January 29, 2024

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

Randy Moore, Chief
U.S. Forest Service

On behalf of the Friends of the Clearwater, Alliance for the Wild Rockies, Flathead-Lolo-Bitterroot Citizen Task Force, WildEarth Guardians, Western Watersheds Project, Wilderness Watch, Friends of the Bitterroot, Paul Sieracki, WildWest Institute, Bluwater Solutions LLC, Blue Mountains Biodiversity Project, Friends of the Wild Swan, Swan View Coalition, Conservation Congress, and Yellowstone to Uintas Connection, this is an Objection to the Nez Perce-Clearwater National Forests Land Management Plan (LMP) and its accompanying draft Record of Decision (draft ROD) and Final Environmental Impact Statement (FEIS). The Responsible Official is Cheryl Probert, Forest Supervisor for the Nez Perce-Clearwater National Forests (NPCNF). This is also our Objection to the Regional Forester's list of Species of Conservation Concern (SCC) on the NPCNF, with the Responsible Official being Regional Forester Leanne Marten.

Objectors are a coalition of organizations working to secure the ecological integrity of large landscapes including the Northern Rockies bioregion, with the Wild Clearwater Country and NPCNF being a vital crossroads of this bioregion.

This objection is being "…submitted to the Objection Reviewing Officer via the objection webform at https://cara.fs2c.usda.gov/Public//CommentInput?Project=44089" (83074 Federal Register / Vol. 88, No. 227 / Tuesday, November 28, 2023, announcing "Notice of opportunity to object to the revised land management plan and Regional Forester's list of species of conservation concern for the Nez Perce-Clearwater National Forests") and also to Randy Moore, "Chief of the Forest Service (who) is the Reviewing Officer for the list of species of conservation concern identification" (Ibid.) at randy.moore@usda.gov. This is also being emailed to the following address shown on the forest plan revision website: sm.fs.fpr_npclw@usda.gov.

Adoption of the Land Management Plan (hereinafter, "LMP") and list of SCC would directly and significantly harm us as individuals or organizations and our members. Objectors stand to be directly and significantly affected by the actions authorized under the LMP and implementation of the NPCNF's list of SCC. Such actions would adversely impact and harm the natural qualities of the NPCNF, and would further degrade the watersheds and wildlife habitat. Individuals and members use the four national forests for quiet recreation, enjoyment of the natural world, and other forest related activities.

Selection of the Preferred Alternative and list of SCC would not be in accordance with the legal requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. 4321 et seq., and its implementing regulations, the National Forest Management Act (NFMA) 16 U.S.C. 1600 et seq.,

and its implementing regulations, the Administrative Procedures Act, 5 U.S.C. Sec. 706, and its implementing regulations, the Multiple-Use Sustained Yield Act and its implementing regulations, the Forest and Rangeland Renewable Resources Planning Act of 1974 and its implementing regulations, the Clean Water Act, and its implementing regulations, state water quality regulations, and the Endangered Species Act (ESA) and its implementing regulations.

We incorporate all of our previous comments and other communications concerning the revision of the NPCNF LMP and list of SCC within this Objection. We also incorporate the Objection submitted by Harry Jageman within this Objection.

INTRODUCTION

The set of Forest Service (FS) actions, analyses, and LMP components to which we object exemplify of the agency lifting the aspirational goals, nice-sounding words and lofty ideas found in the 2012 Planning Rule and writing them into documents that mention those goals, words, and ideas but don't adopt any mechanism that genuinely implements them in ways that restricts management actions to the degree that they would conserve resources, protect the environment, and provide for the public good. Under the LMP and SCC, politics and bureaucratic priorities prevail and the interests of the public, wildlife and all other natural qualities are locked out. The selection and implementation of the Preferred Alternative or any of the alternatives analyzed in the FEIS will leave the generations to come with an unaffordable bloated road network that cannot be adequately maintained, will continue to spread noxious weeds throughout the NPCNF, continue to displace wildlife from essential habitats by degrading natural forest conditions, continue to degrade the productivity of soils, and continue to degrade water quality and aquatic habitats through its disruption of watershed function. Its overemphasis on "active management" will fleece taxpayers to line the pockets of FS employees and the timber industry through make-work projects that cause great harm to the environment and the public's ability to enjoy it.

To provide further context for the concerns mentioned in the previous paragraph, we cite a 2006 Ninth Circuit U.S. Court of Appeals opinion (*Earth Island Institute v. United States Forest Service* 442 F.3d 1147 (2006)):

> We have noticed a disturbing trend in the [Forest Service's] recent timber-harvesting and timber-sale activities…It has not escaped our notice that the [Forest Service] has a substantial financial interest in the harvesting of timber in the National Forest. We regret to say that in this case, like the others just cited, the [Forest Service] appears to have been more interested in harvesting timber than in complying with our environmental laws."

The LMP's use of largely qualitative, subjective terminology in elements such as Desired Conditions, Objectives, Standards, Guidelines and suitability determinations obstruct the public's ability to evaluate agency integrity as policy decisions are made, which would render the final decision highly arbitrary. The FS has employed several such terms in recent decades (e.g., "forest health", "ecosystem management") mostly to serve its active management/resource extraction agenda. The latest is "resilient" as in—the FS wants to increase the forest's resilience to (some stressor). Asaro et al. (2023) recognize, "Forest health is a difficult concept to define using terms such as integrity, resilience, or balance, which are problematic because they do not

provide objective, scale-independent criteria that can easily be assessed quantitatively and applied consistently across forest ecosystems."

This Objection does not include headings/sections corresponding to every one of those in Objectors' draft forest plan/DEIS comments and other submissions our groups made during the entire revision process. This does not mean we waive those concerns here in the objection phase, or consider FS responses and changes reflected in the LMP and FEIS to have addressed them. It merely means that, by incorporating of all our previous comments, the discussions therein suffice for the purposes of this Objection.

REMEDY REQUESTED

This Objection and the previous comments it incorporates explain the numerous ways the draft land management plan/EIS and now this final LMP/FEIS and accompanying draft ROD fall short of compliance with the National Environmental Policy Act (NEPA) NFMA, the 2012 Planning Rule, and other laws, regulations, and policy. The only way for the FS to properly remedy this situation is to withdraw the LMP and its accompanying draft ROD and FEIS, take a few steps back in the planning process to genuinely address the issues raised in this Objection and previous comments, and prepare a new draft EIS/LMP for public comments. The FS must include and fully analyze an alternative based upon the Citizen Alternative in its next version of the draft EIS.

In many of the below sections, we make more specific remedy requests in addition to this central, minimum remedy that applies to all sections of this Objection.

RESPONSES TO COMMENTS

NEPA implementing regulations requires federal agencies to provide meaningful responses to members of the public and others who submit timely, substantive comments on a Draft Environmental Impact Statement (DEIS). Given the profound implications for the natural qualities of the NPCNF that the LMP poses, it's not surprising the DEIS attracted a lot of attention, as evidenced by all the comments. However, it's been almost four years since DEIS comments were submitted, which is plenty of time for the FS to analyze and respond to all comments in writing. Yet all too often the agency responded by lumping many comments under rather brief and sometimes inaccurate paraphrasing statements, to which it then replied. This resulted in sidestepping, ignoring, or otherwise missing the point of many substantive issues raised in DEIS and previous comments. The Forest Service has failed to take a hard look at the environmental impacts, and fails to include a reasonable range of forest plan alternatives.

The FEIS responses to comments violate NEPA and NFMA.

LMP DIRECTION IS TOO DISCRETIONARY

Objectors submitted comments on this issue. For example, FOC et al. DEIS/draft forest plan comments included a section beginning on page 25. It states in part, "Our scoping and other comments went into considerable detail on plan components and structure. It is obvious that our

comments were largely ignored in preparation of the DEIS and draft plan." In response to our DEIS/draft forest plan comments, the FS wrote little meaningful and specific responses. This violates NEPA.

The LMP does not define Plan Element but lists guidelines, standards, objectives, desired conditions, and suitability as plan elements and states:

> A plan amendment is required to add, modify, or remove one or more plan components or to change how or where one or more components apply to all or part of the plan area, including management areas or geographic areas (36 CFR 219.13(a)).

A **Guideline** is a "constraint on project and activity decision-making" and would thus theoretically set limitations on management actions. However, this "allows for departure from its terms, so long as the purpose of the guideline is met." Such language renders many guidelines discretionary and/or unenforceable, because the LMP does not state a clear purpose for most guidelines.

A **Standard** is a "mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements." Unfortunately, the LMP has little in the way of meaningful, quantitative standards. Protection for the various resources is not assured nor are ecological and economic sustainability.

An **Objective** is a "concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets (36 CFR 219.7(e)(1)(ii)). Objectives describe the focus of management in the plan area within the plan period. Objectives that are defined as occurring 'over the life of the plan.' Objectives will only be found in the section of the plan labeled 'Objectives.'"

Another Component is **Suitability**. The LMP Glossary defines "**Suitability of Lands:** A determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands." The criteria, determined suitability as per NFMA and planning regulations are arbitrary, not objective, nor are they based upon adequate data or analysis of the ecological conditions of "those lands."

A Desired Condition is "a description of specific social, economic, or ecological characteristics of the plan area, or a portion of the plan area, **toward which management of the land and resources should be directed**. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined **but not include completion dates**." (Emphasis added.)

LMP language concerning consistency with Plan Elements results in very weak and discretionary management direction. Generally, Plan Elements lack strong, binding direction compelling managers to accomplish measurable outcomes in a specified timetable, feature little restraint on management discretion. Crucially, the LMP displays skewed prioritization in setting Desired Conditions as the primary Plan Element, by including language such as "based on the desired

conditions applicable to those lands" within each of the other Plan Elements. The LMP states of Desired Conditions:

> These are the social, economic, and ecological attributes **that will be used to guide management of the land and resources of the plan area**. They may apply to the entire plan area or to specific geographic or management areas. Desired conditions are not commitments or final decisions approving projects and activities. The desired condition for some resources may currently exist or may only be achievable over a long time for other resources. The Nez Perce-Clearwater may need to adjust the desired conditions if monitoring results indicate they are not achievable in the long-term. Desired conditions will only be found in the section of the plan labeled "Desired Conditions."

