark National Forest would thus help alleviate a major threat to subpopulations (and certainly benefit other listed species like lynx) and assist in the conservation of the species.

Suggested Resolution: Adopt standards that restrict or regulate the use of certain types of traps, snares, and poisons to protect wolverine in the Helena-Lewis and Clark National Forest.

6. *The Service failed to analyze the direct, indirect, and cumulative impacts of forest management on wolverine.*

The Service explains that logging or other types of vegetation management likely has no impact on wolverine as they are not thought to be dependent on specific vegetation or habitat features that might be manipulated by land management activities. At this stage, however, it is premature to assume no impacts from vegetative management. In other words, the "lack of evidence" that logging does not pose a threat to wolverine does not mean no threat exists because very little study has occurred and there is certainly no consensus.

Some studies, for instance, might suggest wolverines are able to "tolerate" logging and prescribed burning. Other studies, however, suggest logging – especially industrial logging in occupied habitat – may be a concern because it adversely impacts prey species. Again, because 94 percent of the currently occupied wolverine habitat in the contiguous United States is in Federal ownership, with most on National Forest land, how National Forest lands in occupied by wolverine habitat are managed is extremely important and requires further study and research.

The Service, therefore, should not be making any broad-brush conclusions regarding impacts from logging and forest management in the absence of further analysis. Instead, in the face of such uncertainty, the Service should apply the precautionary principle and "give the benefit of the doubt to the species." Conner v. Burford, 848 F.2d 1441, 1454 (9th Cir. 1988); accord Defenders of Wildlife v. Babbitt, 958 F. Supp. 2d 670, 677, 680 (D.D.C. 1997). Doing so is critical in order to maximize the wolverine's resilience by minimizing non-climate stressors.

Suggested Resolution: Take a hard look at the direct, indirect, and cumulative impacts of vegetation management on wolverine.

7. *The revised forest plan fails to ensure connectivity for wolverines is maintained and restored.*

Restoring and maintaining connectivity among species like wolverine that are threatened by climate change is critical to "conserving" the species and should be one of the highest management priorities for the Helena-Lewis and Clark National Forest.

Wolverines in the contiguous United States likely exist as a meta-population. As explained by FWS, a meta-population "is a network of semi-isolated populations, each occupying a suitable patch of habitat in a landscape of otherwise unsuitable habitat. . . . Meta-populations require some level of regular or intermittent migration and gene flow among subpopulations, in which

individual populations support one another by providing genetic and demographic enrichment through mutual exchange of individuals. Individual subpopulations may go extinct or lose genetic viability, but are then 'rescued' by immigration from other subpopulations, thus ensuring the persistence of the meta-population as a whole." 75 Fed. Reg. at 78031. Some of the subpopulations within this meta-population – including those inside the Helena-Lewis and Clark National Forest – are extremely small and vulnerable, with some consisting of less than 10 individuals. 78 Fed. Reg. at 7867.

According to the best available science, if the meta-population dynamics break down, either due to changes within the subpopulation or due to the loss of connectivity (from climate change or development) then "the entire meta-population may be jeopardized due to subpopulations becoming unable to persist in the face of inbreeding or demographic and environmental stochasticity." 78 Fed. Reg. at 7867.

As such, it is extremely important for the Service, in concert with other federal (BLM, FWS, Forest Service, Park Service) and state land management agencies to take any and all available steps to maintain, protect and restore connectivity between isolated subpopulations of wolverine. Existing "linkage zones" between subpopulations of wolverines within and adjacent to the Helena-Lewis and Clark National Forest should be identified and protected, especially when those areas overlap with public lands (federal or state). So too should corridors or linkage zones between subpopulations in Montana and the contiguous United States and populations to the north in Canada. 78 Fed. Reg. at 7885.

According to FWS, "The apparent loss of connectivity between wolverines in the northern Rocky Mountains and Canada prevents the influx of genetic material needed to maintain and increase genetic diversity in the contiguous United States. The continued loss of genetic diversity may lead to inbreeding depression, potentially reducing the species' ability to persist through reduced reproductive output or reduced survival." 78 Fed. Reg. at 7885.

As noted by Brock (2007), safe places where wolverines can find food, shelter, and security while moving across the landscape between areas of suitable habitat must be identified and protected. "Appropriate management of wolverine linkage zones in public ownership . . . is crucial." Brock 2007 at 30. The revised forest plan, however, fails to include any meaningful direction or standards for maintaining and restoring connectivity or protecting linkage zones for wolverine.

Suggested Resolution: Adopt forest-wide direction to protect and restore important corridors and/or linkage zones for wolverine.

8. *The Service failed to consider and analyze the overall, cumulative effects to wolverine*.

The final EIS fails to take a hard look at, and carefully consider, the overall cumulative effects to wolverine. Cumulative impacts are "the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable

future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Cumulative impacts can result from "individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7.

The proper consideration of cumulative impacts requires "some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." Great Basin Mine Watch v. Hankins, 456 F. 3d 955, 971 (9th Cir. 2006). Moreover, the "analysis must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." Id. The Service "must do more than just catalogue relevant past projects in the area." Id. It must give a "sufficiently detailed catalogue of past, present, and future projects and provide adequate analysis about how these projects, and the difference between the projects, are thought to have impacted the environment." Id. Some "quantified assessment of their combined environmental impact" is required. Id. at 972. This type of analysis is missing for wolverine and it is not enough to simply provide a table listing potential cumulative effects to wolverine.

Indeed, nowhere in the EIS does the Service actually analyze the combined or cumulative effects to wolverine. The Service also incorrectly assumes that the impacts are minimal because areas of mapped wolverine habitat on the forest are already in wilderness areas, IRAs, and conservation management areas that remain "relatively undisturbed." But the Service has and continues to routinely authorize new roadwork, mechanized logging, and motorized access in many of these areas (see, e.g., Telegrah and Tenmile-South Helena projects) and such activity may adversely impact wolverine.

Suggested Resolution: Take a hard look at the cumulative effects to wolverine as required by NEPA.

9. The revised forest plan fails to include an accurate monitoring program for wolverine

Pursuant to the Service's 2012 planning rule, the Service is tasked with developing a monitoring program for the revised plan that, among other things, tracks the status of all focal species to assess various ecological conditions, including conditions necessary to "conserve proposed and candidate species" and conditions necessary to "maintain a viable population of each species of conservation concern." 36 C.F.R. § 219.12(a)(5). Such a monitoring program is needed for wolverine but not included in the revised plan.

Importantly, wolverine monitoring should test "relevant assumptions" (219.12) associated with the relationship between the forest plan components and wolverine persistence, including assumptions and uncertainty regarding management impacts, particularly motorized recreation, on wolverine persistence. Wolverine monitoring should also be coordinated and integrated with the development of a broad-scale monitoring program for wolverines and other forest carnivores, including lynx and grizzly bears (see 219.12(b)), and should be developed and implemented with

key stakeholders, including Guardians (see 219.12(c)(3)). Wolverines should also be considered as a focal species representing the ecological integrity of alpine ecosystems.

Wolverine monitoring, for example, should address and explore the following types of questions: (1) are measurable changes in temperature and precipitation affecting the amount of available snow cover, including persistent spring snow cover, on the Helena-Lewis and Clark National Forest? (2) are measurable changes in temperature and precipitation affecting where and when wolverine den and wolverine persistence in the plan area? (3) what is the relationship between decreases in persistent spring snow, demand for winter motorized recreation, denning success and wolverine persistence? (4) are plan components effectively providing for wolverine movement within and across the forest? (5) is there any indication that human disturbance (and access) is impacting the condition of wolverines on the forest or wolverine denning success on the forest? (6) are plan components effectively providing for wolverine denning and security needs and conserving the species? Human activities, in particular, should be included in terms of wolverine monitoring (via various proxies presumably offered in the biophysical settings).

Suggested Resolution: Establish a wolverine monitoring program that evaluates whether forest plan components need to be changed to better conserve the wolverine in the planning area.

E. *Big Game Species, Habitat and Security*

We previously commented on the need to retain strong standards to ensure elk and other big game have quality habitat across the planning area. The existing forest plan for the Helena National Forest includes a number of important and critical standards for maintaining and improving big game habitat on public lands. These standards include, but are not limited to:

- Standard 1, which states that on important summer and winter range, adequate thermal and hiding cover will be maintained to support the habitat potential;
- Standard 2, which states that any and all environmental analyses for site-specific projects on the forest will include a "cover analysis" on a drainage or elk herd unit basis;
- Standard 3, which states that subject to resource constraints, elk summer range will be maintained at 35 percent or greater hiding cover and in areas of winter range, will be maintained at 25 percent or greater thermal cover in drainages or elk herd units;
- Standard 4, which directs the Service to: (a) maintain big game habitat capability and hunting opportunity pursuant to specific, numeric road density and hiding cover standards (the less cover, the less open road density allowed); (b) close elk calving grounds and nursery areas to motorized use during peak use by elk; (c) close winter range areas to vehicles; and (d) post any and all restrictions at designated trails, roads, and areas;
- Standard 5, which restricts the minimum size area for hiding cover on elk summer range to 40 acres and the minimum size for thermal cover on elk winter range to 15 acres;

- Standard 6, which commits the Service to following the Montana Cooperative Elk-Logging Study Recommendations (included in Appendix C to the existing forest plan) during timber sale and road construction projects;
- Standard 7, which directs the Service to inventory and map important big game ranges on the forest (summer/fall and winter);
- Standard 8, which directs the Service to analyze the impact of any "sagebrush reduction programs" on possible impacts to big game winter range;

The Service's existing forest plan for the Lewis and Clark National Forest also includes similar standards designed to protect and maintain big game security and habitat on our public lands. These standards (Management Standard C-1) include but are not limited to: (1) incorporating the Montana Cooperative Elk-Logging Study recommendations into the planning of all logging and road projects; (2) requiring a big game analysis for all projects to ensure that effective hiding cover is maintained; (3) maintaining at least 30 percent or greater effective hiding cover in drainages or elk herd units; and managing motorized travel and use to reduce the negative effects on wildlife.

Notably, many of these existing big game standards – like standard 4a in the Helena forest plan – include a "cover" component for maintaining and improving big game habitat and security on our public lands.

This approach was based on extensive peer review and published science on the topic, including Lyon (1985), Basile and Lonner (1979), Burbridge and Neff (1976), and Coggins (1976). For this reason, many of these big game standards in the existing Helena (and Lewis and Clark) forest plans – including standard 4a – were incorporated into a number of Region One Forest Plans and served as the applicable standard for the Region's forests for over 30 years.

The Service's revised forest plan, however, ***removes all*** of these important and critical big game standards. Standards 1 thru 10 in the existing Helena forest plan and all big game standards in the Lewis and Clark forest plan (described above) are removed and replaced with nothing at all or, at best, purely voluntary and vague "desired conditions" or "guidelines" that can be ignored by the Service (and the public).

Indeed, the revised forest plan includes ***no standards*** for maintaining and improving big game habitat and security on the forest. The Service's revised forest plan therefore lacks any enforceable, non-discretionary standards for maintaining and improving big game security and habitat on the forest. Nor are there any standards for maintaining and improving hiding cover on big game summer range or thermal cover on big game winter range. Standards 1 through 10 from

the existing Helena forest plan – all of which were based on the best available science and subject to extensive peer review and premised on published papers – are gone.

This is a significant, drastic, and controversial decision that will have real on-the-ground impacts for big game, big game habitat and security, and other wildlife species that benefit indirectly from such habitat and security (including but not limited to Canada lynx, wolverine, and grizzly bears). This decision also violates the spirit of the Service's previous, December 2, 2016 commitment to the public that it would carefully discuss and evaluate "big game security and any changes in management direction for the Helena-Lewis and Clark National Forest" during the revision process. See December 2, 2016 Letter (already provided to the Service during the comment period). In short, the revised forest plan, as written, does not include any meaningful analysis or standards for managing big game habitat and security on the forest.

For this and other reasons (outlined below) we strongly object to the Revised Plan as it pertains to big game, particularly elk and bighorn sheep (the latter of which we expand upon in Section IV below), and hereby submits the following objections and proposed solutions.

1. *The revised forest plan fails to utilize the best available science on big game habitat and security.*

NEPA requires all information and data used be of "high quality" and utilize "accurate scientific analysis." 40 C.F.R. § 1500.1(b). The Service's National Forest Management Act ("NFMA") 2012 planning regulations go a step further and explicitly direct the responsible official to "use the best available scientific information to inform the planning process." 36 C.F.R. § 219.3. The Service is to determine "what information is the most accurate, reliable, and relevant to the issues being considered" and document how the "best available scientific information was used to inform . . . the plan decision . . ." Id.

The Service must therefore ensure its proposed action utilizes the best available science on how to properly manage big game habitat and security, including, but not limited to, hiding cover on summer range, thermal cover in winter range, and security during the fall hunting season. The Service must also discuss and utilize the best available science when analyzing and documenting how the proposed action adversely impacts (directly, indirectly, and cumulatively) big game habitat and security. This never occurred.

For example, the best available science reveals the Service cannot logically manage, protect, and improve big game habitat, including summer range, winter range, or "security areas" on National Forest lands in the absence of standards, including a standard that includes a "hiding cover" component (as well as limits on open road density).

This is consistent with the Service's own October 25, 2013 "framework for project-level effects analysis on elk" (already provided to the Service during comments on the draft EIS). Notably, both Hillis (1991) and Christensen (1993) require cover in elk security areas. Hillis et al. (1991) does not expressly include a standard for hiding cover but the paper does discuss the importance of cover (as do other papers) and recognizes that security areas may consist of a variety of cover types. Further, in a April 12, 2013, letter to Greg Munther from the Montana Backcountry Hunters and Anglers regarding the Service's proposed amendment for the neighboring Blackfoot Travel Plan (the letter was provided with Mr. Munther's comments on the draft EIS), Hillis and Jack Lyon describe the 250 acre block size requirement as a "hiding cover" variable. The best available science thus reveals that the amount of available hiding cover in security areas – and how it will be managed – is an important factor that must be considered and addressed by the Service.