(Emphasis added.) The FS's process of setting the priorities guiding the creation of the set of LMP Desired Conditions was arbitrary and lacks transparency. Since Desired Conditions do no compel management actions or direction, managers are feel free to arbitrarily focus on a subset of LMP Desired Conditions upon which to base site-specific project proposals. This renders management highly vulnerable to political agendas and insulates managers from much influence by the public during project NEPA processes. This was recognized by scientist Roger Sedjo of the FS's Committee of Scientists, 1999. This Committee of Scientists was convened to advise the agency during the rewrite of the national forest planning rule, expressed concerns about the integrity of the forest planning process in the context of budget imbalances and the chaos of other Congressionally mandated programs. Sedjo stated:

> (A)s currently structured there are essentially two independent planning processes in operation for the management of the National Forest System: forest planning as called for in the legislation; and the Congressional budgeting process, which budgets on a project basis. The major problem is that there are essentially two independent planning processes occurring simultaneously: one involving the creation of individual forest plans and a second that involves congressionally authorized appropriations for the Forest Service. Congressional funding for the Forest Service is on the basis of programs, rather than plans, which bear little or no relation to the forest plans generated by the planning process. There is little evidence that forest plans have been seriously considered in recent years when the budget is being formulated. Also, the total budget appropriated by the Congress is typically less than what is required to finance forest plans. Furthermore, the Forest Service is limited in its ability to reallocate funds within the budget to activities not specifically designated. Thus, the budget process commonly provides fewer resources than anticipated by the forest plan and often also negates the "balance" across activities that have carefully been crafted into forest plans. Balance is a requisite part of any meaningful plan. Finally, as noted by the GAO Report (1997), fundamental problems abound in the implementation of the planning process as an effective decision making instrument. Plans without corresponding budgets cannot be implemented. Thus forest plans are poorly and weakly implemented at best. Major reforms need to be implemented to coordinate and unify the budget process.

(Committee of Scientists, 1999 Appendix A.) This is also reflected in the LMP's description of the plan element Objective: "Objectives should be based on reasonably foreseeable budgets." The disconnect between forest plans and Congressional budgets remains to this day. And the

LMP definitions of Objective and Desired Conditions enlarge the Congressional/political foot-in-the-door such that managers are free to arbitrarily prioritize some Desired Conditions over others in proposing site-specific projects.

Another problems is the way "Suitability" was determined for the LMP. For example, although to the casual or unsuspecting reader the LMP might seem to limit commercial logging in many areas because they are determined unsuitable for commercial logging, the LMP writes the agency big loopholes to log almost everywhere outside of Wilderness. It states "Timber harvest may be used as a tool for the purpose of maintaining or restoring other resource values in lands not suited for timber production due to capability and some lands in areas not suited for timber production due to legal availability. Examples include maintaining a healthy, visually pleasing forest in the recreation segment of a wild and scenic river corridor or reducing fire hazard in the wildland urban interface or riparian conservation areas." The general public is not be aware that 100% of the logging project NEPA documents for at least the past 20 years on the NPCNF have included Purpose and Need statements that claim logging is needed to reduce fire hazard or for salvage, fuels management, insect and disease mitigation, protection or enhancement of biodiversity or wildlife habitat or use some similarly vague justification that would allow for logging based upon the above or other LMP-stated exceptions.

Management actions would for all intents and purposes be directed by the political whims reflected in Congressional budget allocations, by local politicians or other entities with vested financial interests. Citizens whose legitimate public interests contrast with those of the political and financially vested would have little recourse. Land managers and members of project interdisciplinary teams, who would by far hold the most sway against political and financial interests during forest plan design and implementation have, unfortunately, little career incentive to intervene on behalf of other values, and much incentive to go along with resource extraction. And the LMP and FEIS reflect this "go along" attitude, reflected by how science is applied selectively and in a very biased manner.

Our concerns are well illustrated by the idea of declaring an "Emergency Action Determination" for analyzing and proposing projects under the Bipartisan Infrastructure Law section 40807. Under the direction of Forest Supervisor Cheryl Probert, the Red River District Ranger sent an April 6, 2023 email to the public ("Subject: Twentymile Project Update"), which stated:

> The project area lies within one of the 250 identified High Risk Firesheds therefore, the NPC is requesting an Emergency Action Determination for this project under the Bipartisan Infrastructure Law section 40807. The reason for requesting this emergency authority is to mitigate the harm to life and property adjacent to NFS land; to control insects or disease; remove hazardous fuels; and protect and restore water resources and infrastructure. The request is currently pending approval. If approved, the Twentymile project will not be subject to the pre-decisional objection review process.

Similarly, the Twentymile Proposed Action states:

> The Secretary of Agriculture, Tom Vilsack, has determined that the Forest Service may carry out Authorized Emergency Actions under section 40807 of the Infrastructure

> Investment and Jobs Act (PL 117-58) on National Forest System lands in 250 identified High Risk Firesheds. Emergency actions are taken to achieve relief from threats to public health and safety, critical infrastructure, and/or to mitigate threats to natural resources. Forests projects proposed under an emergency authority must be approved by the Secretary.
>
> The NPC is requesting approval from the Secretary to implement the Twentymile project as an Emergency Action Determination project. The project lies within one of the 250 identified High Risk Firesheds. The reason for requesting this emergency authority is to mitigate the harm to life and property adjacent to NFS land; to control insects or disease; remove hazardous fuels; and protect and restore water resources and infrastructure.
>
> Should the Secretary of Agriculture grant an Emergency Action Determination, this project will not be subject to the pre-decisional objection review process. It is therefore critical that you provide feedback on this project during this designated combined scoping and comment period, as the public may not be able to raise additional project concerns during an objection period.

Prior to the District Ranger's April 5 so-called "Update" the public had never heard of the Twentymile project. It had not appeared in any of the periodic Schedule of Proposed Actions. So without any analysis or previous public involvement, the FS states the project meets the criteria in Section 40807 of Public Law 117-58 for emergency actions needed to reduce the risk of wildfire. PL 117-58 was enacted on November 15, 2021. And the FS prefers that following a mere 30-day comment period on the PA, the public has no further say in the matter.

There is nothing in the PA that supports the FS cry of "Emergency!" The rationale the PA provided for proposing this project is essentially identical to that for all vegetation "treatment" projects proposed on the NPCNF over the past decade and before.

To understand how the FS plans to move forward with implementing the Twentymile timber sale under this so-called "emergency", a March 10, 2023 memo from FS Chief Moore states:

> Within these designated areas, I have the authority to approve emergency actions for which NEPA compliance actions are not subject to administrative review under 36 CFR 218, and an environmental assessment or environmental impact statement need only analyze the no action alternative and the proposed action. In addition, a proposed emergency action is subject to special injunctive relief standards if challenged in court.
>
> Going forward, the Forest Service will coordinate with the Office of the General Counsel and the Department of Agriculture to ensure departmental awareness and coordination in situations where I determine that emergency authorizations are appropriate for use.
>
> It is my expectation that we will take an Agency approach to address these emergency situations. In addition to expedited compliance authorities, we are deploying other administrative authorities within my discretion to accelerate environmental analysis, contracting, hiring, and project implementation such as:

> • Emergency and direct hire authorities to support the Wildfire Crisis Strategy with the objective of hiring new personnel in the most critical positions.
>
> • Expedited contracting authorities or mechanisms such as virtual incident procurement and related incident procurement instruments, sole source and small business authorities, simplified procurement processes, and USDA contracting authorities.
>
> • Prioritize grants and agreements for needed emergency work.
>
> • Exemptions, waivers, expanded inclusions, and expedited mechanisms for emergency programs on joint efforts with USDA agencies and Tribes.
>
> • Emergency consultation to comply with the Endangered Species Act.
>
> • Emergency and programmatic consultation to comply with the National Historic Preservation Act.
>
> • Emergency procedures to comply with the Clean Water Act; and,
>
> • Expedited permitting, certification, and qualification processes as defined in Forest Service directives or as directed by the Chief.
>
> I am also empowering our Regions and field units to identify those processes and procedures that may limit or delay your ability to implement these emergency actions. To that end, we have created an Emergency Actions Portal [direct link: Emergency Actions Portal - Home (sharepoint.com)] to intake and track your requests to use emergency authorities and identify challenging processes/procedures.
>
> The portal will serve as a one-stop-shop for requesting approval for emergency actions and to request exceptions to existing policy or guidance that is limiting your ability to expedite emergency actions. Use of these authorities must be approved on a case-by-case basis and the portal will be the mechanism to do this…

To best understand the Chief's memo, one need only substitute the word "lawless" everywhere he says "emergency" or "expedited."

The Chief's "expedited compliance authorities" and other "administrative authorities" call into question the value of the public participating in what would be a sham and perfunctory NEPA process. Clearly the FS Chief and this Supervisor demonstrate the agency prioritization for getting out the logs as soon as possible despite public concerns and the conditions of the ecosystems in project areas.

To top it off, the Twentymile PA states, "**There are no private lands within the project area**" to save from wildfire. And of the "nearby communities at risk" the PA says, "The Twentymile project is located on the forest's Red River Ranger District approximately **16 miles** southwest of

Elk City, **15 miles** northwest of the township of Orogrande, and **12 miles** south of Newsome…" (emphases added).

INADEQUATE RANGE OF ALTERNATIVES

Objectors' comments provided myriad ways the LMP could embody better scientific interpretation and understanding to design Plan Elements. See, e.g. the FOC et al. draft Forest Plan/DEIS comments on pp. 43-48. There we noted the large body of science advocating for the need to recognize natural processes, and explained how the 2012 Planning Rule direction on "desired conditions" could be fine-tuned in incorporating the concept of "desired future dynamics":

> We maintain that the 2012 Planning Rule allows the Forest Service the flexibility to design Forest Plan "Desired Conditions" to be written in a way that prioritizes "desired future dynamics." That is, instead of describing a list of static states as the conditions to "move towards" (and likely never achieve), Desired Conditions should be described in terms of the natural processes that work in harmony with the functions of the various components. Thus, the components would not be pigeonholed by management and its mixed agendas, as does the DFP's approach.

That discussion includes: "The DEIS considers no alternative that genuinely emphasizes this best tool—allowing the natural processes to maintain ecological integrity—for which we strongly advocate. … That is what we have been advocating for in our Citizen's Alternative."

On the topic of FOC's Citizen's Alternative, the following is one example of the agency inaccurately characterizing responses to comments, as we mentioned in the previous section. From the FEIS Appendix M:

> **Concern 4:** The Forest Service should reconsider the Friends of the Clearwater Citizen Alternative in the revised Forest Plan or explain why it was dismissed from detailed analysis.
>
> **Response to comment:** Chapter 2 of the FEIS provides the explanation on why this alternative was considered by eliminated from detailed study. Concepts of this alternative do not meet the purpose and need, are not within the scope, or are not within the legal authority of the agency for example, **plan direction regarding privatizing the management of public resources or giving the National Forests to the State of Idaho** to own or manage. Some proposed plan components are not appropriate, such as standards prescribing NEPA analysis processes. See the Alternatives Considered but Eliminated from Detailed Study section of the FEIS for more details.