In the draft DROD, final EIS, and revised plan, the Service relies heavily on a document prepared in 2013 by the Service and Montana Department of Fish Wildlife and Parks ("Montana") to question the value of habitat cover as a metric for an elk security standard (hereinafter "2013 recommendations"). But this paper is only one of many and the Service mischaracterizes its findings.

The Service, for example, concedes that "[h]iding cover, defined as "vegetation capable of hiding 90 percent of a standing adult elk from the view of a human at a distance equal to or less than 200 feet" (J. L. Lyon & Christensen, 1992) has been used as a measure of summer habitat quality (Thomas, 1979), assuming that adequate hiding cover may increase the ability of elk to use summer habitat by providing areas where they can rest, forage, and regulate body temperature without disturbance or displacement caused by humans or predators." The Service also admits that "[v]arious sources have recommended managing for a variety of mixtures of hiding cover, thermal cover, and foraging areas, depending on characteristics of the area under consideration (Thomas, 1979)." But, having said this, the Service then goes on to conclude in the EIS that "habitat relationships on summer range are far more complex than can be defined by cover/forage ratios (Leege, 1984), making management recommendations for specific cover/forage ratios difficult and of questionable value." The problem is that this conclusion does not follow from the premises. Nor does it have scientific support.

Indeed, none of the scientific papers relied on and cited throughout the EIS for the forest plan revision support the idea of abandoning the use of cover as a metric or important component for managing big game habitat or for elk security. Instead, recent research, some of which the EIS references (and all of which was already provided to the Service in comments on the draft EIS),

supports the concept of management standards that include more variables in elk security, including a hiding cover component.

The Service also attacks the uncertainty around hiding cover in elk security (recent studies have attempted to test the amount of cover necessary for elk security and have also considered how land ownership affects elk security).

For example, in the EIS, the Service notes that "the role of hiding cover, which is a component of elk security, appears to vary. Some studies have emphasized cover as a key habitat component for elk in the fall and have attempted to quantify its contribution to security as a counterweight to open road density" (citing Lyon (1979); Perry and Overly (1976)). The Service then states that a "majority of management approaches, however, have concluded that the influence of cover can be outweighed by hunting pressure resulting from open roads or by the availability of un-hunted or very lightly hunted areas nearby" (citing Christensen, Lyon, & Unsworth, (1993); Henderson, Sterling, & Lemke, (1993); Lyon & Canfield, (1991); Lyon & Christensen (1992); Proffitt (2013); Skovlin, Zager, & Johnson, (2002); Thomas (1979); Montana Fish, Wildlife and Parks (2015)). But this statement conflates findings about private lands, findings about different elk genders, and findings pertinent to different ecosystems. None of the studies referenced dispute the importance of hiding cover; they only recognize that hiding cover might not be the main limiting factor in some, specific situations.

In fact, the most recent review of security on publicly accessible lands during the archery and rifle season by Ranglack et al. (in review, 2018 and already provided to the Service in comments on the draft EIS) recommends "…that to maintain elk on public lands managers consider increasing the amount of security habitat in areas that receive high hunter effort …".

The Service's EIS also states that the level of security on public lands is not a reliable indicator of overall elk availability or distribution during the hunting season where private land 'refuges' are available (citing Burcham (1999); Proffitt (2013); Ranglack (2014); Ranglack (2017)). But the studies and reports cited do not support the conclusion that hiding cover is not important to elk habitat and security, particularly if the goal is not simply herd management but rather the availability of quality hunting opportunities on public land. Also missing from the revised forest plan and EIS is an analysis of the best available science on climate change and how it may affect forest vegetation (including hiding cover), certain tree species important for big game habitat and security (e.g., Douglas fir) and recruitment.

In response and in support of this objection, we provide a summary and overview of the best available science and most recent papers on this topic all of which counsel against abandoning the existing plans' big game standards and including a cover component for maintaining and

improving big game habitat and security. These studies – all of which were already provided to the Service in earlier comments or are already included in the project file – include, but are not limited to, the following:

a. Foundational Studies. A few studies from the 1980s and 1990s are the foundation of the approach to elk security. These include Hillis (1991), Lyon (1987), and Christensen (1993). These studies emphasize the importance of road density, hunter effort/days, and cover as components of elk security. This was confirmed by Hillis and Lyons in their April 12, 2013 letter (already provided).

b. 2013 Recommendations. As noted earlier, the draft ROD and revised forest plan rely heavily on this document when discussing big game habitat and security. In fact, the Service reiterates in the draft ROD that the new approach for managing big game security (which is devoid of any standards) is "aligned" with the 2013 Recommendations. However, the actual findings and recommendations in this report are more nuanced and mixed than portrayed by the Service.

The 2013 Recommendation states, for example, that "agency participants recommend that forest management activities involving access management (e.g. travel planning; vegetation projects requiring temporary or permanent road construction) provide adequate security areas to allow elk to remain on [public] lands during the archery and rifle hunting seasons." The report also says that Montana and Service "biologists should jointly develop specific recommended strategies to address the situation (including the use of Hillis (1991) concepts). Recommended management strategies may include the use of seasonal road closures (9/1 or 10/15 depending on the individual situation) to increase area specific elk security levels, managing for a higher percentage of the [elk unit] that provides security (e.g. 50%, etc.), increasing the minimum size of security areas (e.g. 500 acres, etc.), and/or increasing the minimum distance of the security areas from open motorized routes (e.g. 1 mile, etc.)." Notably, the 2013 Recommendation does not suggest that road density alone affects elk security but rather only in certain circumstances: "The studies considered by Hillis et al. were done in areas where forests of various ages were continuous. In their discussion of security areas, Christensen et al. (1993) speak to the significance of cover in this equation and note that where cover is ubiquitous, security can be controlled by road management alone."

The Service also relies heavily on one paragraph in the 2013 Recommendation, noting that: "[t]he agency participants recognized that there were a lot of different variables that must be considered when applying the parameters from the Hillis et al. paper, and as the paper suggests, the numerical recommended guidelines may not be sufficient in all cases and that 'strict adherence to the guidelines should be avoided.'" But this statement does not say that numerical

thresholds are not useful or otherwise support abandoning big game standards (including a hiding cover component) altogether on our National Forest lands.

For example, the 2013 Recommendation states that "a specific quantifiable cover recommendation was not supported by the scientific literature. While Lyon et al. 1985 (Coordinating Elk and Timber Management; 1985) speaks to 'good cover' as being two-thirds of the total area, and Thomas et al. (1979) recommended managing for 40% cover and 60% forage for elk, to our collective knowledge, these recommendations have never been empirically tested." Nothing in that statement, however, supports abandoning all standards or abandoning a hiding cover component as part of those standards (just changes to the percentage needed based on the characteristics of each area). There is a difference between recognizing that a specific quantifiable recommendation has not been tested versus whether or not the concept of elk hiding cover has been tested.

c. Proffitt (2013). The key finding in this paper is that female elk in landscapes with a matrix of public and private lands select for areas with low road density and areas that restrict public hunting rather than for hiding coverage. However, the paper did not question the traditional notion of elk security "aimed at providing adequate adult male elk survival while not limiting elk hunter opportunity." The authors "may expect male elk to show a stronger preference for security habitat than we observed in female elk and the security habitat concept may still apply to the issue for which it was developed."

The authors of this study actually had concerns about the very conclusions that the revised plan endorses, i.e., the finding that female elk may prefer private lands closed to hunting which could reduce the ability of hunters to access elk on public lands: "If animals learn migratory and movement patterns as calves, over time this could result in the loss of the public land herd segment and limited private land hunts will not be effective in rebuilding the public lands segment of the herd over the short term." The final conclusion of the paper was that "management of motorized road access by land management agencies may influence female elk distributions onto public lands during the hunting periods. If these strategies are successful, and provided that adequate elk forage is available on public lands, publicly managed security areas may become a more central part of adult female elk habitat use during hunting seasons than we documented here."

d. Ranglack (2014). The key finding is this paper is the authors' recommendation that "the current elk summer habitat management paradigm based on managing motorized route density to maintain elk habitat effectiveness (Lyon 1983) be expanded to also consider nutritional resources." Rather than undermining the traditional elk security metrics, this study merely recommended adding a factor to it.

e. Ranglack (2016). This analysis of elk in southwestern Montana provided "results [that] suggest that elk habitat management during the hunting seasons should focus on accessibility of lands for public hunting, motorized routes, and canopy cover. These covariates all had significant effects on female elk resource selection during the archery and rifle seasons and are under some degree of management control." The results and management recommendations from this paper mirror the peer reviewed paper from the same team published in 2017 (see below).

f. Ranglack (2017). The authors "recommend that to maintain elk on public lands, managers consider increasing the amount of security in areas that receive high hunter effort, or hunting seasons that limit hunter effort in areas of high motorized route densities." This study directly addresses the 2013 recommendations. "The relative importance of canopy cover for elk security areas has been questioned, especially in areas with less dense forest cover (Montana Department of Wildlife and Parks and U.S. Department of Agriculture Forest Service 2013), but has not been formally evaluated." As in the Proffitt 2013 study, they found that "in general, elk were more likely to use areas that restricted public access."

This 2017 study largely confirms the concepts of the traditional security measures, although it offers different metrics for them: "Model results indicated that elk were more likely to use areas with higher canopy cover at all distances from motorized routes and were more likely to use areas far from motorized routes at all levels of canopy cover." A key finding from the paper was that, overall, "elk habitat management during hunting seasons should focus on hunter access, hunter effort, canopy cover, and motorized routes." The study goes on to state that the "traditional security paradigm of managing for blocks of unfragmented forest cover away from motorized routes (Lyon 1979, 1983; Hillis et al. 1991) has been widely accepted and is likely a factor contributing to increasing elk populations over the last 50 years (Lonner and Cada 1982, Hillis et al. 1991, Picton 1991, O'Gara and Dundas 2002). Our results suggest that similar security paradigms could be applied to southwestern Montana in efforts to encourage female elk to use public lands. During the archery season, our analysis suggests that areas with ≥ 13% canopy cover (1,000-m scale) that are ≥ 2,760m from the nearest motorized route may be perceived by female elk as secure, regardless of block size. During the rifle season, areas with ≥ 9% canopy cover, that are ≥ 1,535m from the nearest motorized route, with a block size of ≥ 20.23 km2 may be perceived by female elk as secure." This 2017 study did not question the importance of canopy but only the threshold at which it matters.

g. Wisdom (2018). This study, done at an experimental forest in Oregon, found support for traditional concepts of cover as a part of elk security. It evaluated the impacts of four types of recreation on elk: ATV's (high), hiking (low), horseback riding (low), and mountain biking (intermediate). The study confirmed Proffitt's concern about elk moving

to private lands. "Habitat compression can ultimately lead to large-scale population shifts by elk from public forests to private lands, thus eliminating hunting and viewing opportunities on public lands (Proffitt et al. 2013)." Relevant here, the authors also considered hiding cover to be important to elk: "The influence of silviculture and forest topography on viewing, and the subsequent recreation effects on wildlife sensitive to human presence, agrees with Lyon's (1987) modeling of forest structure and topography to characterize hiding cover for elk." The study's "result agrees with past studies showing elk use of areas obstructed from view (e.g. Montgomery et al. 2012), sometimes referred to as 'hiding cover' for elk (Thomas et al., 1979; Canfield et al. 1986; Lyon, 1987)." Naylor, Wisdom & Anthony (2009) also had similar findings.

h. Montgomery (2013). This study analyzed elk behavior in South Dakota in Custer State Park. The management implications, though, included the suggestion that "visibility, as influenced by topography and vegetation, be managed to positively affect elk space use. Vegetation management (e.g., timber harvests, provision and maintenance of openings to provide elk forage) could be integrated with road visibility assessments to identify portions of the landscape protected from human view." The study also found that "[m]ore broadly, these results can be used to support road management activities in areas where elk inhabit road dense environments…. In all cases, elk space use was negatively affected by proximity to and visibility from primary roads."

i. Rumble & Gamble (2011). This study analyzed elk behavior in South Dakota in the Black Hills National Forest. The study authors "were surprised that sites selected by elk had less hiding cover than random sites." But, in addition to unusual precipitation patterns in the Black Hills compared to other areas in the West, the authors also noted that they did "not believe the observed patterns of selection were driven exclusively by avoidance of predation (e.g., Laundre, 2010) or human activity associated with road densities (Lyon, 1983; Unsworth et al., 1993, Lyon and Christensen, 2002). Consequently, we believe the definition for hiding cover for elk should be revised for this forest area. . . . Elk selection of forest sites under even-age management of ponderosa pine may vary throughout the west."

j. Lowrey (2019).[92] This more recent study published in the Journal of Wildlife Management assesses the effect of mountain pine beetle and its associated changes in forest structure on elk security in the Helena-Lewis and Clark National Forest (Elkhorn Mountains). The authors noted that the "top-ranked habitat security models" for elk "contained positive relationships with canopy cover, distance to motorized routes, terrain ruggedness, and slope with a few notable differences among sexes and seasons." Notably, the authors recommend that big game (elk) security be defined as areas that meet the

[92] See Attachment L - Lowery, 2019.

certain, minimum criteria for canopy cover (discussed in the paper) and distance from motorized routes" in the forest's Elkhorn Mountains "and in other landscapes with similar forest characteristics and hunting pressure."

In sum, careful review of the best available science, including these most recent studies on big game habitat and security (all of which were already provided to the Service), reveal several common themes, including: (a) that roads and hunter access are some of the most important factors to maintaining and improving elk security; (b) that elk will move to areas without hunter access, including to private lands, if there is insufficient security on public lands (in other words, there is a difference between managing an elk herd for its population and managing an elk herd for hunting opportunities on public lands); (c) the concepts underlying the foundational elk security models like Hillis (1991) – which include a hiding cover component – are correct, but the threshold levels of impacts (or how strict the amount needs to be) might vary; and (d) studies and their respective findings vary by ecosystem and are generally focused only on female elk.