(Emphasis added.) There is nothing in the Citizen Alternative that advocates for privatizing the management of public resources or giving the National Forests to the State of Idaho to manage. In fact, it "Avoids industrialization and commercialization of the National Forests. National Forest stewardship and management must remain in the hands of the publicly controlled agency." The FS thus distracts from its refusal to engage in genuine dialogue with the interested

public in regards to our scientifically supported re-conceptualization of desired conditions.

The FEIS states:

> Forest **vegetation desired conditions were assumed to be an unresolved conflict** among available uses. However, as comments came in and **through additional conversations with various stakeholders**, it became clear that for most the issue was not the desired conditions but **how fast the forest moved** towards desired conditions, the extent to which active management was used to move towards desired conditions versus letting natural processes dominate, and how special habitats were treated in the plan, such as old-growth forests, snag densities, and live tree retention.

(Emphases added.) Objectors speak with complete unanimity in saying we never were solicited to engage in "additional conversations" by the FS about this. Apparently the FS does not consider us to be "stakeholders."

The FS even goes so far as making the wildly inaccurate and misrepresentative statement in the DEIS and FEIS, "Alternative Z was crafted to respond to requests to have an alternative in which natural processes dominate over anthropogenic influence."

The FS violates NEPA and NFMA by failing to include and fully evaluate a reasonable range of alternative in the plan revision process guided by the 2012 Planning Rule

NEPA - SCIENTIFIC INTEGRITY

Objectors raised issues pertinent to this topic in previous comments (e.g., pp. 12 - 25 of FOC et al. draft Forest Plan/DEIS comments). Objectors' comments also directly invoked scientific issues in commenting during the Assessment phase of LMP preparation. The contents of FEIS Appendix M ("Response to Comments") exemplifies the failure of the FS to comply with NEPA, as briefly stated above in RESPONSES TO COMMENTS.

For example, of the many issues under this heading comments raised, FOC et al. requested the FS undertake a science consistency review of the developing revised forest plan. This is a process the FS itself created (Guldin et al. 2003; also see Guldin et al. 2003b). The comments also point out numerous examples of the FS undertaking a science consistency review while conducting a programmatic planning process. This request was made because of the appearance of a highly biased and arbitrary selection of scientific information considered by the FS in the Assessment and NEPA process.

In response, the FEIS indicates the planning team alone has made the determination of best available science, and gives absolutely no response to the idea of having any kind of review of its determinations by any independent scientific body. Since the notion of peer review is a central principle of the scientific process, it's abundantly clear the FS is only willing to make a pretense of conforming to best available science in NPCNF LMP preparation.

The FS's stated policy is for the Forest Supervisor to make final determination on what is best available science when the Record of Decision is signed: "(O)ther information …presented to us …up until a decision may be found to be (best available science)." (Probert, 2017.) This means there is still an opportunity for the Responsible Official to choose more wisely that is reflected in the LMP, draft ROD and FEIS.

Nie and Schembra, 2014 recommend that the agency solicit independent feedback on it use of science:

> The 1997 (Tongass National Forest) Plan was written using an innovative process whereby scientists within the Pacific Northwest Research Station (an independent research arm of the USFS) were assembled into risk assessment panels "to assist decisionmakers in interpreting and understanding the available technical information and to predict levels of risk for wildlife and fish, old growth ecosystems, and local socioeconomic conditions resulting from different management approaches."172 In this case, "science consistency checks" were used as a type of audit to ensure that the policy and management branch writing the Tongass Plan could not misrepresent or selectively use information in ways not supported by the best available science. The process, at the very least, facilitated the consideration of best available science when writing the Tongass Plan, even if parts of the Tongass Plan were based on factors going beyond science.

Schultz (2010) provides a critique of FS wildlife analyses, and recommends peer review of large-scale assessments and project level management guidelines, and more robust, scientifically sound monitoring, and measurable objectives and thresholds for maintaining viable populations of all native and desirable non-native wildlife species.

And notably, we have the LMP Biological Assessment (BA) tearing into a couple of publicly submitted scientific documents concerning grizzly bears, subjecting them to review by agency employees.[1] Clearly, only biased reviews favoring the agency's resource extraction agenda will be considered by the FS. See Exhibit A for a rebuttal of the BA's failures of science and logic.

The FEIS and draft ROD rest on the fallacy that all the scientific research and opinion now rejected by the Responsible Official will always be relegated to the trash can by NPCNF officials. We assert the Responsible Official would be highly presumptuous to speak for future NPCNF managers, who certainly will, based on what the future brings, develop their own different perspectives and ways of dealing with the political pressure to extract resources, manage cultural expectations, and prioritize sustainability.

Remedy – Conduct a genuine science consistency review during the process of preparing a new draft EIS/LMP. Maintain all references and documents cited in and provided by all objections and public comments as part of the Planning Record, permanently and fully accessible on the NPCNF Planning webpage.

GLOBAL WARMING/CLIMATE CHANGE

[1] The amount of vilification and just plain irrationality displayed by the BA's summarization of this review may explain why no NPCNF biologist would affix their name or signature to the BA.

Objectors' comments extensively discuss the unprecedented level of threat and disruption climate chaos causes. See, for example, the FOC et al comments on the draft LMP/EIS with sections starting on pages 49 and 51. In addition, FOC submitted a new report (Talberth, 2023) to the Planning Team and Forest Supervisor along with discussion in a letter dated May 30, 2023. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

Ongoing climate catastrophe

Although Objectors have been pushing the FS to recognize the scale of the climate crisis and find appropriate responses, the agency just more deeply augurs its head into the sand. The FS is willingly participating in the destruction of the Earth's atmosphere. All of the scientific conclusions we cite are common knowledge by now, so the FS managers exhibit callous, active denial in ignoring it.

In the recent Forest Plan Draft EIS for the Custer-Gallatin National Forest, the FS's words are, "Climate change is expected to continue and have profound effects on the Earth's ecosystems in the coming decades (IPCC 2007)." As alarming as the words in the FS's cited IPCC 2007 are, more recent reports from the Intergovernmental Panel on Climate Change (IPCC) makes that 2007 report seem optimistic. See e.g., IPCC Special Report, 2014 for starters.

In a March 20, 2023 Press Release introducing the SYNTHESIS REPORT OF THE IPCC SIXTH ASSESSMENT REPORT (AR6), the Intergovernmental Panel on Climate Change (IPCC) states, "This Synthesis Report underscores the urgency of taking more ambitious action and shows that, if we act now, we can still secure a liveable sustainable future for all." It goes on:

> In 2018, IPCC highlighted the unprecedented scale of the challenge required to keep warming to 1.5°C. Five years later, that challenge has become even greater due to a continued increase in greenhouse gas emissions. The pace and scale of what has been done so far, and current plans, are insufficient to tackle climate change.
>
> More than a century of burning fossil fuels as well as unequal and unsustainable energy and land use has led to global warming of 1.1°C above pre-industrial levels. This has resulted in more frequent and more intense extreme weather events that have caused increasingly dangerous impacts on nature and people in every region of the world.
>
> Every increment of warming results in rapidly escalating hazards. More intense heatwaves, heavier rainfall and other weather extremes further increase risks for human health and ecosystems. In every region, people are dying from extreme heat. Climate-driven food and water insecurity is expected to increase with increased warming. When the risks combine

with other adverse events, such as pandemics or conflicts, they become even more difficult to manage.

A *Missoulian* newspaper article on the release of that report quotes United Nations Secretary-General Antonio Guterres: "Humanity is on thin ice — and that ice is melting fast. …Our world needs climate action on all fronts —everything, everywhere, all at once." That article quotes from the report, "The choices and actions implemented in this decade will have impacts for thousands of years" calling climate change "a threat to human well-being and planetary health." It quotes report co-author and water scientist Aditi Mukherji: "We are not on the right track but it's not too late. Our intention is really a message of hope, and not that of doomsday."

From a 2022 report, "The rise in weather and climate extremes has led to some irreversible impacts as natural and human systems are pushed beyond their ability to adapt." (IPCC Climate Change 2022, Impacts, Adaptation and Vulnerability, Summary for Policymakers - Working Group II Contribution.) Also see news accounts "AP-Report warns of looming climate catastrophe", "BBC-IPCC report warns of 'irreversible' impacts of global warming" and "AP-UN 'house on fire' report".

There is extremely urgent scientific concern expressed over the imminent effects of climate change on the earth's ecosystems, and therefore on civilization itself. The IPCC's 2018 report states that if greenhouse gas emissions continue at the current rate, the atmosphere will warm up by as much as 2.7 degrees Fahrenheit (1.5 degrees Celsius) above preindustrial levels by 2040, inundating coastlines and intensifying droughts and poverty. The report paints a much darker picture of the immediate consequences of climate change than previously described, and says that avoiding the damage requires transforming the world economy at a speed and scale that has "no documented historic precedent."

The 2018 IPCC report describes a world of worsening food shortages and wildfires, and a mass die-off of coral reefs as soon as 2040—a period well within the lifetime of much of the global population. The report "is quite a shock, and quite concerning," said Bill Hare, an author of previous IPCC reports and a physicist with Climate Analytics, a nonprofit organization. "We were not aware of this just a few years ago." The report was the first to be commissioned by world leaders under the Paris agreement, the 2015 pact by nations to fight climate change.

The authors of the 2018 IPCC report project that if greenhouse gas emissions continue at the current rate, the atmosphere will warm by as much as 2.7 degrees Fahrenheit (1.5 degrees Celsius) above preindustrial levels by 2040, inundating coastlines and intensifying droughts and poverty. Previous work had focused on estimating the damage if average temperatures were to rise by a larger number, 3.6 degrees Fahrenheit (2 degrees Celsius), because that was the threshold scientists previously considered for the most severe effects of climate change. The 2018 IPCC report, however, shows that many of those effects will come much sooner, at the 2.7-degree mark.

Executive Order 13990 of January 20, 2021 (Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis) sets the policy of the Biden Administration to "…reduce greenhouse gas emissions; to bolster resilience to the impacts of climate change…".

Executive Order (EO) 13990 Section 5 (Accounting for the Benefits of Reducing Climate Pollution) at (a) states, "It is essential that agencies capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account. Doing so facilitates sound decision-making, recognizes the breadth of climate impacts, and supports the international leadership of the United States on climate issues."

Executive Order 14008 of January 27, 2021 (Tackling the Climate Crisis at Home and Abroad) begins, "The United States and the world face a profound climate crisis. We have a narrow moment to pursue action at home and abroad in order to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents." Further, President Biden's Executive Order on the Establishment of the Climate Change Support Office (May 7, 2021) refers to it as a "**global** climate crisis" (emphasis added).