Importantly, these studies, including several cited in the EIS and revised forest plan, do not suggest the need for (or provide any support for) abandoning standards to manage for big game security and habitat on our public lands. Nor do they support the idea of removing a hiding cover component from such standards (only that past standards may have been too stringent and might need to be adjusted).

The Service's controversial decision, therefore, to abandon all big game standards – including any and all protections in place to maintain and protect sufficient "cover" for big game on our public lands in the existing forest plans – conflicts with the best available science and violates NEPA and NFMA. Further, the Service has yet to provide a reasonable explanation for why it is now abandoning the best science on big game management and its previous standards designed to maintain and improve big game habitat and security on our National Forest lands.

Suggested Resolution: Retain all of the big game standards from the existing forest plans (Helena and Lewis and Clark) or, in the alternative, adopt new standards that are consistent with the best available science discussed above and include a hiding cover component. To the extent the Service wants to utilize the 2013 Recommendations, do so by incorporating them into standards (not voluntary guidelines).

2. *The Service failed to consider and evaluate a reasonable range of alternatives.*

NEPA "mandates that agencies 'study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." Pit River Tribe v. U.S. Forest Service, 469 F. 3d 768, 785 (9th Cir. 2006) (quoting 42 U.S.C. § 4332 (E)); see also 42 U.S.C. § 4332 (2)(C)(iii) (must consider "alternatives to the proposed action").

The alternatives analysis is "the heart" of the environmental analysis because it presents "impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options." 40 C.F.R. § 1502.14. The alternatives analysis guarantees that "agency decisionmakers '[have] before [them] and take into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance.'" Bob Marshall Alliance v. Hodel, 852 F. 2d 1223, 1228 (9th Cir. 1988) (citations omitted). "Informed and meaningful consideration of alternatives . . . is thus an integral part of the statutory scheme" and critical to the goals" of NEPA. Id. at 1228-29.

Here, the Service fails to adequately describe, let alone consider and analyze, a reasonable range of alternatives for the forest plan revision and, in particular, the decision to remove and not replace the existing forest plan standards for big game. No alternatives that include big game standards were ever discussed or analyzed in the EIS. Nor did the Service evaluate an alternative that includes Management Area direction specifically for areas deemed critical for big game security (this area should overlap with the IRAs and include standards for big game management (the specifics of which were submitted in Helena Hunter's previous comments). As such, the Service failed to analyze a reasonable range of big game alternatives to the proposed action.

At the very least, a reasonable range of alternatives would include providing a more thorough analysis of the environmental consequences of the "no action" alternative, i.e., keeping the existing big game standards, and then evaluating and comparing a wide range of new and varying standards/approaches for managing big game habitat on the forest based on the best available science.

Suggested Resolution: Evaluate a reasonable range of alternatives that include various standards and approaches for managing big game habitat and security. Such alternatives might include, but are not limited to: (1) applying and incorporating the Hillis model as described in Hillis (1991) into forest-wide or management area big game standards without any changes; (2) adopting forest-wide or management area standards that increase block sizes, threshold values, and/or distances from roads or make other modifications to the Hillis method's criteria to account for difference between the eastside and westside forests; (3) the Service's draft ROD, which abandons all big game standards; (4) a hybrid between (1)-(3) discussed above; (5) keeping some or parts of the big game standards and combining them with other approaches, including the Hillis method or more recent papers/approaches discussed above; (6) keeping the existing standards but developing new methods and/or approaches to increase hiding cover and reducing road density or new scales to measure compliance with the standards; or (7) developing an entirely new approach based on current habitat conditions and harvest numbers for the analysis area and after consulting local researchers and biologists. None of these options, however, were

evaluated in the draft EIS or final EIS. The Service simply adopted an "all or nothing" approach for big game management in violation of NEPA.

3. *Removing (and not replacing) the existing forest plans' big game standards is a drastic move that does not comport with the purpose and need of the revised forest plan*

Pursuant to NEPA, the Service must "specify the underlying purpose and need" of the proposed action. 40 C.F.R. § 1502.13. Doing so is important because it dictates the range of alternatives that must be considered and evaluated by the Service (see above).

Here, the Service has not (and cannot) explain why the revised plans' removal of all big game standards is needed or otherwise consistent with a purpose and need to provide for ecosystem diversity and integrity or ensure the revised forest plan is consistent with the best available science. As noted above, the purpose of the existing standards in the Helena and Lewis and Clark forest plans was to ensure proper management of big game habitat and security on the forests. The existing forest plan standards for big game are driven by the best science and ensure habitat and security for big game species remains on the forest. As such, abandoning such standards – altogether – and replacing them with voluntary "guidelines" has no support in the science and undermines (as opposed to supports) the Service's goal of providing for ecosystem diversity and integrity.

The Service insists the purpose and need is to bring big game habitat and security in line with the best available science but, as outlined above, this is inaccurate. A more honest purpose and need statement would reference the Service's prolonged and continued failure to comply with its existing big game standards, including those like standard 4a that include a hiding cover and road density component. Indeed, as the Service concedes, elk numbers "have been steadily increasing" since the big game standards in the existing forest plan were adopted in 1986. So, decline in elk numbers and a need to shift management strategies to improve big game management is not the motivation. The Service's proposed amendment is more about giving the Service more flexibility and latitude in forest management and travel planning than proper management of big game habitat. This needs to be conveyed to the public.

Suggested Resolution: Reevaluate whether removing all big game standards is necessary to achieve the purpose and need of the forest plan revision and explain why removing all big game standards (which have and continue to work in terms of big game management as reflected in the Service's own figures and statements) are being removed and replaced with an entirely voluntary, "guidelines" approach.

4. *The Service failed to analyze the direct impacts of removing the existing forest plans' big game standards.*

Pursuant to NEPA, the Service is required to assess how the proposed action – here the Service's revised forest plan and decision to abandon all big game standards in the existing forest plan –

may directly impact the environment. Direct impacts are caused by the action and occur at the same time and place. 40 C.F.R. §1508.8. The direct impacts of an action must be analyzed based on the affected interests, the affected region, and the locality in which they will occur. 40 C.F.R. § 1508.27 (a).

Here, the Service failed to take a hard look at the direct impacts of the revised forest plan which– by eliminating all big game standards from the existing forest plans, including those for summer hiding cover, winter thermal cover, and security – will result in less protections for big game species (and other wildlife species, including grizzly bears, lynx and wolverine), less hunting opportunity on public lands, less hiding cover on National Forest lands in the elk herd units (and more timber harvest), increased road-densities, less connectivity on the landscape, and less big game security on our public lands.

Nowhere in the EIS does the Service analyze what the direct impacts of these changes will be on survival of male big game animals and habitat (elk, deer, and moose) or on other focal, sensitive and listed species (Canada lynx, lynx critical habitat, and grizzlies) or species proposed to be listed species (wolverine) inhabiting the area. Most of these species depend on (and need) dense forests with high levels of horizontal cover, secure areas, and less roads for long-term survival and recovery. But no analysis in the EIS is provided. Nor does the Service analyze how the revised forest plan will impact other species that rely on and benefit from the existing forest plans' big game standards. This includes not only grizzly bears, wolverine, and lynx but also lynx critical habitat and habitat connectivity on the forest (and especially along the Continental Divide) or the importance and use of the area as a linkage zone or travel corridor for wildlife.

In the EIS, the Service merely concludes that abandoning the big game standards designed to protect summer range, winter range, and security and protect "cover" will have no negative effect on big game security. No hard look or analysis is provided even though the loss of hiding cover from timber harvests – which is the likely result of abandoning forest plan standards that include a hiding cover component – has the potential to "severely impact remaining security and, ultimately, hunter opportunity." Hillis (1991) at 42; see also Jellison (1998) (hunter opportunity down on the Bighorn National Forest due to "accelerated timber harvesting . . . [that] sent former elk hiding cover to the sawmills and logging roads permeating previously secluded areas."); Christensen et al. (1993) ("As you move east into Montana and over the Continental Divide, cover considerations become more important because cover is less abundant and less contiguous . . . it will be important to develop long-term perspectives (rotation length) on cover management that address condition, quantity, location, and configuration.").

In sum, the Service must (but has failed) to take a hard look at how the revised forest plan – including the abandonment of all big game standards – will directly impact the environment, including but not limited to, soil quality and productivity, water quality (sediment from existing routes in the analysis area is currently a problem), wetlands, Inventoried Roadless Areas (IRAs),

wilderness values, integrity and use of the area as a corridor or "linkage zone" for wildlife, and habitat and population numbers for threatened and endangered species (including lynx and grizzlies), sensitive species (wolverine - currently proposed for listing), and various sensitive species on the forest, especially forest-dependent species.

Suggested Resolution: Take a hard look at how the revised forest plan (and removal of all big game standards) may directly impact big game species and habitat and then re-evaluate its decision in light of this analysis.

5. *The Service failed to analyze the indirect impacts of removing the existing forest plans' big game standards.*

Pursuant to NEPA, the Service must take a hard look at the indirect effects of the proposed action. Indirect effects of a proposed action are effects that are caused by the action but occur later in time or are further removed in distance. 40 C.F.R. § 1508(b). Indirect effects "may include growth inducing effects or other effects related to induced changes in pattern of land use; population density or growth rate; and related effects on air, water, and other natural resources." Id.

Here, the revised forest plan and removal of big game standards from the existing forest plan will likely result in less hiding cover of National Forest lands. This may push elk off of public lands and onto private lands (assuming security is provided on those lands). And the loss of hiding cover, most likely from timber projects, will come with additional logging roads and skid trails thereby providing even more access into secure areas. In addition, eliminating important big game standards – like standard 4a – paves the way for more roads and motorized trails on National Forest lands which, in turn, means more public access to remote areas. These roads – which make it easier and faster for walking, biking, ATVs, motorbikes, vehicles and horseback riding – will funnel more hunters, trappers, and recreationists into otherwise secure habitat. No analysis of these and other indirect effects, however, are provided in the EIS.

Recommended Solution: Take a hard look at how the revised forest plan (and removal of all big game standards) may indirectly impact big game species and habitat and then re-evaluate its decision in light of this analysis.

6. *The Service failed to analyze the cumulative impacts of removing the existing forest plans' big game standards.*

Pursuant to NEPA, the Service must analyze the cumulative impacts of the proposed action. Cumulative impacts are "the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Cumulative impacts can result from "individually minor but collectively significant actions taking place over a period of time." Id.

The proper consideration of cumulative impacts under NEPA requires "some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." Great Basin Mine Watch v. Hankins, 456 F. 3d 955, 971 (9th Cir. 2006). Moreover, the "analysis must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." Id. The Service "must do more than just catalogue relevant past projects in the area." Id. It must give a "sufficiently detailed catalogue of past, present, and future projects and provide adequate analysis about how these projects, and the difference between the projects, are thought to have impacted the environment." Id. Some "quantified assessment of their combined environmental impact" is required. Id. at 972.

Here, the Service neglected to identify or properly consider and analyze how eliminating the existing forest plans' big game standards may cumulatively impact all big game species (not just elk but deer and moose as well), other forest dependent species that rely on hiding cover (including management indicator species ("MIS"), sensitive species, and listed species (like lynx and grizzlies), grizzly bear security, water quality, soil quality and productivity, cultural and historic property, wilderness values, IRAs, and wildlife connectivity and use of the area as a linkage or travel corridor along the Continental Divide.

At present, there are a number of Federal, State, and private actions that have occurred, are occurring, or are reasonably certain to occur on the Helena-Lewis and Clark National Forest, the forest's elk herd units (EHUs), and the proposed analysis area that may be having a cumulative impact on big game habitat and security and other resources and, as such, must be analyzed by the Service. These include, but are not limited to: forest management on public lands (thinning, salvage, regeneration harvests, hazardous tree removal, pre-commercial thins) and associated roads, skid trails, and disturbance; the Tenmile South project and Telegraph projects; the R-1 and N-1 amendments for the Blackfoot Travel Plan; the new Blackfoot Travel Plan (including the 300 foot dispersed camping authorization); climate change; the Divide Travel Plan; private land development and forest management; motorized recreation and travel planning; beetle-kill, climate change, livestock grazing, highways, hunting, and superfund cleanup/storage.

Suggested Resolution: Take a hard look at how the revised forest plan (and removal of all big game standards) may cumulatively impact big game species and habitat and then re-evaluate its decision in light of this analysis.

7. *The Service's revised forest plan fails to ensure a diverse and viable population of big game species (and other wildlife) remain on the forest.*

Under NFMA, the implementing regulations, and the existing Helena-Lewis and Clark Forest plans, the Service is required to manage wildlife habitat to ensure diverse populations of existing native species are maintained and remain viable. This requirement was carried forward into the

2012 planning regulations. See 36 C.F.R. § 219.9 (requiring the Service provide for the diversity of plant and animal communities).

To do so, the Service previously identified management indicator species ("MIS") for various species groups within the forest whose habitat is most likely to be changed by forest management activities. The MIS for the mature tree dependent group in the Helena forest plan, for instance, is the marten. The old growth dependent group is represented by the pileated woodpecker and the goshawk; the snag dependent groups is represented by the hairy woodpecker; the threatened and endangered group includes the grizzly bear (and other species); and the commonly hunted MIS are elk, mule deer, and bighorn sheep.

These MIS represent a proxy or surrogate for the health and viability of many other species. While the Service retains some flexibility with respect to the appropriate methodology used to monitor population numbers (actual and trend) of MIS, i.e., using population data on MIS and/or habitat data as a proxy for MIS population data (commonly referred to as the "proxy-on-proxy" approach) the mandate to maintain viable populations of MIS (or the equivalent thereof under the new regulations) like elk, mule deer, marten, grizzlies and woodpeckers, is statutorily based and cannot be ignored. And the methodology employed must be reasonably reliable and accurate. See Native Ecosystems Council v. Tidwell, 599 F. 3d 926, 933 (9th Cir. 2010).