President Biden's April 22, 2022 Executive Order 14072 calls on the Secretaries of Agriculture and the Interior, within one year, to "define, identify, and complete an **inventory of old-growth and mature forests on Federal lands**, accounting for regional and ecological variations, as appropriate, and making the inventory publicly available." (Emphasis added.) EO 14072 recognizes, "Forests provide clean air and water, sustain the plant and animal life fundamental to combating **the global climate and biodiversity crises**, and hold special importance to Tribal Nations." (Emphasis added.) The Fact Sheet accompanying that E.O. recognizes:

> America's forests are a key climate solution, absorbing carbon dioxide equivalent to more than10% of U.S. annual greenhouse gas emissions. Federal lands are home to many of the nation's mature and old-growth forests, which serve as critical carbon sinks, cherished landscapes, and unique habitats.

The Executive Order will "Safeguard mature and old-growth forests on federal lands, as part of a science-based approach to reduce wildfire risk" and "**Enlist nature to address the climate crisis with comprehensive efforts to deploy nature-based solutions** that reduce emissions and build resilience." (Id., emphasis added.)

We incorporate FOC's August 5, 2022 letter to the Forest Service and BLM in response to the July 15, 2022 Biden Administration Request For Information seeking input on the development of a definition for old-growth and mature forests on Federal lands and requesting public input on a series of questions. We also incorporate FOC's July 20, 2023 letter to the USDA commenting in response to the FS's advance notice of proposed rulemaking on managing forests for climate resilience [88 Fed. Reg. 24497-24503, RIN 0596-AD59 (April 21, 2023)].

On April 18, 2023 Deputy Chief, Christopher B. French issued a memo to Regional Foresters entitled "Mature Old Growth Guidance: Infrastructure and Investment Jobs Act and Executive Order 14072". It states:

> In response to E.O. 14072, we recently completed the mature and old-growth (MOG) inventory that is built on the existing old-growth definitions developed by each region over the past 30 years. The inventory methods categorize MOG using approximately 200 combinations of forest type, productivity level and biophysical setting. **We will shortly**

> **issue guidance on using this information**. Specific Forest Plan content should guide operations to maintain or contribute toward the restoration of the structure and composition of classified old-growth stands.

(Emphasis added.) Part of any reasonable interpretation of "inventory" as applied to forests would be—is any particular place in a forest **inside** the mature and old-growth inventory, or is it **not**? At this point, the Biden Administration has not produced an inventory that could answer such a question, despite the suggestions it has. No spatially specific or ecological definition of old growth was adopted, which would have incorporated old growth and mature forests' relationships to wildlife, water, and many other natural values.

In "Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management Fulfillment of Executive Order 14072, Section 2(b)" released along with the French memo, we read:

> This **initial inventory report** is national in scale and presents estimates of old-growth and mature forests across all lands managed by the Forest Service and BLM. In preparing this report, published scientific literature was reviewed and scientists were consulted to understand the current work in this area and to get technical assistance in providing what was needed to respond to Executive Order 14072. **Some cited references (e.g., "in preparation" notations) have not yet undergone scientific peer review and are therefore subject to change.**

(Emphases added.) Nothing in those 2023 Biden administration reports nor in EO 14072 itself recognize the threat of logging to old growth and mature forests, which—as the NPCNF's 2023 Hungry Ridge Final Supplemental EIS and draft ROD exemplify—is completely absurd.

At this point, any lofty goals for EO 14072 as claimed by President Biden remain remote. Of huge concern to the global community, this includes prioritizing the role of forests as natural climate solutions, instead of targeting them to serve the prevailing capitalist consumptive values that chronically threaten the entire biosphere and our collective future.

DellaSala, et al. (2023) argue:

> …for stepped-up MOG protections by building on the exemplary Tongass National Forest in Alaska where roadless area protections containing MOG, previously removed under the Trump administration, were recently reinstated by the Biden administration while also supporting an economic transition out of old-growth logging and into previously logged but reforested sites. Nationwide MOG protections would establish U.S. leadership on the Paris Climate Agreement (natural sinks and reservoirs) and the Glasgow Forest Pledge to end deforestation and forest degradation. It would demonstrate progress toward 30 x 30 and present a global model for effective forest and climate response.

NFMA considers areas as "suitable" for timber production where there is reasonable assurance that such lands can be adequately restocked. Given the changing ecological conditions due to the climate emergency, the likely decreased effectiveness of resistance strategies described by Coop

et al, 2020 and the increased risk of vegetative conversion, (especially within areas of regeneration harvest), the FS must provide reasonable assurances that lands proposed for timber production can in fact be adequately restocked, which includes the anticipated time frame. Mere assurances that logged areas will be replanted are not sufficient as climate crisis impacts increase.

Further, equally important to acknowledging the limitations of resistance strategies is the fact that other pertinent scientific findings show warming and drying trends are having a major impact on forests, even without wildfire or insect infestation. See, e.g., Parmesan, 2006; Breshears et al. 2005; Allen et al. 2010, 2015; Anderegg et al. 2012; Williams et al. 2013; Overpeck 2013; Funk et al. 2014; Millar and Stephenson 2015; Gauthier et al. 2015; Ault et al. 2016 ("business-as-usual emissions of greenhouse gases will drive regional warming and drying, regardless of large precipitation uncertainties"); Vose et al. 2016 ("In essence, a survivable drought of the past can become an intolerable drought under a warming climate").

Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews

Issued on August 1, 2016 and subsequently blocked by the Trump administration, this directive from Executive Office of the President, Council on Environmental Quality was re-implemented as national direction. [See 86 Fed Reg. 10252 (Feb. 19, 2021).]

The 2016 CEQ guidance acknowledges, "changes in our climate caused by elevated concentrations of greenhouse gases in the atmosphere are reasonably anticipated to endanger the public health and public welfare of current and future generations." It directs federal agencies to consider the extent to which a proposed action would contribute to climate change. It rejects as inappropriate any notion that a timber sale is of too small a scale for such consideration:

> Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.

The U.S. District Court of Montana ruled in Case 4:17-cv-00030-BMM that the Federal government was required to evaluate the climate change impacts of the federal government coal program.

In March 2019, U.S. District Judge Rudolph Contreras in Washington, D.C., ruled that when the U.S. Bureau of Land Management (BLM) auctions public lands for oil and gas leasing, officials must consider emissions from past, present and foreseeable future oil and gas leases nationwide.

In March of 2018 the Federal District Court of Montana found the Miles City (Montana) and Buffalo (Wyoming) Field Office's Resource Management Plans unlawfully overlooked climate impacts of coal mining and oil and gas drilling. The case was brought by Western Organization of Resource Councils, Montana Environmental Information Center, Powder River Basin Resource Council, Northern Plains Resource Council, the Sierra Club, and the Natural Resources Defense Council.

The FEIS states, "Management activities may initially remove carbon from the forest ecosystem, but they can also result in long-term maintenance or increases in forest carbon uptake and storage by improving forest health and resilience to various types of stressors (McKinley et al. 2011)." Essentially the FEIS is saying that negative climate effects may be mitigated and completely reversed with time as the forests regrow following logging and other foreseeable management actions under the LMP, so everything will be just fine. In a recent court decision (*Center for Biological Diversity et al v. U.S. Forest Service*; CV 22-114-M-DWM) regarding the Black Ram timber sale on the Kootenai National Forest, Judge Molloy disagreed with that position:

> Ultimately, "[greenhouse gas] reduction must happen quickly" and removing carbon from forests in the form of logging, even if the trees are going to grow back, will take decades to centuries to re-sequester. FS-038329. Put more simply, logging causes immediate carbon losses, while re-sequestration happens slowly over time, **time that the planet may not have**. FS-020739 (I[t] is recognized that global climate research indicates the world's climate is warming and that most of the observed 20th century increase in global average temperatures is very likely due to increased human-caused greenhouse gas emissions.").
>
> …NEPA requires more than a statement of platitudes, it requires appraisal to the public of the actual impacts of an individual project. **…(T)he USFS has the responsibility to give the public an accurate picture of what impacts [its management] may have, no matter how "infinitesimal" they believe they may be.**

(Emphases added.) So the FS must quantify greenhouse gas emissions. Talberth, 2023 provides an example, in analyzing alternatives from the NPCNF draft Forest Plan/DEIS. There are plenty of quantitative tools for this analysis. See https://ceq.doe.gov/guidance/ghg-accounting-tools.html; USDA 2014. We see nothing in the LMP or FEIS to indicate the FS is acting in consistency with this guidance.

Logging harms potential of forest ecosystems to sequester carbon and mitigate effects of climate change

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…" The Committee of Scientists, 1999 recognize the importance of forests for their contribution to global climate regulation.

The NPCNF's 2023 Twentymile Proposed Action states, "In fact, removing carbon from forests for human use can result in a lower net contribution of GHGs to the atmosphere than if the forest were not managed (McKinley et al., 2011…)." The FS exaggerates and misrepresents their source. McKinley et al., 2011 also state:

- …most of the aboveground carbon stocks are retained after fire in dead tree biomass, because fire typically only consumes the leaves and small twigs, the litter layer or duff, and some dead trees and logs.

- Generally, harvesting forests with high biomass and planting a new forest will reduce overall carbon stocks more than if the forest were retained, even counting the carbon storage in harvested wood products (Harmon et al. 1996, Harmon et al. 2009). Thinning increases the size and vigor of individual trees, but generally reduces net carbon storage rates and carbon storage at the stand level (Schonau and Coetzee 1989, Dore et al. 2010).

- Methane release from anaerobic decomposition of wood and paper in landfills reduces the benefit of storing carbon because methane has about 25 times more global warming potential than CO2. For some paper, the global warming potential of methane release exceeds its carbon storage potential,

- There are two views regarding the science on carbon savings through fuel treatments. Some studies have shown that thinned stands have much higher tree survival and lower carbon losses in a crown fire (Hurteau et al. 2008) or have used modeling to estimate lower carbon losses from thinned stands if they were to burn (Finkral and Evans 2008, Hurteau and North 2009, Stephens et al. 2009). However, other stand-level studies have not shown a carbon benefit from fuel treatments (Reinhardt et al. 2010), and evidence from landscape-level modeling suggests that fuel treatments in most forests will decrease carbon (Harmon et al. 2009, Mitchell et al. 2009) even if the thinned trees are used for biomass energy. Because the occurrence of fires cannot be predicted at the stand level, treating forest stands without accounting for the probability of stand-replacing fire could result in lower carbon stocks than in untreated stands (Hanson et al. 2009, Mitchell et al. 2009). More research is urgently needed to resolve these different conclusions because thinning to reduce fuel is a widespread forest management practice in the United States (Battaglia et al. 2010).