If, for example, the Service decides to use habitat as a proxy for population numbers for MIS, then the proxy results must mirror reality. Maintaining the acreage of habitat necessary to maintain viable populations of big game species (elk, deer, and moose) on the Helena-Lewis and Clark National Forest must in fact ensure viable populations are maintained. At the very least, the Service must describe the quantity and quality of habitat that is necessary to sustain the viability of big game species and explain its methodology for measuring this habitat. See Native Ecosystems Council v. Weldon, 848 F. Supp.2d 1207, 1213 (D. Mont. 2012).

In the existing Helena and Lewis and Clark forest plans, the Service uses the big game standards – which are now proposed for elimination – as a means of ensuring compliance with NFMA's viability requirement. Compliance with standard 4a's hiding cover and road-density standard, for instance, is used as a proxy for population numbers and composition of elk and, as such, other big game species.

The revised forest plan, however, eliminates standard 4a and all big game standards in the existing forest plans and replaces it with nothing or voluntary and vague "guidelines." As such, there are no restrictions or sideboards in place to ensure sufficient cover is provided for summer range, winter range, or security. Nor are there any assurances, let alone reasonable assurances, that the new approach (with no standards) is reliable and accurate and will ensure viable populations of elk and other big game species will be maintained. See Weldon, 848 F. Supp.2d at1214-1215.

Indeed, under the revised forest plan, there are no numeric or narrative thresholds to protect big game habitat and security. This is a violation of NFMA. The Service simply cannot "provide for the diversity of plant and animal communities" on the forest in the absence of any standards designed to provide for such diversity. Nor has the Service demonstrated how this is possible.

The 2012 planning regulations explicitly direct the Service to provide for the diversity of plant and animal communities (including big game and other species) and require a two-prong ecosystem and species-specific approach for doing so. The revised forest plan must include plan components necessary for ecosystem diversity (including for big game and other species) and, if necessary, species-specific plan components. 36 C.F.R. §§ 219.9 (a),(b). If the general plan components are insufficient to contribute to the recovery of listed species, conserve candidate species, or maintain viable populations of species of conservation concern, then additional species-specific plan components are required. Id. But, as noted above and throughout this objection, the revised forest – as written – includes neither the necessary general ecosystem components (standards) or species-specific components necessary to protect and restore diversity, including big game habitat and security (or habitat for other species). Nor does it include the monitoring required by 2012 planning regulations, including (but not limited to) monitoring that addresses the status of focal species (including elk) and the diverse ecological conditions required by the regulations. See 36 C.F.R. § 219.12.

Suggested Resolution: Include ecosystem standards in the revised forest plan for big game species (and other wildlife) as well as species-specific plan components for elk (and other wildlife species) and adequate monitoring.

IV. Livestock Grazing Program

The assessment of the livestock grazing program is woefully inadequate, and fails to meet numerous requirements under NEPA. The Revised Plan and the FEIS routinely cite livestock grazing as a significant impact to aquatic, riparian, and terrestrial ecosystems, yet fail to disclose this analysis, and fail to make any substantive changes to address this resource degradation despite numerous previous comments that provide guidance for changes.

A. Grazing Program Overview

1. Use of inaccurate baseline to describe current conditions

The lack of baseline information leaves an incomplete analysis of the grazing program. There is no comprehensive analysis of the 1.4 million acres that are currently available for livestock grazing. Instead there are statements throughout the Revised Plan and the FEIS that describe the impacts of grazing such as:

"The effects of livestock can be seen across the planning area, particularly in riparian areas where they concentrate."[93]

"Livestock grazing has the potential to impact plant communities through factors such as invasive plant spread and damage to riparian areas."[94]

"Livestock grazing can degrade wetland habitat through vegetation removal, bank trampling and hoof damage to wetland substrates."[95]

However, these statements are not comprehensive and do not provide an adequate baseline for the Forest or the public to base management decisions on. CEQ regulations state that, to comply with NEPA, an agency "must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA."[96] The Forest must provide the public with the underlying environmental data, and "set forth the baseline conditions."[97] Although WWP previously commented regarding this lack of baseline data,[98] The Forest utterly failed to expand their analysis to include any baseline data regarding the grazing program.

Not only is there no information in the Revised Plan or FEIS regarding the ecological health of the 1.4 million acres that are currently grazed on the Forest, there is also no information regarding the various grazing systems in place, what actual use for each allotment is, and how many allotments are meeting the standards of the existing plans. The Forest simply states that,

"range condition is an assessment of the current health of the plant communities and soils, often expressed as the degree of similarity or dissimilarity of current plant composition and abundance compared to potential or natural/historic conditions."[99]

Where is the compilation of this information? How can the Forest and the public evaluate the current grazing program without this baseline information? Instead, the Forest goes on to say that an analysis of vegetative characteristics and their distribution was completed in the 1990s, with "*other* intensive vegetation plot data collected prior to 2015 for *several* range analyses across the

[93] FEIS section 1 at 57
[94] FEIS section 2 at 71, 86, 106, 111, 119, 123
[95] FEIS section 1 at 72
[96] 40 C.F.R. § 1500.1 (b)
[97] *Western Watersheds Project v. BLM,* 552 F.Supp.2d 1113, 1126 (D. Nev. 2008)
[98] WWP Draft Plan comments at 3 and 4
[99] FEIS section 2 at 215

Forest."[100] (emphasis added). This leaves the reader wondering if the Forest has any idea what current range conditions are. What baseline is the Forest working from if they are relying on vegetation and range analyses from 30 years ago? Additionally, the results from the analysis show a significant portion of the grazed acres in the Forest are in high ecological status, but without the baseline data to review it is hard to know what is being considered high ecological status.

Finally, WWP commented on the Draft Plan and DEIS that:

> "The lack of quantitative data or methodology to assess that data is a problem that the Forest has recognized throughout the planning process but evidently has decided to just paper over in the DEIS. According to the Assessment: '*A consistent analysis across the HLC NFs plan area for the quantitative measures for rangeland health is not yet available at the writing of this assessment, but methods are currently being developed for the best available data and will be considered in the forest plan revision process.'*"[101]

This has not been remedied. The FEIS and Revised Plan lack any comprehensive quantitative baseline data. There is no consistent analysis across the plan area, and there is not even an acknowledgement of that missing data in the Revised Plan and FEIS. This is a clear violation of NEPA which makes it impossible to accurately assess the HLC NF grazing program.

Suggested Resolution: Establish methods to quantitatively assess the rangeland health across the forest. Provide a schedule for completion of the analysis, and provide the public the opportunity to review and comment on the actual baseline rangeland data during an official NEPA process. Additionally, provide overarching criteria-based guidance related to the determination of areas that are suitable and capable for livestock grazing. Establish interim guidelines for grazing management to reduce grazing impacts forest wide until this analysis is complete.

2. Targeted Grazing

To fulfill NEPA's public disclosure requirements, the agency must provide the public "the underlying environmental data" from which the Forest Service develops its opinions and arrives at its decisions.[102] However, there is a serious dearth of this information throughout the plan and

[100] FEIS section 2 at 215
[101] WWP Draft Plan comments at 3 citing Assessment, Ch. 6, p. 7
[102] *See Id.ho Sporting Cong. v. Thomas,* 137 F. 3d 1146, 1150 (9th Cir. 1998), *overruled on other grounds by Lands Council V. McNair,* 537 F. 3d 981 (9th Cir. 2008) (en banc).

the FEIS. While this is present throughout the FEIS a particularly stark example is in the scattered discussion of targeted grazing:

> *"Domestic sheep or goat grazing used as part of an integrated pest management weed control program shall maintain effective separation of bighorn sheep from domestic sheep or goats."*[103]
>
> *"Livestock grazing is suitable where needed to establish or maintain desired conditions for vegetative communities"*[104]
>
> *"Conversely, domestic livestock grazing (in a process known as prescribed grazing) has also been shown to be an effective method in managing some large invasive plant infestations while assisting the ecological succession process."*[105]
>
> *"Even though grazing can be used as a noxious weed and invasive species control mechanism, risk of spreading undesired species to other areas within the forest remains an issue without the use of mitigations, such as quarantine or cleaning livestock before and after they have been in an area known to be infested with undesired species."*[106]

Nowhere in the FEIS is targeted, prescribed, or prescriptive grazing defined or analyzed. How can the public assess the Forest Service's decision to allow prescriptive grazing in RNAs if prescriptive grazing itself is never defined?

There is no analysis or disclosure regarding what such targeted grazing might look like. Targeted grazing is an unproven management tool and may contribute to continued degradation and spread of noxious and invasive plants. Targeted grazing lacks scientific support and is left without analysis in the FEIS. The existing best available science evidence identifies significant risks to utilizing targeted grazing as a treatment method.

The Forest fails to disclose what the use of targeted grazing will be, but by including it as a possible use, it requires full analysis and the disclosure of the underlying environmental data that would lead the Forest to consider this as a management tool. Failing to provide an analysis of prescribed grazing--particularly as a use in RNAs-- is a violation of the 'hard look' requirement under NEPA. The science is clear that excessive grazing leads to the reduction in perennial

[103] Revised Plan at 47
[104] Revised Plan at 97
[105] FEIS section 1 at 282
[106] FEIS section 2 at 227

plants,[107] can lead to a decline in perennial forb cover with a corresponding increase in annual plants, particularly *Bromus tectorum*[108]--a problem already present in the HLC NF, and as noted in multiple Bureau of Land Management planning documents, can spread invasive plants.[109]

By largely ignoring the need for analysis, the FEIS fails to describe what areas would qualify for targeted grazing, and fails to define how this would be applied as a treatment. Without disclosing this information to the public, it is impossible to analyze the impacts that may accompany an increase in the intensity of grazing.

Instead, the Forest repeatedly refers to targeted grazing only in subtle terms such as:

> "In the absence of natural fire, periodic prescribed burns and *appropriate grazing management practices* can be used to maintain this system. The spread of nonnative grass species has reduced native species diversity in all GAs in the planning area."[110] (emphasis added)

This sentence both acknowledges the problem faced by the HLC NF with invasive weeds, and authorizes the use of a known weed vector[111] as a control mechanism. There are numerous studies that call into question the use of livestock as a weed control mechanism; as many annual grasses including cheatgrass have evolved a tolerance to grazing through adaptations over time.[112] Thus, targeted grazing can really only be successful in the short term due to the ability of invasive annual plants to outcompete impacted native grasses and the tendency of invasive annuals to produce more seeds for the next generation to compensate.[113] The Forest Service's failure to disclose any information regarding how this use might be implemented, and how they reached that decision is stark and a failing of the agency.

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[107] See Attachment M - Pyke, D. A., Chambers, J. C., Beck, J. L., Brooks, M. L., Mealor, B. A. 2016. Land uses, fire, and invasion: exotic annual Bromus and human dimensions. Pages 307-337 in Exotic Brome-grasses in Arid and Semiarid Ecosystems of the Western US. Springer, Cham.

[108] See Attachment M - Loeser, M. R., Sisk, T. D., & Crews, T. E. (2007). Impact of grazing intensity during drought in an Arizona grassland. Conservation Biology, 21(1), 87-97.

[109] See Attachment M - Buffalo DEIS 2013: 306; Bighorn Basin DEIS 2011, vol. 2: 4-146; Billings-Pompeys Pillar DEIS 2013: 3-88; Miles City DEIS 2013, vol. 1: 3-77; South Dakota DEIS, 2013: 361; Oregon DEIS 2013, vol. 1: 4-89

[110] FEIS section 1 at 253

[111] See Attachment M - Belsky, A. J., & Gelbard, J. L. (2000). Livestock grazing and weed invasions in the arid West (p. 31). Portland: Oregon Natural Desert Association.

[112] See Attachment M - Strauss, S. Y. and Agrawal, A. A. 1999. The ecology and evolution of plant tolerance to herbivory. Trends in Ecology & Evolution 14(5): 179-185.

[113] See Attachment M - Mack, R. N., & Pyke, D. A. (1983). The demography of Bromus tectorum: variation in time and space. The Journal of Ecology, 69-93.

Suggested Resolution: Provide a full analysis of the potential use of targeted grazing using the best available science, and current ecological conditions. This analysis should include all environmental data that the Forest Service used to shape their opinions and reach their conclusions.

3. Capability and Suitability of the Forest to Support Livestock Grazing

The Forest is required to apply the best available scientific information[114] to determine which areas of the Forest are suitable for livestock grazing,[115] and which are not. Although WWP commented on this lack of analysis in the Draft Plan and DEIS,[116] The forest hardly expanded on this analysis in the Revised Plan and FEIS.

The FEIS states that:

> *"Based on GIS analysis, 1,733,332 NFS acres were determined to be capable for cattle grazing and 2,458,980 acres were mapped as capable for sheep grazing. Approximately 483,150 acres of NFS lands within the planning area were mapped as suitable for cattle grazing. Site specific analysis would refine these figures and mapping on a project-level scale"*[117]

The Forest Service fails to provide any information regarding what parameters were used to produce these results and what plans exist for site specific analysis. If the Forest is relying on AMP revisions to perform this analysis that is laughable. So far, there is no specific information regarding the ecological function of the allotments, actual use of the allotments, season of use, AUMs authorized, how many allotments are meeting standards, and what the AMP revision schedule will be. The Forest did disclose that, "158 allotments out of HLC NFs 240 allotments have had management plans updated."[118]

This means that in the 34 years since the last forest plan was updated, the Forest has only completed AMPs for two-thirds of the active allotments. This is appalling and clearly shows the lack of current vegetative data upon which the Forest Service can base their analysis. At this rate, it will be another 16-17 years before all AMPs are completed, meaning that by the time all AMPs are completed, it will have been 50 years since site-specific data was collected on numerous

[114] 36 C.F.R. § 219.3
[115] 36 C.F.R. § 219.7 (e)(1)(v)
[116] WWP Draft Plan Comments at 1
[117] FEIS section 2 at 215
[118] FEIS section 2 at 218

allotments. The Forest cannot rely on such out of date information when determining how to manage its grazing program.