That same 2023 Twentymile Proposed Action continues, "Older, more decadent and unhealthy forest stands take in less carbon from the atmosphere resulting to a slower rate of carbon sequestration." Multiple scientific research studies we cite here and in comments explicitly disagree with that NPCNF statement. "Furthermore, extensive wildfires release large amounts of carbon dioxide (CO2) and other GHG into the atmosphere that contribute to climate change."

(Id.) Again, the scientific information we cite explicitly disagrees. The FEIS fails reconcile the scientific controversies it creates.

Logging, especially of large trees as implementation of the LMP would feature, would exacerbate climate change. Mildrexler, et al., 2020 state:

- Large-diameter trees store disproportionally massive amounts of carbon and are a major driver of carbon cycle dynamics in forests worldwide.

- We examined the proportion of large-diameter trees on National Forest lands east of the Cascade Mountains crest in Oregon and Washington, their contribution to overall aboveground carbon (AGC) storage, and the potential reduction in carbon stocks resulting from widespread harvest. We analyzed forest inventory data collected on 3,335 plots and found that large trees play a major role in the accumulated carbon stock of these forests. Tree AGC (kg) increases sharply with tree diameter at breast height (DBH; cm) among five dominant tree species. Large trees accounted for 2.0 to 3.7% of all stems (DBH ≥ 1" or 2.54 cm) among five tree species; but held 33 to 46% of the total AGC stored by each species. Pooled across the five dominant species, large trees accounted for 3% of the 636,520 trees occurring on the inventory plots but stored 42% of the total AGC. A recently proposed large-scale vegetation management project that involved widespread harvest of large trees, mostly grand fir, would have removed ~44% of the AGC stored in these large-diameter trees, and released a large amount of carbon dioxide into the atmosphere.

- Given the urgency of keeping additional carbon out of the atmosphere and continuing carbon accumulation from the atmosphere to protect the climate system, it would be prudent to continue protecting ecosystems with large trees for their carbon stores, and also for their co-benefits of habitat for biodiversity, resilience to drought and fire, and microclimate buffering under future climate extremes.

See also DeLuca, 2009. Also, Lutz et al., 2018 (co-authored by dozens of scientists) "recommend managing forests for conservation of existing large-diameter trees or those that can soon reach large diameters as a simple way to conserve and potentially enhance ecosystem services." DeLuca, 2009 points to research that "showed that if the objective of management is carbon storage, old-growth forests are better left standing. …Old growth, rather than being thought of as stagnant with respect to carbon fixation, can sequester atmospheric carbon dioxide long past the achievement of old-growth conditions."

One value the 1989 Chief's Position Statement on National Forest Old Growth Values did *not* anticipate is forests' contributions toward a stable climate. Given the dire climate crisis in which we find ourselves, and in order to serve all other values, the FS must analyze and disclose the carbon sequestration potential of the landscapes and ecosystems within which old growth is found. That is lacking in the FEIS.

Law and Moomaw, 2023 state: "Forests are critically important for slowing climate change. They remove huge quantities of carbon dioxide from the atmosphere – 30% of all fossil fuel

emissions annually – and store carbon in trees and soils. Old and mature forests are especially important: They handle droughts, storms and wildfires better than young trees, and they store more carbon." These scientists also state "Forests are an essential part of Earth's operating system. They reduce the buildup of heat-trapping carbon dioxide in the atmosphere from fossil fuel combustion, deforestation and land degradation by 30% each year. This slows global temperature increases and the resulting changes to the climate. In the U.S., forests take up 12% of the nation's greenhouse gas emissions annually and store the carbon long term in trees and soils." (Law and Moomaw, 2024)

Law et al. (2022), in a paper entitled "Creating Strategic Reserves to Protect Forest Carbon and Reduce Biodiversity Losses in the United States" assert that "many of the current and proposed forest management actions in the United States are not consistent with climate goals, and that preserving 30 to 50% of lands for their carbon, biodiversity and water is feasible, effective, and necessary for achieving them."

In a January 12, 2023 News Release, scientists (Birdsey et al., 2023) point out that "Mature Federal Forests Play an Outsized Role in the Nation's Climate Strategy." They state:

> A new study published in the peer-reviewed journal Forests and Global Change presents the nation's first assessment of carbon stored in larger trees and mature forests on 11 national forests from the West Coast states to the Appalachian Mountains. This study is a companion to prior work to define, inventory and assess the nation's older forests published in a special feature on "natural forests for a safe climate" in the same journal. Both studies are in response to President Biden's Executive Order to inventory mature and old-growth forests for conservation purposes and the global concern about the unprecedented decline of older trees.

At a time when species are going extinct faster than any period in human history, the survival of species and persistence of healthy ecosystems requires science-based decisions. A new analysis by NatureServe addresses five essential questions about biodiversity–in fact "diversity" as NFMA mandates–which need to be answered if we are going to effectively conserve nature. In the first report of its kind, NatureServe, 2023 reveals an alarming conclusion: **34% of plants** and **40% of animals** are at risk of extinction, and **41% of ecosystems** are at risk of range-wide collapse. The analyses presented in the report inform how to effectively and efficiently use our financial resources to make the best conservation decisions.

Recent science supports the need to look beyond historical references to inform proposed actions, in the light of the profound changes expected under a warming climate: "(I)n a time of pervasive and intensifying change, the implicit assumption that the future will reflect the past is a questionable basis for land management (Falk 2017)." (Coop et al., 2020.) While it is useful to understand how vegetative conditions have departed from those in the past, the FS cannot rely on them to define management actions, or reasonably expect implementation of the LMP to result in restoring ecological processes. The agency needs to shift its management approach to incorporate the likelihood that no matter what vegetation "treatments" it implements, there are going to be future forest wildfire-triggered conversions to other vegetation types. As such, the FS cannot rely on the success of resistance strategies, as Coop et al., 2020 explains:

> Contemporary forest management policies, mandates, and science generally fall within the paradigm of resisting conversion, through on-the-ground tactics such as fuel reduction or tree planting. Given anticipated disturbance trajectories and climate change, science syntheses and critical evaluations of such resistance approaches are needed because of their increasing relevance in mitigating future wildfire severity (Stephens et al. 2013, Prichard et al. 2017) and managing for carbon storage (Hurteau et al. 2019b). Managers seeking to wisely invest resources and strategically resist change need to understand the efficacy and durability of these resistance strategies in a changing climate. Managers also require new scientific knowledge to inform alternative approaches including accepting or directing conversion, developing a portfolio of new approaches and conducting experimental adaptation, and to even allow and learn from adaptation failures.

In 2022 over 90 scientists working at the intersection of ecosystems and climate change sent a letter to Canada's Prime Minister Justin Trudeau, "Regarding the Protection of Canada's Primary Forests." They state:

> When primary forests, whether in Canada or elsewhere, are logged they release significant amounts of carbon dioxide, exacerbating climate change. Because primary forest ecosystems store more carbon than secondary forests, replacing primary forests with younger stands, as Canada is doing, ultimately reduces the forest ecosystem's overall carbon stocks, contributing to atmospheric greenhouse gas levels.
>
> Even if a clearcut forest eventually regrows, it can take over a decade to return to being a net absorber of carbon, and the overall carbon debt in carbon stocks that were removed from older forests can take centuries to repay, a luxury we simply no longer have. Recent studies also indicate that soil disturbance associated with logging results in large emissions of methane (CH4), a powerful greenhouse gas second only to CO2 in its climate forcing effects.

In a scientific finding contradicting typical FS logging justifications that are coded into the LMP, Harmon et al. (2022), showed the vast majority of carbon stored in trees before two large wildfires in California's Sierra Nevada mountain range remained there after the fires.

The FS must reevaluate assumptions about its vegetation manipulations from LMP implementation in regards to restocking success and species composition. Significant controversy exists as to the need for such manipulations given the improper use and reliance on historic conditions. In fact, there is a high likelihood based on the aforementioned studies that some areas will not regenerate and will instead result in conversion to different vegetative groups. That the FEIS fails to address this controversy and the science contradicting agency assumptions constitutes a NEPA violation.

We fully incorporate the document, "Flat Country DEIS cmt Forest Carbon Appendix, 3-16-2020" written by Oregon Wild. Our review of that comment letter and its voluminous scientific opinion indicates it is fully applicable to NPCNF LMP implementation.

Moomaw and Smith, 2017 conclude:

> With the serious adverse consequences of a changing climate already occurring, it is important to broaden our view of sustainable forestry to see forests …as complex ecosystems that provide valuable, multiple life-supporting services like clean water, air, flood control, and carbon storage. We have ample policy mechanisms, resources, and funding to support conservation and protection if we prioritize correctly.
>
> …We must commit to a profound transformation, rebuilding forested landscapes that sequester carbon in long-lived trees and permanent soils. Forests that protect the climate also allow a multitude of species to thrive, manage water quality and quantity and protect our most vulnerable communities from the harshest effects of a changing climate.
>
> Protecting and expanding forests is not an "offset" for fossil fuel emissions. To avoid serious climate disruption, it is essential that we simultaneously reduce emissions of carbon dioxide from burning fossil fuels and bioenergy along with other heat trapping gases and accelerate the removal of carbon dioxide from the atmosphere by protecting and expanding forests. It is not one or the other. It is both!
>
> Achieving the scale of forest protection and restoration needed over the coming decades may be a challenging concept to embrace politically; however, forests are the only option that can operate at the necessary scale and within the necessary time frame to keep the world from going over the climate precipice. Unlike the fossil fuel companies, whose industry must be replaced, the wood products industry will still have an important role to play in providing the wood products that we need while working together to keep more forests standing for their climate, water, storm protection, and biodiversity benefits.
>
> It may be asking a lot to "rethink the forest economy" and to "invest in forest stewardship," but tabulating the multiple benefits of doing so will demonstrate that often a forest is worth much more standing than logged. Instead of subsidizing the logging of forests for lumber, paper and fuel, society should pay for the multiple benefits of standing forests. It is time to value U.S. forests differently in the twenty-first century. We have a long way to go, but there is not a lot of time to get there.

The FEIS doesn't consider highly relevant information or even consider scientific information that questions its underlying assumptions and makes them scientifically controversial. This is compounded by the amount logging that would occur under implementation of the LMP, which represent cumulative effects that the FEIS does not analyze for carbon sequestration and climate change impacts at local and regional levels.