So what then, is the capability/suitability analysis based on? And why is there active grazing on 1.4 million acres when only 483,150 acres were found to be suitable for cattle grazing? Further, were there no acres found to be suitable for sheep grazing? The woefully inadequate description and assessment of the capability and suitability of the HLC NF to support livestock grazing raises infinitely more questions than it answers. Why did the finding that such a small number of acres are suitable for cattle grazing not immediately spark further analysis?

Further, there is no disclosure regarding the specific capability and suitability of the various GAs to support livestock grazing. It's almost as if the Forest ignored all best available science regarding the impacts of livestock grazing and decided that it wasn't worth the time to analyze this pervasive and detrimental use across the HLC NF.

WWP previously commented on the Forest's track record with site-specific monitoring and compliance checks, but it appears with the statement that capability and suitability will be assessed with site-specific analysis, the Forest has ignored this comment altogether. To reiterate:

> "Considering the appalling track record for the Forest in terms of collecting data, monitoring, compliance checks, and actually completing NEPA analysis for AMP revisions, this is a fundamental abrogation of responsibility that is contrary to law and is arbitrary and capricious. The following admission by the Forest is particularly telling:
>
> > *'Over the years, financial and personnel limitations, as well as other resource priorities, have limited the amount of range allotment NEPA project decisions as well as created inconsistencies in monitoring frequency and intensity on the HLC NF allotments. These issues have ultimately led to a wide variety of riparian conditions and inconsistencies in permittee accountability in accordance with allowable use levels.'*
>
> Ignoring the fact that these financial and personnel limitations are unlikely to change in the future, the Forest has created a Plan that is wholly dependent on increased monitoring and professional interpretation by agency personnel and less accountability for permittees to meet allowable use limits and achieve desired conditions."[119]

[119] WWP Draft Plan comments at 6 and 7 citing DEIS, Ch. 3, p.526

Rather than address this issue in the FEIS, the Forest Service completed an analysis that would warrant a severe reduction in livestock grazing, and ignored it, choosing to continue relying on site-specific analyses that by the Forest's own admission will likely never happen. If the science that is being relied upon is the rangeland specialists estimates that "timber canopy closure and conifer encroachment have reduced forage availability by at least 10 percent over the past 60 years on some grazing allotments in the planning area,"[120] then it is even more necessary that actual monitoring take place. Conditions are clearly changing and the Forest needs to be prepared to adapt its grazing program. However, the Forest is incapable of adapting if they are relying on out of date data with no concrete plan for obtaining current data.

The failure of the Forest to provide any subsequent analysis of the grazing program is stark. The FEIS clearly states:

> *"Resource specialists predict that permitted livestock numbers may decline in some areas due to more stringent management constraints for riparian areas as well as the loss of forage from invasive weed spread, and encroachment of conifers into some grassland communities."*[121]

By including this, the Forest alludes to the need for further analysis, yet fails to provide any as well as any rationale for choosing to keep all allotments open and grazed at their current levels.

Suggested Resolution: The Forest must provide the data used to conduct the capability and suitability analysis. Further, the Forest must honestly assess the capacity to manage the grazing program and adjust the scope of the grazing program to reflect that reality. In the short term, the Forest must adopt interim standards to protect riparian and aquatic habitats that are measurable and demonstrable to permittees. The Forest can then dedicate available resources to compliance with the standards until such time as AMP revisions can be accomplished. Failure to do so violates federal law including the requirement to prevent unnecessary and undue degradation of public lands.

4. Failure to consider a range of alternatives

NEPA requires that an agency consider alternatives to the proposed action, to "provide a clear basis for choice among options by the decision maker and the public."[122] This is an important aspect of any NEPA process, yet is lacking in the FEIS. In regard to livestock grazing, the Forest only evaluates the action and the no-action alternatives. None of the action alternatives require or

[120] FEIS section 2 at 215
[121] FEIS section 2 at 219
[122] 40 C.F.R. § 1502.14

even suggest any management changes be made to the grazing program, despite public comment clearly outlining the need for alternative management.

Further, the Forest has clearly not provided sufficient analysis to support keeping the grazing program the same. The lack of baseline data and the fact that only 17 percent of the forest was found to be suitable for grazing, should necessitate the development of alternatives that include quantifiable, measurable indicators of progress, or interim management prescriptions. As a second reminder, WWP requested that the Forest incorporate the following as terms and conditions for livestock grazing:[123]

- A minimum of 7" stubble height remaining on hydric soils riparian greenlines after livestock grazing
- A 10 percent maximum annual bank or wetland alteration from all sources for streams and wetland hydric and mesic soil areas of upland seeps, springs, wet meadows, and aspen clones
- A maximum annual woody browse utilization by all browsing ungulates of 15 percent on cottonwood, aspen, woody shrub, and willows
- A maximum annual grazing utilization of perennial grass species on upland landscapes by all grazers of 35 percent
- A minimum 9" residual perennial native grass cover for ground-nesting birds like sage-grouse and sharp-tailed grouse

Additionally, because of economic pressures and uncertainty, many ranchers in the West would like to voluntarily retire their grazing permits, and the HLC NF should consider granting ranchers the freedom to retire their permits if voluntarily waived to the Forest. There is some language referring to this with sheep grazing permits, but a full analysis of grazing permit retirement across the entire program should accompany all alternatives. Voluntary grazing permit retirement would offer permittees a new economic opportunity while providing protection and restoration for the land managed by the HLC NF. All alternatives analyzed need to include specific direction and language authorizing the permanent retirement of voluntarily waived HLC NF grazing permits. Suggested language for authorizations is as follows:

Grazing privileges that are lost, relinquished, or canceled, would have attached AUMs held for watershed protection and wildlife habitat.[124]

By failing to consider any alternative to current management for the grazing program, the Forest is abrogating its duties to enhance the ecological health of the Forest and move towards desired

[123] WWP Draft Plan Comments at 2 and 3
[124] Adapted from the Challis Resource Area Proposed RMP and Final EIS, October 1998, p. 87

conditions. As it stands currently, there are no quantifiable indicators or concrete terms and conditions considered that will move the grazed allotments towards desired conditions.

Suggested Resolution: The Forest should include a full analysis of an alternative that includes interim standards, quantifiable measures, and specific terms and conditions for each livestock grazing permit so that conditions forest wide can make progress toward the desired conditions. All alternatives should include language for the voluntary permanent retirement of grazing permits.

B. Aquatic Ecosystems

The Forest has honestly assessed livestock grazing impacts to the aquatic environment across the plan area, but has still failed to provide any concrete action that will improve these environments:[125]

> *"As of 2019 55 stream reaches (617 miles) are listed on the HLC NF as water quality impaired (303d list) by the Montana Department of Environmental Quality (2018) under the Clean Water Act as a result of forest practices, such as road management,* ***grazing****, and mining."* (emphasis added)
>
> *"As of 2019, 103 or 103 or 35% of watersheds on the HLC NF are in Class 1 condition, functioning appropriately as determined by the Watershed Condition Framework Assessment completed in 2011. There are 159 (54%) watersheds rated as Class 2 (functioning at risk) and 34 (11%) rated as Class 3 (non-functioning) on the Forest."*
>
> *"Largely the impairments have been attributed to* ***grazing*** *and transportation infrastructure impacts."* (emphasis added)

If livestock grazing is such a notable contributor to degraded conditions of the aquatic ecosystems across the Forest, then why have no changes to the grazing program been made? These findings should have necessitated immediate changes to grazing management to be assessed under all alternatives. Instead, when the Forest admits that, "Livestock grazing can degrade wetland habitat through vegetation removal, bank trampling and hoof damage to wetland substrates,"[126] the offered solutions are:

[125] Plan at 14
[126] FEIS section 1 at72

"To avoid disturbing or compacting soil or damaging vegetation, management activities should be excluded within a minimum of 100 feet of peatlands, fens, and other groundwater dependent ecosystems."[127]

"To maintain or improve riparian and aquatic conditions and achieve riparian desired conditions over time through adaptive management, new grazing authorizations and reauthorizations that contain low gradient, alluvial channels should require that end-of-season stubble height be 10 to 15 cm (4 to 6 inches) along the greenline. However, application of the stubble height numeric value range should only be applied where it is appropriate to reflect existing and natural conditions for the specific geo-climactic, hydrologic, and vegetative conditions where it is being applied. Alternative use and disturbance indicators and values, including those in current ESA consultation documents, may be used if they are based on current science and monitoring data and meet the purpose of this guideline. Long-term monitoring and evaluation should be used to adapt this numeric range and/or the use of other indicators."[128]

"To ensure grazing is sustainable and contributes to other resource desired conditions, forage use by livestock should maintain or enhance the desired structure and composition of plant communities on grasslands, shrub lands, and forests and should maintain or restore healthy riparian conditions as defined in the allotment management plan."[129]

These are inadequate. First, excluding management activities within 100 feet of peatlands, fens, and other groundwater dependent ecosystems is an excellent step towards preserving these important ecosystems. However, the guidance specific to grazing is vague. Does 'management activities' include all livestock grazing? Or does it only include building of rangeland infrastructure? To adequately address the impacts of livestock grazing to groundwater dependent ecosystems, all grazing should be disallowed within 100 feet.

Second, a riparian zone stubble height measurement is a great way to improve riparian conditions. However, the suggested stubble height is below what WWP previously suggested, and will only be implemented on new grazing authorizations and reauthorizations with very specific geomorphic conditions. These requirements should be implemented forest-wide to avoid confusion, encourage compliance, and ensure movement toward desired conditions.

Third, this guideline is vague and should be considered a goal. What specific methods will be used to ensure that this guideline is achieved. While the effort to improve the desired structure

[127] FW-RMZ-GDL-03 Plan at 19
[128] FW-GRAZ-GDL-01 Plan at 109-110
[129] FW-GRAZ-GDL-02 Plan at 110

and composition of plant communities is appreciated, there needs to be more specific forest-wide standards to ensure these conditions are being met. It is not enough to rely on vague guidelines and management directions that the Forest cannot attain. For example, in the Aquatics Section, the Forest states:

> *"When livestock grazing is closely managed and monitored by professional land managers, assumptions are made that some degree of cattle use is compatible with riparian ecosystem management and that trends towards desired conditions can be achieved while cattle graze the area."*[130]

As discussed previously, the Forest has proven that there are not enough resources to adequately manage the grazing program to reach desired conditions, so it is not even worth mentioning that riparian grazing can be done properly with enough close management. This is simply not a reality in the HLC NF, and thus the assumption that the Forest can employ these tactics is arbitrary and capricious. Additionally, all analyses completed by the Forest and incorporated into the Revised Plan and FEIS cite how detrimental livestock grazing has historically been, and continues to be to riparian areas. In fact, "one of the most important drivers of the [watershed condition] ratings in the planning area was livestock grazing."[131] As a reminder, 64 percent of watersheds across the HLC NF were functioning at risk or not functioning.

For a further discussion of what livestock grazing can and is doing in the plan area, the Aquatics Section provides a detailed analysis:

> *"Additional grazing related impairments are increased sediment yields and in-channel storage of fine sediments, which also impact stream channel form, function and fish habitat."*[132]

> *"In some cases, grazing has the potential to damage springs and other types of groundwater dependent wetland habitats...Maintenance failure can result in higher levels of damage as cattle may remain there longer as they move further away from the point of entry, limiting access to outside the exclosure."*[133]

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[130] Appendix C at 2 citing (Armour, Duff, & Wayne, 1994; Robert L. Beschta, Bilby, Brown, Holtby, & Hofstra, 1987; Bryant et al., 2004; Clary & Webster, 1990; Johnson, 1992; Platt, 1991);(Hanson, Wullschleger, Bohlman, & Todd, 1993).
[131] FEIS section 2 at 216-217
[132] Appendix C at 3
[133] Appendix C at 12

"Bank stability on low gradient stream reaches that support cold water fish species are of particular concern and are susceptible to livestock overuse."[134]

Yet, the Forest states that:

"Plan components must ensure that no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted within the RMZs or the site-specific delineated riparian areas."[135]

Without quantitative measures and forest wide standards, livestock grazing will continue to degrade riparian and aquatic resources. Taking a look at pages 97 and 98 of Section 1 of the FEIS describe the severity of the impact of livestock grazing to riparian vegetation, and aquatic species. The Forest clearly failed to take a hard look at the direct, indirect, and cumulative impacts associated with livestock grazing in riparian and aquatic environments. These severe and diverse impacts cannot be managed with vague guidelines. The Forest failed to provide a rational explanation for plan components that allowed the detrimental impacts of livestock grazing to continue.

Were the Forest to consider their own analysis and the best available science regarding livestock damage to riparian and aquatic ecosystems, it would warrant a different outcome regarding the management of the grazing program. Livestock grazing has damaged 80 percent of the streams and riparian ecosystems in the arid West[136] and nearly all surface waters in the West contain harmful waterborne bacteria and protozoa such as Giardia due to contamination from livestock waste.[137] Further, the Oregon-Washington Interagency Wildlife Committee, composed of biologists from several government agencies, concluded that grazing is the most important factor in degrading wildlife and fisheries habitat throughout the 11 western states.[138] With numerous sensitive trout species and several municipalities along with all plant and wildlife species on the Forest relying on the healthy function of streams and riparian areas, the Forest must consider this

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[134] Appendix C at 2
[135] Appendix C at 6
[136] See Attachment M - Belsky, A. J., A. Matzke, S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in
the western United States. J. Soil & Water Conserv. 54(1): 419
[137] See Attachment M - Suk, T., J. L. Riggs, B. C. Nelson. 1986. Water contamination with giardia in backcountry areas in Proc. of the National Wilderness Conference. Gen. Tech. Rep. INT-212. USDA-Forest Service, Intermountain Res. Stn. Ogden, UT: 237-239.
[138] See Attachment M - Fleischner, T. L. (1994). Ecological costs of livestock grazing in western North America. Conservation biology, 8(3), 629-644. citing: *Oregon-Washington Interagency Wildlife Committee. 1979. Managing riparian ecosystems for fish and wildlife in eastern Oregon and eastern Washington. Oregon-Washington Interagency Wildlife Committee, available from Washington State Library, Olympia, Washington*

best available science when creating standards and guidelines for livestock grazing in riparian zones.

Finally, the Forest is making promises it simply can't keep and is essentially covering for this deficiency by deferring action to some unspecified future date and by removing any objective and measurable standards so that the agency cannot be held accountable for failure to achieve Desired Conditions identified in the Plan.

Suggested Resolution: Forest wide standards must be written to remove livestock grazing from RMZs. It is repeatedly cited as a significant contributor to riparian zone degradation, yet there are no specific standards or guidelines to address how livestock grazing is managed in RMZs. Livestock grazing should be banned in RMZs forestwide and specific guidelines should be created for the level of impact allowed when building water developments or stock water crossings. Without this, the Forest is relying on site-specific NEPA analyses that will likely never occur based on the Forest's track record.

C. Terrestrial Vegetation/ Noxious and Invasive Plants

As discussed in the section regarding the lack of baseline information available in the Revised Plan and FEIS, the ability to assess the health and biodiversity in the plant communities forest-wide is lacking. The Forest fails to disclose any monitoring information regarding the areas that invasive and nonnative plant species "have out-competed native plant communities across the HLC NF."[139] It is impossible for the Forest or public to make informed management decisions without the information regarding where those infestations exist.

Livestock graze and trample native plants which clears vegetation and destroys soil crusts; all contributing to weed invasion. This prepares weed seedbeds through hoof action. Additionally, livestock transport and disperse seeds on their coats and through their digestive tracts.[140] Therefore, if the areas where invasive and nonnative plant species have outcompeted native species are largely concentrated on grazing allotments, then a change in management must be considered. Belsky and Gelbard found that without disturbance to native plants, microbiotic crusts, and soils resulting from livestock grazing and trampling, and corresponding increases in light, water, and nutrients for the remaining weeds, it is doubtful that alien plants would have spread so far across the west or become so dense. At least they would not be invading as rapidly, and certainly not over the vast area of western grasslands, shrublands, and woodlands as they are

[139] FEIS section 2 at 218

[140] See Attachment M - Belsky, A. J., & Gelbard, J. L. (2000). Livestock grazing and weed invasions in the arid West. Portland: Oregon Natural Desert Association.

now.[141] Thus, to move towards native plant communities, grazing practices on the HLC NF must change.

The grazing section of the FEIS is notably lacking in any discussion regarding the impacts of livestock grazing on vegetation. Instead, the section discusses how changes in vegetation might impact the ability of the Forest to continue the grazing program. One must look elsewhere for the disclosure of how livestock grazing is impacting vegetation on the HLC NF.

The description of livestock grazing in the Terrestrial Vegetation section[142] does the best to disclose the impacts of livestock grazing on vegetation across the Forest. Yet, the standards and guidelines of the Revised Plan provide no concrete action for actually moving allotments towards the desired conditions. Instead, the Forest says that all allotments--even those not currently grazed--will remain open for grazing, and that site-specific analysis will guide the development of grazing systems. However, this fails to address or disclose the existing conditions on the allotments, and provides an opportunity for weed infestations to get out of control before the Forest can spare the finances and personnel to perform the cited site-specific analyses.

The Forest correctly states that "monitoring of invasive annual grasses would help enhance our understanding of the condition and trends of nonforested systems, including those used for livestock grazing,"[143] but this fails to provide any concrete direction for a monitoring program, and does not include any current trend data.

Suggested Resolution: Prior to authorizing management activities that will spread invasive species and reduce native plant vigor, the Forest should perform a forest wide invasive species assessment. Interim standards including a reduction in AUMs, stubble height requirements, and utilization thresholds should be put in place until all site-specific NEPA analyses can be completed. Options for controlling invasives also include a long term reduction or removal of AUMs and a change in season of use. Additionally, a specific guideline to exclude livestock for a minimum period of three growing seasons following surface disturbing activities should be implemented.

D. Predator Coexistence

[141] Ibid
[142] FEIS section 1 at 178,179
[143] Plan at 181

Livestock grazing on surrounding National Forests was identified as detrimental to grizzly bears at the time they were listed as threatened under the ESA.[144] This has proven to be true as 13 percent of human-caused grizzly bear mortalities in the NCDE between 1998 and 2017 were due to management removals associated with livestock operations[145] and between 1997 and 2017, over 70 percent of all grizzly bear mortalities in the Greater Yellowstone Ecosystem stemmed from anthropogenic causes. Of these, at least 86 resulted from conflicts with livestock.[146]

Although very few grizzly bear removals have occurred because of livestock-grizzly conflict on the HLC NF, the grizzly bear's continued listing under the ESA requires the Forest to implement standards and guidelines to ensure mortality due to livestock conflict does not threaten the NCDE population. However,"[n]one of the action alternatives would change the number and location of livestock allotments nor the number and type of animals allowed to graze on those allotments."[147]

It seems that with the expanding range of grizzly bear populations outside of the PCA, that a forest wide analysis of the direct, indirect, and cumulative effects of the livestock grazing program on the threatened grizzly bear should have taken place. Instead, the Forest relies on an incomplete and vague analysis that states:

> *"Conflicts between grizzly bears and livestock on NFS lands within the planning area have been sporadic. However, no matter what the strategy or alternative selected, having a sustainable population of grizzlies in the same mountain ranges as permitted livestock would probably result in depredation of livestock at some point. This may increase operating costs and psychological stress for permittees, as some level of livestock death loss will be inevitable under all alternatives."*[148]

While the admission that livestock loss is likely to occur is important to prepare livestock producers for an inevitable cost of doing private business on public land, this does nothing to address what the Forest will do if livestock depredations do occur, or what proactive, nonlethal standards they will put into place to reduce conflicts. The Forest must disclose what action will be taken if such depredations do occur. Additionally, the Forest must complete an analysis of the potential mortality to grizzly bears caused by the grazing program. Under the ESA the Forest must ensure that any actions are "not likely to jeopardize the continued existence of any

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[144] Biological Assessment for Threatened, Endangered, and Proposed Terrestrial Wildlife Species at 31 citing U.S. Department of the Interior, 1975b
[145] Biological Assessment for Threatened, Endangered, and Proposed Terrestrial Wildlife Species at 31
[146] Biological Opinion for the Effects to the Grizzly Bear (Ursus arctos horribilis) from the Upper Green River Area Rangeland Project (2019 Biological Opinion), with the Reference Number 06E13000-2019-F-0012
[147] FEIS section 1 at 349
[148] FEIS section 2 at 221

threatened or endangered species."[149] However, the Forest failed to even analyze the potential impacts of the grazing program to grizzly bears.

Further, by failing to include forest wide standards and guidelines for livestock grazing, the Forest has not done its duty to:

> *"Seek to conserve endangered species and threatened species," and "support biotic sustainability by requiring that they utilize their authorities to carry out programs for the conservation of endangered and threatened species."*[150]

The Forest has not done this. The Standards[151] are not appropriate for reducing livestock-grizzly bear conflict. First, Standard 01 only includes requirements for new or reauthorized livestock grazing permits. Grizzly bears are present on the landscape now and thus the Forest must include forest-wide standards for nonlethal conflict prevention measures. Residents in the Blackfoot Valley saw a 96 percent reduction in reported verifiable human-grizzly conflicts between 2003-2010 following the implementation of nonlethal conflict prevention measures.[152] This led to a drastic decrease in human caused grizzly bear mortality even as the grizzly bear population continued to increase. The Forest Service has a responsibility to ensure the recovery of this threatened species and thus a failure to fully analyze the impacts of the grazing program on the grizzly bear is a violation of the law.

Further, the Forest Service should include a standard that prohibits the use of lethal predator/animal damage control in response to depredations on federally permitted livestock in the following specially designated areas on national forest system lands: Wilderness areas; proposed Wilderness areas; Natural Research Areas; Wild and Scenic River corridors; Inventoried Roadless Areas; delineated wildlife corridors and any other special management area where the protection of native wildlife need not yield to the select interests of private livestock producers.

The Forest Service must also include plan components, including specific standards that require grazing management options for avoiding and mitigating predator-livestock conflicts so as to reduce the likelihood that native carnivores will be killed in response to depredations of federally permitted livestock grazing on these public lands.

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[149] 16 U.S.C. § 1531 et seq.
[150] FEIS section 1 at 58 citing 16 U.S.C. § 1531 et seq.
[151] PCAZ1-NCDE-STD FEIS section 1 at 349
[152] See Attachment N - Large Carnivore Conservation: Integrating Science and Policy in the North American West. (2014). United Kingdom: University of Chicago Press.

For example, both the U.S. Fish & Wildlife Service and state wildlife agencies have recommended specific science-backed measures for reducing wolf-livestock conflicts. The Forest Service should include the following measures as forest-wide standards for any Allotment Management Plans and annual grazing plans/instructions:

- Removing and composting livestock carcasses found on the allotments;
- Removing sick or injured livestock from the allotments, so they are not targeted by wolves;
- Delaying turnout until after early to mid-June if an active wolf den site is within 1 mile of an allotment unit, so deer will be birthing fawns and can provide an abundant and easy prey source for wolves;
- If an active wolf den site is within or adjacent to an allotment, delay turnout of calves in the area until after they average 200 lbs in weight to minimize depredation potential;
- Prohibit allotment management activities by humans near active wolf den sites during the denning period, to avoid human disturbance of the site;
- Prohibit placing salt or other livestock attractants near wolf dens or rendezvous sites, to minimize cattle use of these sites;
- In the event of depredation, if future depredations are expected, livestock should be moved to private pastures;
- During times that livestock are in a unit with an active wolf den site or rendezvous site, require the permittee to inspect that unit at least 2 days/week;
- Managing grazing livestock near the core areas (dens, rendezvous sites) of wolf territories to minimize wolf-livestock interactions, such as by placing watering sites, mineral blocks, and supplemental feed away from wolf core areas;
- Increase the frequency of human presence by using range riders and guard animals and frequently check livestock in areas with wolves or when wolves are in the vicinity of livestock pastures.

The Forest Service, acting in pursuit of the agency's obligation under NFMA to maintain diverse and viable populations of native wildlife on our national forests, has already demonstrated its ability to adopt measures that reduce the unnecessary risk livestock grazing poses to native predators like wolves at the Forest Planning level. We urge the Forest Service to consider following the precedent set by the planning team for the Blue Mountains Forest Plan revision for the three Region 6 forests in eastern Oregon (Wallowa-Whitman, Umatilla, and Malheur National Forests), which adopted the following management directives into those forest's revised plans in 2018:

- Management activities within one mile of a known active (during same calendar year that use is documented) wolf den and rendezvous sites should implement appropriate seasonal restrictions based on site specific consideration and potential activity effects, to reduce disturbance to denning wolves.
- Do not authorize turnout of sick or injured livestock to reduce risk of attracting wolves.
- Remove or otherwise dispose of livestock carcasses such that the carcass will not attract wolves. If, due to location of the carcass, this is not possible, develop other remedies.
- Do not authorize salt or other livestock attractants near known active (during same calendar year that use is documented) wolf dens or rendezvous sites to minimize livestock use of these sites.[153]

The Forest Service must carefully consider these recommendations as well as the numerous recent studies showing the efficacy of nonlethal measures.[154]

Additionally, there is a growing body of new science showing lethal measures are not effective at resolving predator-livestock conflicts and may have unintended consequences, whereas the aforementioned nonlethal alternatives show promise. For example, in a groundbreaking 2014 study, Wielgus and Peebles concluded that common levels of killing wolves actually increase cattle depredation, finding that increased predator mortality is associated with compensatory increased breeding pairs, compensatory number of predators, and increased depredations.[155] Treves and others (2014) also found little or no scientific support for the proposition that killing predators such as wolves, mountain lions, and bears reduces livestock losses (*see also* van Eeden

[153] See e.g., Wallowa-Whitman National Forest Land Management Plan (2018), Species Diversity Guidelines at p. 136.

[154] *See e.g.,* Shivik et al., 2003. *Nonlethal techniques for managing predation: primary and secondary repellents*. Conservation Biology: Vol. 17, No. 6; Lance, N., et. al., 2010. *Biological, technical, and social aspects of applying electrified fladry for livestock protection from wolves (Canis lupus)*. Wildlife Research 37:708–714; Breck et. al. 2011. *Domestic calf mortality and producer detection rates in the Mexican wolf recovery area: Implications for livestock management and carnivore compensation schemes*. Biological Conservation 144:930–936. Elsevier Ltd.; Stone, S. et. al., 2017. *Adaptive use of nonlethal strategies for minimizing Wolf-sheep conflict in Idaho*. Journal of Mammalogy 98:33–44.; Defenders of Wildlife. 2016. *Livestock and Wolves: A Guide to Nonlethal Tools and Methods to Reduce Conflicts*. 2nd ed.; Barnes, Matt, Field Director, Keystone Conservation. 2015. *Livestock Management for Coexistence with Large Carnivores, Healthy Land and Productive Ranges*; Western Landowners Alliance. 2018. *Reducing Conflict with Grizzly Bears, Wolves and Elk. A Western Landowners' Guide*; Wolf Awareness. *A Ranchers Guide: Coexistence Among Livestock, People & Wolves*. 2nd ed. (Attachment N).

[155] Robert B. Wielgus and Kaylie A. Peebles, *Effects of wolf mortality on livestock depredations*, PLOS ONE 9(12): e113505, DOI: 10.1371/journal.pone.0113505 PMID: 25470821 (2014) Attachment N). Two subsequent studies have attempted to critique aspects of the Wielgus & Peebles (2014) study. Wielgus has addressed these concerns in several reviews and media articles.

et al. (2017), van Eeden et al. (2018), Moreira-Arce et al. (2018); Eklund et al. (2017)).[156] Evidence also suggests that killing wolves to benefit one farm or ranch may increase predation losses elsewhere, even while "side effects of lethal intervention such as displaced depredations" may cause some to "perceive the problem growing and then demand more lethal intervention[,] rather than detecting problems spreading" from the first instance of lethal control (Santiago-Avila et al. 2018).[157] Harper et al. (2008) explicitly found that "[n]one of our correlations supported the hypothesis that killing a high number of wolves reduced the following year's depredations at state or local levels."[158] In sum, authorizing the lethal removal of carnivores from their native habitats on these National Forest System lands in response to depredations of federally permitted livestock grazing makes little sense and is often counterproductive.