Forests are carbon sinks—they store carbon in both the soils and the vegetation. Carbon sinks are important for mitigating the impacts of climate change. The U.S. has many forests owned by the public and managed by the FS. Harvesting wood "represents the majority of [carbon] losses from US forest...." (Harris et al. 2016). Additionally, Achat et al. 2015 has estimated that intensive biomass harvests could constitute an important source of carbon transfer from forests to the atmosphere. Pacific Northwest forests hold live tree biomass equivalent or larger than tropical

forests. (Law and Waring 2015.) “Alterations in forest management can contribute to increasing the land sink and decreasing emissions by keeping carbon in high biomass forests, extending harvest cycles, reforestation, and afforestation.” (Law et al. 2018.) The FEIS has no genuine carbon accounting of the carbon outputs from implementing the LMP.

Logging does not serve to increase carbon sequestration in the future. McKinley et al. 2011 states, “Because forest carbon loss contributes to increasing climate risk and because climate change may impede regeneration following disturbance, avoiding deforestation and promoting regeneration after disturbance should receive high priority as policy considerations.” One specific strategy McKinley et al. also discusses is decreasing forest harvests, either by interval or intensity, to increase forest carbon stocks. McKinley et al. 2011 recognizes, “Generally, harvesting forests with high biomass and planting a new forest will reduce overall carbon stocks more than if the forest were retained, even counting the carbon storage in harvested wood products.” The strategy of harvesting and replanting does not work for the NPCNF. Avoiding deforestation, afforestation, and reducing harvest are the first three strategies that McKinley et al. 2011 list. McKinley et al. 2011 recognizes avoiding deforestation and reducing harvest as strategies for carbon storage in forests, acknowledging that climate change may impede regeneration.

The FS’s position is that individual projects would have insignificant contributions to global carbon emissions. The obvious problem with that viewpoint is, once can say the same thing about every source of carbon dioxide and other greenhouse gas emission on earth. In their comments on the KNF’s Draft EIS for the Lower Yaak, O'Brien, Sheep project, the EPA rejected that sort of analysis, basically because that cumulative effects scale dilutes project effects. (See USDA Forest Service, 2016d at 818-19.) We would add that, if the FS wants to refer to a wider scope to analyze its carbon footprint, we suggest that it actually conduct such a cumulative effect analysis and disclose it in a NEPA document.

Depro et al., 2008 found that ending commercial logging on U.S. national forests and allowing forests to instead mature would remove an additional amount of carbon from the atmosphere equivalent to 6 percent of the U.S. 2025 climate target of 28 percent emission reductions.

Forest recovery following logging and natural disturbances are usually considered a given. But forests have recovered under climatic conditions that either no longer exist, or are expected to change soon. Higher global temperatures and increased levels of disturbance are contributing to greater tree mortality in many forest ecosystems, and these same drivers can also limit forest regeneration, leading to vegetation type conversion. (Bart et al., 2016.)

Law and Harmon, 2011 conducted a literature review and concluded:

> Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict with carbon sequestration goals, and, if implemented, would result in a net emission of CO2 to the atmosphere because the amount of carbon removed to change fire behavior is often far larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.

Moomaw and Smith, 2017 state:

> Multiple studies warn that carbon emissions from soil due to logging are significant, yet under-reported. One study found that logging or clear-cutting a forest can cause carbon emissions from soil disturbance for up to fifty years. Ongoing research by an N.C. State University scientist studying soil emissions from logging on Weyerhaeuser land in North Carolina suggests that "logging, whether for biofuels or lumber, is eating away at the carbon stored beneath the forest floor."

Moomaw and Smith, 2017 examined the scientific evidence implicating forest biomass removal as contributing to climate change:

> All plant material releases slightly more carbon per unit of heat produced than coal. Because plants produce heat at a lower temperature than coal, wood used to produce electricity produces up to 50 percent more carbon than coal per unit of electricity.
>
> Trees are harvested, dried, and transported using fossil fuels. These emissions add about 20 percent or more to the carbon dioxide emissions associated with combustion.

Climate change science suggests that logging for sequestration of carbon, logging to reduce wild fire, and other manipulation of forest stands does not offer benefits to climate. Rather, increases in carbon emissions from soil disturbance and drying out of forest floors are the result. The FS must minimize manipulation of forest stands, especially stands that have not been previously logged, allowing natural processes to function. Furthermore, logging involves the burning of fossil fuels. Reducing fossil fuel combustion is vital. Everything from travel planning to monitoring would have an important impact in that realm.

Old growth also helps to mitigate the effects of climate change on wildlife habitat. Frey et al., 2016 find: "Vegetation characteristics associated with older forest stands appeared to confer a strong, thermally insulating effect. Older forests with tall canopies, high biomass, and vertical complexity provided cooler microclimates compared with simplified stands. This resulted in differences as large as 2.5°C between plantation sites and old-growth sites, a temperature range equivalent to predicted global temperature increases over the next 50 years." They believe older, more complex forests may help to "buffer organisms from the impacts of regional warming and/or slow the rate at which organisms must adapt to a changing climate…" Large trees serve as important carbon capture and storage (Stephenson et al. 2014). Also see DellaSala and Baker, 2020 and Scientists Letter, 2020. Additionally, forest canopies can buffer climate extremes and promote microclimates that in turn provide refugia for species in the understory—on a daily basis, buffering is most strongly related to forest cover. (Davis et al. 2019b.)

Given the urgency of preventing additional greenhouse gas emissions and continuing carbon sequestration to mitigate climate change, it would be best to protect large trees for their carbon stores, and also for their co-benefits of habitat for biodiversity, resilience to drought and fire, and microclimate buffering under future climate extremes.

Law and Moomaw (2021) assert: "Keeping trees in the ground where they are already growing is an effective low-tech way to slow climate change."

Recent studies agree that maintaining forests rather than cutting them down can help reduce the impacts of climate change. E.g., Moomaw, et al., 2019: "Stakeholders and policy makers need to recognize that **the way to maximize carbon storage and sequestration is to grow intact forest ecosystems where possible**." (Emphasis added). Another report (Hudiburg et al., 2019) concludes:

> **Allowing forests to reach their biological potential for growth and sequestration, maintaining large trees** (Lutz et al 2018), reforesting recently cut lands, and afforestation of suitable areas **will remove additional CO2 from the atmosphere**. Global vegetation stores of carbon are 50% of their potential including western forests because of harvest activities (Erb et al 2017). Clearly, western forests could do more to address climate change through carbon sequestration **if allowed to grow longer**. (Emphasis added.)

In a literature review from leading experts on forest carbon storage, Law, et al. (2020) reported:

> There is absolutely no evidence that thinning forests increases biomass stored (Zhou et al. 2013). It takes decades to centuries for carbon to accumulate in forest vegetation and soils (Sun et al. 2004, Hudiburg et al. 2009, Schlesinger 2018), and it takes decades to centuries for dead wood to decompose. We must preserve medium to high biomass (carbon-dense) forest not only because of their carbon potential but also because they have the greatest biodiversity of forest species (Krankina et al. 2014, Buotte et al. 2019, 2020).

Also *see* Dr. Law explaining these matters in the video, "The Surprising Truth Behind Planting Trees and Climate Change" submitted on data disk as part of this objection.

Law and Moomaw, 2021 recently concluded:

> Recent projections show that to prevent the worst impacts of climate change, governments will have to increase their pledges to reduce carbon emissions by as much as 80%. We see the next 10 to 20 years as a critical window for climate action, and believe that **permanent protection for mature and old forests is the greatest opportunity for near-term climate benefits.** (Emphasis added.)

The importance of trees for carbon capture will rise especially if, as recent evidence suggests, hopes for soils as a carbon sink may be overly optimistic. (He et al., 2016) Such a potentially reduced role of soils doesn't mean that forest soils won't have a role in capture and storage of carbon, rather it puts more of the onus on aboveground sequestration by trees, even if there is a conversion to unfamiliar mixes of trees.

Forests affect the climate, climate affects the forests, and there's been increasing evidence of climate triggering forest cover loss at significant scales (Breshears et al. 2005), forcing tree species into new distributions "unfamiliar to modern civilization" (Williams et al. 2012), and raising a question of forest decline across the United States (Cohen et al. 2016).

Logging and associated activities emit vast amounts of greenhouse gases

Law and Harmon, 2011 conducted a literature review and concluded:

> Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict with carbon sequestration goals, and, if implemented, would result in a net emission of CO2 to the atmosphere because the amount of carbon removed to change fire behavior is often far larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.

The FS has refused to even attempt to cumulatively examine the effects, which is significant as the Northern Region has been approving many supersized clearcuts across the national forests of Montana and Northern Idaho. *See* Bilodeau and Juel, 2021. The Regional Forester has approved over 93,000 acres of supersized clearcuts in just a period of seven years. How much carbon stores would that eliminate? How much fossil fuel would be burned in the clearcutting of that acreage?

There exist quantitative tools for such analyses, such as Eve, et al., 2014. There is nothing in the FEIS or supporting documents to indicate the FS is accounting for greenhouse gases in any legitimate, quantitative manner.

Interaction of management actions and climate change

The FEIS does not adequately consider the significant trend in post-disturbance regeneration failure in the face of climate change, including the change in natural processes.

Vegetation management efforts that propose attempting to replicate pre-European conditions ignores the larger pattern of climate, ignores climate change, and ignores natural succession. Millar and Wolfenden 1999 discuss important patterns within the context of climate change.

The FS does recognize some effects of climate change on forests: “In many areas, it will no longer be possible to maintain vegetation within the historical range of variability. Land management approaches based on current or historical conditions will need to be adjusted.” (USDA Forest Service, 2017b.) Yet, the FEIS lacks acknowledgement, awareness or analysis that achieving its desired conditions is very much climate dependent. The FEIS has no scientific basis to support its assumption that implementing the LMP will result in sustainable vegetation conditions under climate change scenarios. The FEIS fails to provide any credible analysis as to how realistic and achievable LMP objectives are in the context of a rapidly changing climate, along an unpredictable but definitely changing trajectory.

There is scientific certainty that climate change has reset the deck for future ecological conditions. For example, Sallabanks, et al., 2001:

> (L)ong-term evolutionary potentials can be met only by accounting for potential future changes in conditions. …Impending changes in regional climates …have the capacity for causing great shifts in composition of ecological communities.

Conventional wisdom dictates that forests regenerate and recover from wildfire, and that forests can regenerate and recover from logging. And these days, "resilience" is a core tenant of FS planning. Yet assumptions relating to historic and desired conditions are tenuous. NEPA requires a "hard look" at the best available science relating to future concentrations of greenhouse gases and gathering climate risk as we move forward into an increasingly uncertain and uncharted climate future. The FEIS does not include a legitimate climate-risk analysis, much less one based on the best available science.

No amount of logging, thinning and prescribes burning will cure the cumulative effects (irretrievable loss) already baked into the foreseeably impending climate chaos. "Treatments" are not acknowledged for what they will be: adverse cumulative environmental effects.