A wealth of recent scientific studies also highlights the critically important ecological role top predators play and demonstrates the cascade of unintended environmental consequences and wide-ranging adverse effects that emanate from removing species like wolves, bear, and cougars from native ecosystems (*e.g.*, Halofsky & Ripple 2008, 2008b; Manning et al. 2009; Beschta & Ripple 2009, 2010b, 2012, 2012b, 2015, 2016, 2018; Ripple & Beschta 2003, 2004, 2005, 2006, 2006b, 2007, 2012; Kauffman, Brodie & Jules 2010; Wild et al. 2011; Kimble et al. 2011; Estes et al. 2011; Painter et al. 2012, 2015; Levi et al. 2012; Bergstrom *et al*. 2013; Ordiz, Bischof & Swenson 2013; Bouchard et al. 2013; Wilmers & Schmitz 2016; Bergstrom 2017). As apex predators, wolves create a "trophic cascade" of effects that flow through and sustain ecosystems and the web of life (Ripple and Beschta 2011; Estes et al 2011; Ripple et al. 2013). In general, the presence of carnivores can affect everything from vegetation structure to river morphology to availability of carrion and insect communities in an ecosystem (Beschta and Ripple 2012, Beschta et al. 2008, Beschta and Ripple 2006, Naiman and Rogers 1997).

All articles and materials cited within this subsection can be found in Attachment N.

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[156] Treves, A. et. al. 2014. *Tolerance for Predatory Wildlife*. Science 344:476. doi: 10.1126/science.1252690; Treves, A. et. al. 2016. *Predator control should not be a shot in the dark*. Front. Ecol. Environ. 14(7):380; doi:10.1002/fee.1312; Van Eeden, Lily M. et al. 2017. *Managing conflict between large carnivores and livestock*. Conservation Biology 32(1):26; Van Eeden Lily M. et al. 2018a. *Carnivore conservation needs evidence-based livestock protection*. PLOS Biology 16(9): e2005577. https://doi.org/10.1371/journal.pbio.2005577; Eklund A, López-Bao JV, Tourani M, Chapron G, Frank J. 2017. *Limited evidence on the effectiveness of interventions to reduce livestock predation by large carnivores*. Scientific Reports 7:2097 | DOI:2010.1038/s41598-41017-02323-w; Moreira-Arce D, Ugarte CS, Zorondo-Rodríguez F, Simonetti JA. 2018. *Management Tools to Reduce Carnivore-Livestock Conflicts: Current Gap and Future Challenges*. Rangeland Ecology & Management (Attachment N).

[157] Santiago-Avila FJ, Cornman AM, Treves, A, (2018) *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*. PLoS ONE 13(1): e0189729 (Attachment N).

[158] Elizabeth Harper et al., *Effectiveness of Lethal, Directed Wolf-Depredation Control in Minnesota*, USGS Northern Prairie Wildlife Research Center, Paper 99, 782 (2008) (Attachment N).

Suggested Resolution: There needs to be forest-wide management directives for how livestock permittees can operate in grizzly habitat. Standards should include specific, enforceable measures to reduce livestock-grizzly conflict. Non Lethal deterrents have been found to be more effective in the long-term at reducing livestock-carnivore conflict. Techniques that have been proven successful at conflict prevention are:

- Electric fencing around calving areas;
- Removal of birthing material;
- Removal and composting of carcasses;
- Range riding;
- Hazing carnivores away from livestock;
- Delaying turnout until calves are greater than 200 lbs.;
- Delaying turnout to coincide with native ungulate calving season.

Implementation of these requirements should begin as soon as possible, rather than wait until a permit is renewed. Further, the Forest authorizes temporary grazing permits (see targeted grazing section) of small livestock and states that it "shall not result in an increase in bear-small livestock conflicts"[159] Such temporary grazing permits should be disallowed and accompanied by a net decrease in grazing in the PCA. Additionally, the Forest should not allow the lethal removal of grizzly bears due to grizzly-livestock conflict. The PCA/Zone 1 should be a priority for implementation of these techniques, but as Zone 2 and Zone 3 contain important connectivity habitat, it is imperative that livestock permittees are prepared to implement nonlethal conflict deterrence measures as grizzlies disperse into those areas.

These same standards must be applied to the topic of wolves in the HLC NF. Wolves occur throughout the plan area, and thus forest-wide management directives to reduce and avoid wolf-livestock conflicts must be considered. The standards we provide from the Blue Mountains Forest Plan revision provide a good model for the types of coexistence measures that will similarly work well here. Further, the agency should include specific requirements we list above for Allotment Management Plans and annual grazing plans/instructions. These specific requirements should apply to wolf-livestock conflict and be adapted for grizzly-livestock coexistence as well.

D. Bighorn Sheep

Bighorn sheep occupy the Rocky Mountains and Elkhorns GAs and the northern portion of the Big Belts GA. The reintroduction of bighorn sheep through translocation has been proposed for

[159] NCDE-STD-GRZ-06 FEIS section 1 at 54

the Little Belts GA, where sporadic observations of bighorn sheep have been reported. Vast tracts of suitable unoccupied bighorn sheep habitat occur in the Highwoods, Snowies, Upper Blackfoot, and Crazies GAs. Suitable habitat also occurs throughout the unoccupied lower portion of the Big Belts GA. The unoccupied suitable habitat in the Upper Blackfoot GA connects bighorn sheep home ranges in the Rocky Mountains GA and the Big Belts GA.

As detailed in our previous comments on this Plan revision,[160] BLM allotments permitted for use by domestic sheep and goats occur adjacent to bighorn sheep herds in the upper Big Belts and Elkhorns GAs. Additional BLM domestic sheep allotments occur adjacent to suitable unoccupied habitat in the Little Belts and lower Big Belts GAs. Each of these allotments poses a risk to extant or potential bighorn sheep populations on the Helena-Lewis and Clark National Forest by limiting genetic exchange, preventing the expansion of extant herds, and posing the threat of pathogen transmission to entire bighorn metapopulations. Additionally, each allotment stands as a hazard for foraying bighorn sheep that could be shot following suspected contact with domestic sheep or goats.

While the Biological Evaluation Supplemental Information Spreadsheet acknowledges that the population trend of bighorn sheep on the Forest is variable, it fails to adequately evaluate or describe long term trend in bighorn sheep herds. Populations on the Forest, described as "stable to increasing",[161] are in fact lower than they were in the 1980s. In one of the 3 occupied GAs, the bighorn herd "may not persist"[162] as a result of disease. All populations in the 2 remaining occupied GAs have experienced die-offs resulting from exposure to domestic sheep pathogens, and each of these is threatened by ongoing domestic sheep and goat grazing occurring on federal and private lands.

In addition to misleading the public regarding the long term trend in bighorn sheep populations, the Forest Service here appears to narrowly define 'persist' as 'not be entirely extirpated'. However the complementary ecosystem-species approach that is the scaffolding of the 2012 Planning Rule calls for 'persist' to be defined as 'maintain; continue; sustain without diminishing'. Because bighorn sheep persistence cannot be guaranteed by the inclusion of broad standards maintaining ecosystem integrity in the Forest Plan, the Forest Service has rightly included a number of species-specific standards it asserts will protect bighorn sheep populations. These include FW-INV-STD-02, FW-GRAZ-STD-03, FW-GRAZ-STD-04, and GA-specific standards. It is clear that the Forest Service is attempting to sidestep its obligation to designate bighorn sheep as a Species of Conservation Concern and avoid its duty to include standards which would address the risk posed by grazing on BLM and private lands as required by 36

[160] Western Watersheds Project DEIS and Draft Plan comments at 10-13
[161] Biological Evaluation Supplemental Information Spreadsheet at 2
[162] Ibid

C.F.R. § 219.9(b)(ii). Such standards could include a prohibition on vegetation management projects which would increase permeability of the landscape between BLM allotments and bighorn sheep habitat on the Forest, or a requirement that the agency coordinate with BLM to reduce the risk to bighorn sheep on Forest Service lands. Instead, the Forest Plan is silent on the risks posed to bighorn sheep by livestock grazing on BLM and private lands.

The Plan is likewise silent on the potential for restoration of bighorn sheep populations to unoccupied habitats. Bighorn sheep numbers are estimated to have declined by over 98% following the initial Euro-American colonization of the West. After more than half a century of extensive restoration efforts, bighorn sheep populations have rebounded to an estimated 5% of historic numbers, and span roughly ⅓ of their historic habitat area. Plan standards requiring a risk assessment prior to the stocking of vacant allotments are clearly inadequate, and will not facilitate species recovery, as there is logically no quantifiable risk to populations of bighorn sheep that did exist or could exist in an area, but do not currently exist. Consequently, under this Plan, all habitat areas from which bighorn sheep have been extirpated, including the Little Belts GA and possibly including the Elkhorns GA in the near future, could be stocked with domestic sheep. The loss of bighorn sheep herds and habitat to sink conditions resulting from the presence of known disease vectors will therefore continue under this Plan.

Suggested Resolution: The Forest Service must designate bighorn sheep as a Species of Conservation Concern. The Forest Service must prohibit domestic sheep and goat grazing under permit or for vegetation management in any GA that once supported bighorn sheep populations, and in any area which the BASI indicates grazing would pose a greater than minimal risk to bighorn sheep. The Forest Service must include a standard requiring a permeability assessment prior to the authorization of any vegetation management project that may increase the risk to bighorn sheep from domestic sheep and goats occurring off Forest Service lands. The Forest Service must coordinate with the BLM and other land management agencies to reduce the risk to bighorn sheep herds from domestic sheep and goats off Forest Service lands, and must likewise coordinate with those agencies to support the restoration of bighorn populations to all habitats from which they've been extirpated.

E. Wilderness Characteristics

Livestock grazing is not compatible with wilderness characteristics. The presence of livestock and associated infrastructure take away from the feeling of naturalness and remove any opportunities for solitude and unconfined recreation. Wilderness areas are not suitable for any new or expanded livestock grazing allotments, yet they are suitable for existing livestock grazing allotments. This is a discrepancy that the Forest must address my disallowing livestock grazing in any new RWAs, WSRs, WSAs, and IRAs. Finally, livestock grazing must be considered a use

that is incompatible with National Historic or National Scenic trails. Livestock impact trails and recreation sites through contributing to trail braiding and social trail development; leaving cow pies across the trail, campgrounds, and landscape; blocking the trail; and finally the use of guard dogs can impinge on recreational uses as guard dogs can be dangerous and have been known to maul people.

Suggested Resolution: The Forest Service has failed to propose any alternative that addresses the challenges posed by livestock grazing on the HLC NF. This is a failure of NEPA, NFMA, ESA, and the 2012 Planning Rule. The Forest must disclose vegetation data, capability and suitability analysis, livestock-grizzly interaction analysis; and must also implement standards and guidelines that will move the current conditions towards desired conditions. An interim grazing program with reduced AUMs and reduced season of use must be implemented until all site-specific NEPA analysis is completed for the grazing program.

F. Climate Change and Soil Carbon Sequestration

Climate change is impacting forests and grasslands across the globe and must be considered when making management decisions. The frequency of heavy precipitation events and the frequency of periods of drought across the western United States have increased over the past century, and are expected to continue to do so.[163] While uncertainties remain regarding the timing and extent of impacts from climate change, modeling indicates that on average, Montana will likely experience higher temperatures in all seasons; longer dry periods; heavy precipitation events; more frequent droughts; and increased wildfire risk. The Forest acknowledges that "human activities such as fuel burning, industrial activities, land use change, animal husbandry, and agriculture lead to increases in ambient greenhouse gases (GHS's), which contribute to the "greenhouse effect."[164] However, the standards and guidelines are largely inadequate to address these increases in GHS's and the anticipated impacts to the Forest.

For example, the Forest states that: "decreased snowpack in combination with higher air temperature and increased wildfire will increase stream temperatures and reduce the vigor of cold-water fish species."[165] Yet, this is not assessed with the cumulative impacts of management activities. In creating standards and guidelines for roads, harvest, grazing, and other management activities that can occur within RMZs, the Forest failed to consider the cumulative impacts of

[163] Attachment O.1 - Easterling, D.R., K.E. Kunkel, J.R. Arnold, T. Knutson, A.N. LeGrande, L.R. Leung, R.S. Vose, D.E. Waliser, and M.F. Wehner, 2017: Precipitation change in the United States. In: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 207-230, doi: 10.7930/J0H993CC.
[164] FEIS, section 2 at 304
[165] FEIS, section 2 at 310

climate change. Here the Forest acknowledges that cold-water fish species will suffer through natural processes, yet fails to provide adequate protections by allowing management activities that are known to increase stream temperatures to occur in RMZs that should be providing protection for these cold-water fish species.

Additionally, the Forest states, "a longer growing season will increase productivity of rangeland types, and thus available forage for livestock, especially those dominated by grasses."[166] This fails to consider the compounding impacts of climate change and livestock grazing. A decrease in water availability as cited previously may reduce the vigor of native plant species. Numerous scientific studies have shown that invasive annual grasses thrive in warmer, drier climates, particularly when they have a vector for transport such as livestock. Bradley et al., show the expanded suitability of invasive grasses into the plan area under specific climate scenarios seen in the figures below.[167]

Box 9.1 (continued)

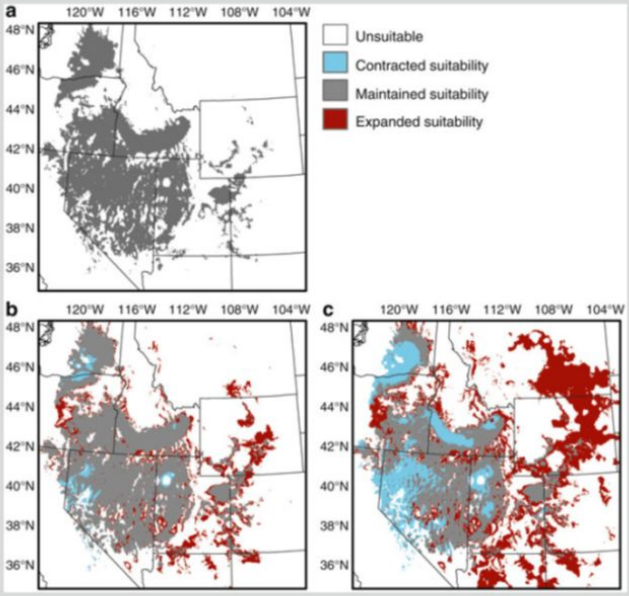

Fig. 9.2 Climatic suitability for high abundance (>25 % cover) of *B. tectorum* in the Intermountain West with varying summer precipitation, specifically (**a**) current, average climate conditions, (**b**) a 25 % loss of average summer precipitation, or (**c**) a 50 % loss of average summer precipitation. *White* remains unsuitable, *light blue* becomes unsuitable, *medium gray* remains suitable, and *dark red* gains suitability for *B. tectorum*

[166] FEIS, section 2 at 311

[167] Attachment O - Bradley, Bethany A.; Curtis, Caroline A.; Chambers, Jeanne C. 2016. Bromus response to climate and projected changes with climate change [Chapter 9]. In: Germino, Matthew J.; Chambers, Jeanne C.; Brown, Cynthia S, eds. 2016. Exotic brome-grasses in arid and semiarid ecosystems of the western US: Causes, consequences, and management implications. Springer: Series on Environmental Management. p. 257-274.

Box 9.2 (continued)

Assessment Report, which is consistent with current emissions trajectories (Le Quere et al. 2009). We chose a threshold suitability value that encompassed 90 % of *B. tectorum* or *B. rubens* points and applied the same threshold to each future climate projection. Projections of future climatic suitability based on the climate model scenarios were combined to create a single model in which any pixel predicted to have suitable climate conditions by at least one climate model is considered potential habitat.

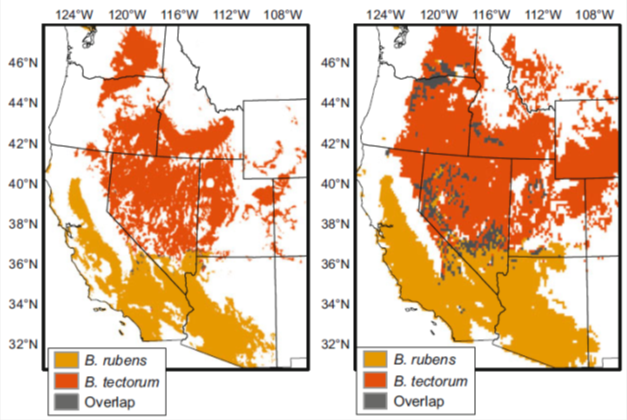

Fig. 9.3 Climatic suitability for *B. tectorum* and *B. rubens* under current (*left*) and future (*right*) climate conditions. *B. rubens* could expand northward into the Great Basin and Colorado Plateau with climate change, potentially negating any restoration opportunities in areas currently invaded by *B. tectorum*. Note: current climate conditions are interpolated to a 4 km spatial resolution, while future climate conditions are scaled to a 12 km spatial resolution

Climate change exacerbates the impacts of livestock grazing on vegetation communities and the combined impacts of climate change, soil resource degradation, and vegetation impacts under the Preferred Alternative clearly fails to comply with the requirements to avoid unnecessary and undue degradation.

Further, methane is an incredibly potent GHG, the reduction of which would do even more for reducing climate change in the short term than would the reduction in CO2:

> "The recent rapid rise in global methane concentrations is predominantly biogenic--most likely from agriculture--with smaller contributions from fossil fuel use and possibly wetlands...Methane mitigation offers rapid climate benefits and economic, health and agricultural co-benefits that are highly complementary to CO2 mitigation."[168]

By failing to reduce livestock grazing and thus reduce methane emissions, HLC NF is missing an opportunity to help improve the global climate. The Forest acknowledges the contribution of livestock to greenhouse gas emissions in the United States,[169] yet counts it as negligible and fails to consider the compounding impacts.

[168] Attachment O - Saunois, et al., 2016b. The global methane budget 2000–2012. Earth Syst. Sci. Data, 8, 697–751, 2016
[169] Appendix J at 20

Further, although the FEIS provides analysis regarding the importance of soil carbon sequestration, it fails to assess one of the simplest, proven, low-tech solutions to increase soil carbon storage and restore degraded landscapes--the removal of livestock. Numerous scientific studies and reviews support this conclusion:

- "In terms of long-term carbon storage, rangelands can be superior to forests because relatively more of the total site carbon is stored in the soil where it is usually better protected from atmospheric release than carbon stored in vegetation.[170]
- "(G)razing exclusion is an effective ecosystem restoration approach to sequester and store carbon in the living biomass and soil profiles."[171]
- "Simply removing livestock can increase soil carbon sequestration since grasslands with the greatest potential for increasing soil carbon storage are those that have been depleted in the past by poor management (Wu and others 2008, citing Jones and Donnelly 2004)".[172]

However, livestock use is not even considered when looking at carbon storage loss in the Forest.[173]

Suggested Resolution: Climate change must be considered in any analysis of the grazing program. The lacking vegetative baseline, analysis of livestock grazing impacts to soil carbon sequestration and global climate change must be remedied.

V. Climate Change

We wrote extensive comments asking the Forest Service to take a hard look at the effects of climate change on the Forest. The Forest Service response failed to adequately respond to or address our comments, and though the FEIS contained a lengthy section regarding climate change effects, it failed to sufficiently consider the best available science that we provided or adequately incorporate climate change effects into the Revised Plan.[174] Regeneration/Restocking failure following wildfire, prescribed fire and/or mechanical tree-killing has not been sufficiently analyzed or disclosed. There is a considerable body of science that suggests that regeneration following fire is increasingly problematic, and the problem has garnered media attention.[175] The agency's response to our comments falls short of the hard look required by NEPA, in addition to

[170] Attachment O - Booker et al. 2013. What can ecological science tell us about opportunities for carbon sequestration on arid rangelands in the United States? Global Environmental Change 23: 240-251.
[171] Attachment O - Reda, G. K. (2018). Effect of grazing exclusion on carbon storage on grazing lands: A Review. International Journal of Development Research, 8(09), 22870-22878.
[172] Attachment O - Beschta et. al. 2013. Adapting to climate change on western public lands: Addressing the ecological effects of domestic, wild, and feral ungulates. Environ. Manage. 51: 474–491
[173] Appendix J at 14 and 15
[174] FEIS, Appendix G at 150.
[175] Attachment P - Please see the attached article that ran in the Missoulian on March 11, 2019.

NFMA's requirements to ensure that forests regenerate after they are logged. The DROD and FEIS are also in violation of the APA.

Stands are at risk of going from forest to non-forest, even without the added risk of "management" as proposed in the DROD for the Revised Plan.

The Helena Lewis and Clark National Forest has not yet accepted that the effects of climate risk represent a significant issue, and pose an imminent loss of forest resilience already, and a significant and growing risk into the foreseeable future.

It is now time to speak honestly about unrealistic expectations relating to desired future conditions. Forest managers have failed to disclose that at least five common tree species, including aspens and four conifers, are at great risk unless atmospheric greenhouse gases and associated temperatures can be contained at today's levels of concentration in the atmosphere. (See attached map).[176] This cumulative ("reasonably foreseeable") risk must not continue to be ignored at the programmatic (Forest Plan) level.

Global warming and its consequences may also be effectively irreversible which implicates certain legal consequences under NEPA and NFMA and ESA (e.g., 40 CFR § 1502.16; 16 USC §1604(g); 36 CFR §219.12; ESA Sec-tion 7; 50 CFR §§402.9, 402.14). All net carbon emissions from logging represent "irretrievable and irreversible commitments of resources."

It is clear that the management of the planet's forests is a nexus for addressing this largest crisis ever facing humanity. Yet the FEIS fails to provide a minimal ***quantitative*** analysis of agency-caused CO2. The lack of detailed scientific discussions in specific resource sections in the FEIS concerning climate change is far more troubling than the document's failures on other topics, because the consequences of unchecked climate change will be disastrous for food production, sea level rise, and water supplies, resulting in complete turmoil for all human societies. This is an issue as serious as nuclear annihilation (although at least with the latter we're not already pressing the button). The Forest repeatedly acknowledges the uncertainty of future scenarios with climate change, but uses the uncertainty as a reason to continue with business as usual, while relying on future analyses that may not occur. A requirement for full assessment of greenhouse gas emissions, and other cumulative climate impacts for all future management activities could allow the Forest to fully incorporate climate change science into management scenarios.

The DROD and FEIS fail to provide sufficient information on climate change effects on the forest's vegetation, infrastructure or effectiveness of best management practices. The FEIS provides no analysis as to the veracity of the Revised Plan's objectives, goals, or desired conditions.

The FEIS fails to consider the effects of climate change on the suitable timber base, including that the "desired" vegetation conditions will likely not be achievable or sustainable. The FEIS

[176] Attachment P - "Projected Changes in Suitable Changes for Key Rocky Mountain Tree Species."

fails to provide any credible analysis as to how realistic and achievable its desired conditions are in the context of a rapidly changing climate, along an unpredictable but changing trajectory.

The Revised Plan does not provide meaningful direction on climate change. Nor does the FEIS acknowledge pertinent and highly relevant best available science on climate change. The DROD and FEIS are in violation of NEPA, NFMA, the ESA and the APA.

The FEIS does not analyze or disclose the body of science that implicates logging activities as a contributor to reduced carbon stocks in forests and increases in greenhouse gas emissions. The FEIS fails to provide estimates of the total amount of carbon dioxide (CO2) or other greenhouse gas emissions caused by FS management actions and policies—forest-wide, regionally, or nationally. Agency policy makers seem comfortable maintaining a position that they need not take any leadership on this issue, and obfuscate via this FEIS to justify their failures.

The best scientific information strongly suggests that management that involves removal of trees and other biomass increases atmospheric CO2. Unsurprisingly the FEIS doesn't state that simple fact.

The FEIS fails to present any modeling of forest stands under different management scenarios. The FS should model the carbon flux over time for its proposed stand management scenarios and for the various types of vegetation cover found on the HLC NF.

The FEIS also ignores CO2 and other greenhouse gas emissions from other common human activities related to forest management and recreational uses. These include emissions associated with machines used for logging and associated activities, vehicle use for administrative actions, and recreational motor vehicles. The FS is simply ignoring the climate impacts of these management and other authorized activities.

The Committee of Scientists, 1999 recognize the importance of forests for their contribution to global climate regulation. Also, the 2012 Planning Rule recognizes, in its definition of Ecosystem services, the "Benefits people obtain from ecosystems, including: (2) Regulating services, such as long term storage of carbon; climate regulation..."

We have no more time to prevaricate, and it's not a battle we can afford to lose. We each have a choice: submit to the status quo for the profits of the greediest 1%, or empower ourselves to limit green-house gas emissions so not just a couple more generations might survive.

Suggested Resolution: Revise the Forest Plan to take a hard look at the science of climate change. Alternatively, issue a new EIS for the Revised Plan.

List of Attachments - Hand Delivered to the Objection Reviewing Officer, USDA Forest Service, Northern Region, 26 Fort Missoula Road, Missoula, MT 59804.[177]

A. The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System (March 2020).
B. Frissell, C.A. 2015 Comments on the USFWS Revised Draft Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus) (Changes in Bull trout Recovery Criteria) and Associated Draft Recovery Unit Implementation Plans, June 2015.
C. Letters and Supporting Documents re: Flathead Revised Forest Plan and Grizzly Bear Amendments.
D. Case 9:18-cv-00067-DWM
E. 60-day Notice Of Intent To Sue; Road Violations On Helena-lewis & Clark National Forest
F. Sixty-Day Notice of Intent to Sue to Remedy Violations of the Endangered Species Act in the Revised Forest Plan for the Flathead National Forest and in the U.S. Fish and Wildlife Service's Biological Opinion on the Plan
G. Response of Canada Lynx and Snowshoe Hares to Spruce-Beetle Tree Mortality and Wildfire in Spruce-fir Forests of Southern Colorado
H. Thomas, J., Reid, M.L., Barclay, R.M., & Jung, T.S. (2019). Salvage logging after an insect outbreak reduces occupancy by snowshoe hares (Lepus americanus) and their primary predators. Global Ecology and Conservation, 17.
I. Canada Lynx. Species Status Assessment. Expert Elicitation Workshop. Bloomington, Minnesota. October 13-15, 2015.
J. Nie, Martin and Barns, Christopher and Haber, Jonathan and Lurman Joly, Julie and Pitt, Kenneth and Zellmer, Sandra B., Fish and Wildlife Management on Federal Lands: Debunking State Supremacy (June 5, 2017). Environmental Law, Vol. 47, No. 4, 2017.
K. Gehman, S. May 2016. Winter Wildlife Surveys in the Little Prickly Pear Creek area of the Helena National Forest: Year Two. Wild Things Unlimited.
L. Lowrey, B., Devoe, J., Proffitt, K.M. and Garrott, R.A. (2020), Hiding Without Cover? Defining Elk Security in a Beetle-Killed Forest. Jour. Wild. Mgmt., 84: 138-149. doi:10.1002/jwmg.21781
M. General Livestock Citations
N. Livestock Coexistence Citations
O. Livestock Climate Change Citations
P. General Climate Change Citations and supporting documents

[177] The CARA electronic submission system limits attachments to 50 MB, which is an unreasonably small threshold that requires we submit a physical drive to provide our list of citations and supporting documents.