Millar et al. 2007 state:

> Over the last several decades, forest managers in North America have used concepts of historical range of variability, natural range of variability, and ecological sustainability to set goals and inform management decisions. An underlying premise in these approaches is that by maintaining forest conditions within the range of presettlement conditions, managers are most likely to sustainably maintain forests into the future. We argue that although we have important lessons to learn from the past, we cannot rely on past forest conditions to provide us with adequate targets for current and future management. This reality must be considered in policy, planning, and management. Climate variability, both naturally caused and anthropogenic, as well as modern land-use practices and stressors, create novel environmental conditions never before experienced by ecosystems. Under such conditions, historical ecology suggests that we manage for species persistence within large ecoregions.

Stevens-Rumann, et al., (2018) state: "In the US Rocky Mountains, we documented a significant trend of post-fire tree regeneration, even over the relatively short period of 23 years covered in this analysis. Our findings are consistent with the expectation of **reduced resilience of forest ecosystems to the combined impacts of climate warming and wildfire activity**. Our results suggest that predicted **shifts from forest to non-forested vegetation**. (Emphases added.)

In 2012 Forest Service scientists reported, "Climate change will alter ecosystem services, perceptions of value, and decisions regarding land uses." (Vose et al. 2012.)

The 2014 National Climate Assessment chapter for the Northwest is prefaced by four "key messages" including this one: "The combined impacts of increasing wildfire, insect outbreaks, and tree diseases are already causing widespread tree die-off and are virtually certain to cause additional forest mortality by the 2040s and long-term transformation of forest landscapes. Under higher emissions scenarios, extensive conversion of subalpine forests to other forest types is projected by the 2080s." (Mote et al. 2014.)

None of this means that longstanding values such as conservation of old-growth forests are no longer important. Under increasing heat and its consequences, we're likely to get unfamiliar understory and canopy comprised of a different mix of species. This new assortment of plant species will plausibly entail a new mix of trees, because some familiar tree species on the NPCNF may not be as viable under emerging climate conditions. That being said, a plausible new mix will include trees for whom the best policy will be to allow them to achieve their longest possible lifespan, for a variety of reasons including for carbon capture and storage (Stephenson et al. 2014).

Managing forest lands with concerns for water will be increasingly difficult under new conditions expected for the 21st century. (Sun and Vose, 2016.) Already, concerns have focused on new extremes of low flow in streams. (Kormos et al. 2016.) The 2014 National Climate Assessment Chapter for the Northwest also recognizes hydrologic challenges ahead: "Changes in the timing of streamflow related to changing snowmelt are already observed and will continue, reducing the supply of water for many competing demands and causing far-reaching ecological and socioeconomic consequences." (Mote et al. 2014.)

Malmsheimer et al. 2008 state, "Forests are shaped by climate. Along with soils, aspect, inclination, and elevation, climate determines what will grow where and how well. Changes in temperature and precipitation regimes therefore have the potential to dramatically affect forests nationwide."

Kirilenko and Sedjo, 2007 state "The response of forestry to global warming is likely to be multifaceted. On some sites, species more appropriate to the climate will replace the earlier species that is no longer suited to the climate."

Davis et al., 2019 state:

> At dry sites across our study region, seasonal to annual climate conditions over the past 20 years have crossed these thresholds, such that conditions have become increasingly unsuitable for regeneration. High fire severity and low seed availability further reduced the probability of postfire regeneration. Together, our results demonstrate that climate change combined with high severity fire is leading to increasingly fewer opportunities for seedlings to establish after wildfires and may lead to ecosystem transitions in low-elevation ponderosa pine and Douglas-fir forests across the western United States.

Forests are already experiencing emissions-driven deforestation, on both the post-fire and post-logging acreage.

The FEIS does not disclose recent restocking monitoring data and analysis, or research investigating changes over time due to climate change.

The issue of forest response to climate change is also of course an issue of broad importance to community vitality and economic sustainability. Raising a question about persistence of forest

stands also raises questions about hopes—and community economic planning—for the sustainability of forest-dependent jobs. Allen et al., 2015 state:

> Patterns, mechanisms, projections, and consequences of tree mortality and associated broad-scale forest die-off due to drought accompanied by warmer temperatures—hotter drought", an emerging characteristic of the Anthropocene—are the focus of rapidly expanding literature.
>
> …(R)ecent studies document more rapid mortality under hotter drought due to negative tree physiological responses and accelerated biotic attacks. Additional evidence suggesting greater vulnerability includes rising background mortality rates; projected increases in drought frequency, intensity, and duration; limitations of vegetation models such as inadequately represented mortality processes; warming feedbacks from die-off; and wildfire synergies.
>
> …We also present a set of global vulnerability drivers that are known with high confidence: (1) droughts eventually occur everywhere; (2) warming produces hotter droughts; (3) atmospheric moisture demand increases nonlinearly with temperature during drought; (4) mortality can occur faster in hotter drought, consistent with fundamental physiology; (5) shorter droughts occur more frequently than longer droughts and can become lethal under warming, increasing the frequency of lethal drought nonlinearly; and (6) mortality happens rapidly relative to growth intervals needed for forest recovery.
>
> These high-confidence drivers, in concert with research supporting greater vulnerability perspectives, support an overall viewpoint of greater forest vulnerability globally. We surmise that mortality vulnerability is being discounted in part due to difficulties in predicting threshold responses to extreme climate events. Given the profound ecological and societal implications of underestimating global vulnerability to hotter drought, we highlight urgent challenges for research, management, and policy-making communities.

Heat, a long-established topic of physics, plays an equally important role at the level of plant and animal physiology—every organism only survives and thrives within thermal limits. For example, Pörtner et al. (2008) point out, "All organisms live within a limited range of body temperatures… Direct effects of climatic warming can be understood through fatal decrements in an organism's performance in growth, reproduction, foraging, immune competence, behaviors and competitiveness." The authors further explain, "Performance in animals is supported by aerobic scope, the increase in oxygen consumption rate from resting to maximal." In other words, rising heat has the same effect on animals as reducing the oxygen supply, and creates the same difficulties in breathing. But breathing difficulties brought on by heat can have important consequences even at sub-lethal levels. In the case of grizzly bears, increased demand for oxygen under increasing heat has implications for vigorous (aerobically demanding) activity including digging, running in pursuit of prey, mating, and the play of cubs.

Respected experts say that the atmosphere might be able to safely hold 350 ppm of CO_2.[2] So when the atmosphere was at pre-industrial levels of about 280 ppm, there was a cushion of about

[2] http://www.350.org/about/science.

70 ppm which represents millions of tons of greenhouse gas emissions. Well, now that cushion is completely gone. The atmosphere is now over 400 ppm CO_2 and rising. Therefore the safe level of additional emissions (from logging or any other activity) is negative. There is no safe level of additional emissions that our earth systems can tolerate. We need to be removing carbon from the atmosphere—not adding to it. How? By allowing forests to grow. Logging moves us away from our objective while conservation moves us toward our objective.

Pecl, et al. 2017 "review the consequences of climate-driven species redistribution for economic development and the provision of ecosystem services, including livelihoods, food security, and culture, as well as for feedbacks on the climate itself." They state, "Despite mounting evidence for the pervasive and substantial impacts of a climate-driven redistribution of Earth's species, current global goals, policies, and international agreements fail to account for these effects. … To date, all key international discussions and agreements regarding climate change have focused on the direct socioeconomic implications of emissions reduction and on funding mechanisms; **shifting natural ecosystems have not yet been considered in detail**." (Emphasis added.)

Other forest activities emit greenhouse gases

Other common human activities related to forest management and recreational uses emit greenhouse gasses, yet the FEIS fails to adequately quantify them. These include emissions associated with machines used for logging and associated activities, vehicle use for administrative actions, recreational motor vehicles, and emissions associated with livestock grazing. The FS is simply ignoring the climate impacts of those management actions and other activities associated with LMP implementation.

Kassar and Spitler, 2008 provide an analysis of the carbon footprint of off-road vehicles in California. They determined that:

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

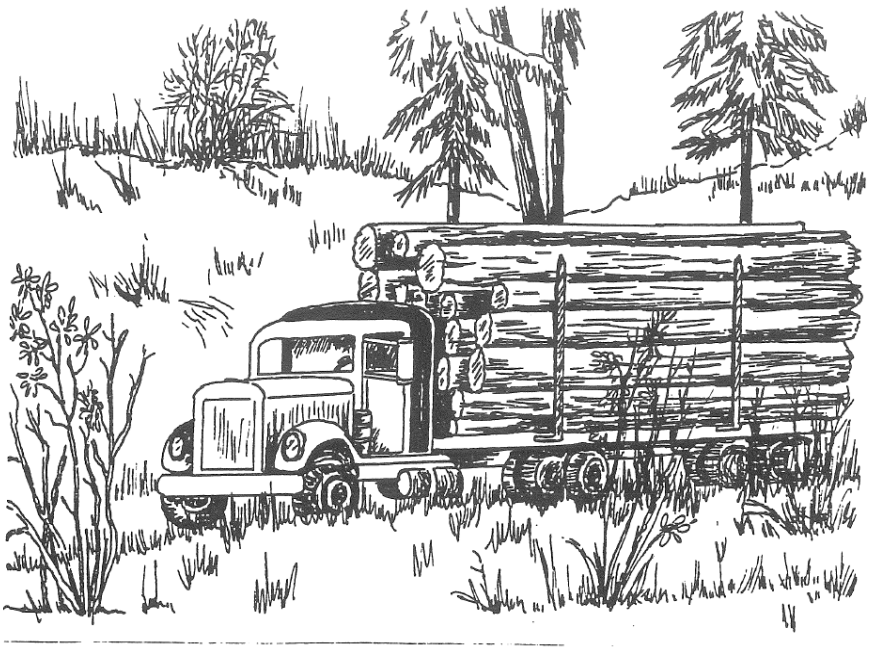
Also, Sylvester, 2014 provides data on the amount of fossil fuel being consumed by snowmobiles in Montana, from which one can calculate the carbon footprint. The study finds that resident snowmobilers burn 3.3 million gallons of gas in their snowmobiles each year and a similar amount of fuel to transport themselves and their snowmobiles to and from their

destination. Non-residents annually burn one million gallons of gas in snowmobiles and about twice that in related transportation. So that adds up to 9.6 million gallons of fuel consumed in the pursuit of snowmobiling each year in Montana alone. Multiply that by 20 pounds of carbon dioxide per gallon of gas (diesel pickups spew 22 pounds per gallon) and snowmobiling releases 192 million pounds (96 thousand tons) of climate-warming CO_2 per year into the atmosphere.

Gerber, et al., 2013 state, "Livestock producers, which include meat and dairy farming, account for about 15 percent of greenhouse gas emissions around the world. That's more than all the world's exhaust-belching cars, buses, boats, and trains combined."

The FS must overhaul its land management approach to one prioritizing conservation of carbon pools, the natural capability of forest ecosystems to sequester CO_2 from the atmosphere simply to improve the prospects for the survival of civilization. The FEIS contains no alternative that properly considers the facts and science of climate change.

OLD GROWTH AND OLD-GROWTH ECOSYSTEMS



Logging is the chief systematic pressure affecting old-growth communities.

-USDA Forest Service, 1987d

Objectors' comments discuss old growth and include detailed critique of plan direction proposed for old growth. See, for example, the FOC et al comments on the draft LMP/EIS starting on page 134. Much of that criticism is based on scientific information cited. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

This section focuses mainly on the ecological role of mature and old forests, but it still begs emphasizing the tie to other sections in observing that "Mature and old-growth forests, with larger trees than younger forests, play an outsized role in accumulating carbon and keeping it out of the atmosphere. These forests are especially resistant to wildfires and other natural disturbances as the climate warms." (Law and Moomaw, 2024.) Also, we incorporate Juel (2021), which discusses ecological and management issues including the devolution of FS old-growth policies.

The LMP draft EIS recognizes that the mixed-severity fire regime is the most prevalent one on the NPCNF. Lesmeister et al. (2019) state, "Because of the spatiotemporal variability across the landscape, mixed-severity fire regimes are the most complex and least understood fire regimes, unique in terms of patch metrics and the life history attributes of native species (Schoennagel et al. 2004, Agee 2005, Halofsky et al. 2011). Fire histories in mixed-severity regimes, in particular, are difficult to determine because most fire history techniques have been developed to study either the low- or high-severity extremes in fire regimes (Agee 2005)." Lesmeister et al. (2019) discuss in more enlightened terms the kind of fire events demonized in FEIS analyses:

> Short-interval severe fires are an important characteristic of mixed-severity fire regimes and are typically considered extreme events and expected to be deleterious to forest succession and diversity (Donato et al. 2009). However, many native plants within these forests possess functional traits (e.g., persistent seed banks, vegetative sprouting, rapid maturation) lending to resilience to short-interval severe fires that result in distinct vegetation assemblages that enhance landscape heterogeneity inherent to mixed-severity fire regimes (Donato et al. 2009). Furthermore, high diversity of vegetation types, driven by short-interval repeat fires in a mixed-severity fire regime landscapes, plays an important role in conservation and the structure of avian communities (Fontaine et al. 2009).

Lesmeister et al., 2019 discuss the positive role that old growth ("untreated" old growth) plays in countering impacts from high-severity fires—protecting these areas are a part of the climate solution, not a problem to be logged. In regards to the logging of old growth included in LMP direction, best available science indicates it isn't justified.

Old growth is important for many reasons. For one, people enjoy visiting these groves, for the mystery it invokes:

> The birth of "old growth" as the iconic forest can be encapsulated in a few words describing social meanings, time and space: re-enchantment trumped rationality; the eternal present absorbed the chronology of forest growth; mystical places colonized the choreography of sustained yield operations.

(Lee, 2009.) We find little in the FEIS that recognizes such social values. In 1989, Forest Service Chief Dale Robertson issued a "Position Statement on National Forest Old Growth Values" (Chief's Position Statement – see Green et al., 1992). The Chief's Position Statement began, "The Forest Service recognizes the many significant values associated with old growth forests, such as biological diversity, wildlife and fisheries habitat, recreation, aesthetics, soil

productivity, water quality, and industrial raw material. Old growth on the National Forests will be managed to provide the foregoing values for present and future generations. …Where goals for providing old growth values are not compatible with timber harvesting, lands will be classified as unsuitable for timber production."

The 1989 Chief's Position Statement included steps national forest managers were to take to reflect this range of old growth values. The direction included:

- Old growth values shall be considered in designing the dispersion of old growth. This may range from a network of old growth stands for wildlife habitat to designated areas for public visitation. In general, areas to be managed for old growth values are to be distributed over individual National Forests with attention given to minimizing the fragmentation of old growth into small isolated areas.

- Regions with support from Research shall continue to develop forest type old growth definitions, conduct old growth inventories, develop and implement silvicultural practices to maintain or establish desired old growth values, and explore the concept of ecosystem management on a landscape basis. Where appropriate, land management decisions are to maintain future options so the results from the foregoing efforts can be applied in subsequent decisions. Accordingly, field units are to be innovative in planning and carrying out their activities in managing old growth forests for their many significant values.

Green et al., 1992 states "…old growth is valuable for a whole host of resource reasons such as habitat for certain animal and plants, for aesthetics, for spiritual reasons, for environmental protection, for research purposes, for production of unique resources such as very large trees." And Hamilton, 1993 states, "Values for such items as wildlife, recreation, biological diversity, and juxtaposition of old-growth stands with other forest conditions need to be considered in relation to Forest land management planning objectives."

Old growth is very important because it provides unique habitat conditions for wildlife, plants, fungi and other life forms which are not well-represented in younger or managed forests. Old growth provides reserves of biological diversity typically depleted in intensively managed stands.

The "Open Letter to The Forest Service on the Importance of Large, Old Trees and Forests" signed in 2020 by dozens of scientists, is incorporated into this Objection.

The Kootenai National Forest 1987 Forest Plan included Appendix 17 and other direction (USDA Forest Service 1987a). We incorporate that appendix as well as USDA Forest Service 1987b which contains a list of "species …(which) find optimum habitat in the "old" successional stage…" And Kootenai National Forest (1991) states, "we've recognized its (old growth) importance for vegetative diversity and the maintenance of some wildlife species that depend on it for all or part of their habitat." (*Also see* USDA Forest Service, 1990a.) We also incorporate the Idaho Panhandle NF's forestwide old-growth planning document (USDA Forest Service, 1987d) and the IPNF Forest Plan's old-growth standards (USDA Forest Service, 1987c) because

they provide biological information concerning old growth and old-growth associated wildlife species.

USDA Forest Service, 1987a states:

> Richness in habitat translates into richness in wildlife. Roughly 58 wildlife species on the Kootenai (about 20 percent of the total) find optimum breeding or feeding conditions in the "old" successional stage, while other species select old growth stands to meet specific needs (e.g., thermal cover). Of this total, five species are believed to have a strong preference for old growth and may even be dependent upon it for their long-term survival (see Appendix I[3]). While individual members or old growth associated species may be able to feed or reproduce outside of old growth stands, biologists are concerned that viable populations of these species may not be maintained without an adequate amount of old growth habitat.
>
> Wildlife richness is only a part of the story. Floral species richness is also high, particularly for arboreal lichens, saprophytes, and various forms of fungus and rots. Old growth stands are genetic reservoirs for some of these species, the value of which has probably yet to be determined.

The FEIS also does not properly analyze and disclose the natural historic range vs. current conditions regarding patch size, edge effect, and amount of interior forest old growth in the NPCNF. Harris, 1984 discusses connectivity and effective interior habitat of old-growth patches:

> Three factors that determine the effective size of an old-growth habitat island are (1) actual size; (2) distance from a similar old-growth island; and (3) degree of habitat difference of the intervening matrix. …(I)n order to achieve the same effective island size a stand of old-growth habitat that is surrounded by clearcut and regeneration stands should be perhaps ten times as large as an old-growth habitat island surrounded by a buffer zone of mature timber.

Harris, 1984 discusses habitat effectiveness of fragmented old growth:

> (A) 200-acre (80 ha) circular old-growth stand would consist of nearly 75% buffer area and only 25% equilibrium area. …A circular stand would need to be about 7,000 acres (2,850 ha) in order to reduce the 600-foot buffer strip to 10% of the total area. It is important to note, however, that the surrounding buffer stand does not have to be old growth, but only tall enough and dense enough to prevent wind and light from entering below the canopy of the old-growth stand.

Harris, 1984 believes that "biotic diversity will be maintained on public forest lands only if conservation planning is integrated with development planning; and site-specific protection areas must be designed so they function as an integrated landscape system." Harris, 1984 also states:

[3] USDA Forest Service 1987b.

> Because of our lack of knowledge about intricate old-growth ecosystem relations (see Franklin et al. 1981), and the notion that oceanic island never achieve the same level of richness as continental shelf islands, a major commitment must be made to set aside representative old-growth ecosystems. This is further justified because of the lack of sufficient acreage in the 100- to 200-year age class to serve as replacement islands in the immediate future. …(A) way to moderate both the demands for and the stresses placed upon the old-growth ecosystem, and to enhance each island's effective area is to surround each with a long-rotation management area.

USDA Forest Service, 2004a states:

> Harvest or burning in stands immediately adjacent to old growth mostly has negative effects on old growth, but may have some positive effects. Harvesting or burning adjacent to old growth can remove the edge buffer, reducing the effective size of old growth stands by altering interior habitats (Russell and Jones 2001). Weather-related effects have been found to penetrate over 165 feet into a stand; the invasion of exotic plants and penetration by predators and nest parasites may extend 1500 feet or more (Lidicker and Koenig 1996). On the other hand, adjacent management can accelerate regeneration and sometimes increase the diversity of future buffering canopy.
>
> The occurrence of roads can cause substantial edge effects on forested stands, sometimes more than the harvest areas they access (Reed, et al. 1996; Bate and Wisdom, in prep.). Open roads expose many important wildlife habitat features in old growth and other forested stands to losses through firewood gathering and increased fire risk.
>
> Effects of disturbance also vary at the landscape level. Conversion from one stand condition to another can be detrimental to some old growth associated species if amounts of their preferred habitat are at or near threshold levels or dominated by linear patch shapes and limited interconnectedness (Keller and Anderson 1992). Reducing the block sizes of many later-seral/structural stage patches can further fragment existing and future old growth habitat (Richards et al. 2002). Depending on landscape position and extent, harvest or fire can remove forested cover that provides habitat linkages that appear to be "key components in metapopulation functioning" for numerous species (Lidicker and Koenig 1996, Witmer et al. 1998). Harvest or underburning of some late and mid seral/structural stage stands could accelerate the eventual creation of old growth in some areas (Camp, et al. 1996). The benefit of this approach depends on the degree of risk from natural disturbances if left untreated.
>
> Effects on old growth habitat and old growth associated species relate directly to … "Landscape dynamics—Connectivity"; and … "Landscape dynamics—Seral/structural stage patch size and shapes."

The Committee of Scientists (1999) state, "The presence of suitable habitat does not ensure that any particular species will be present or will reproduce. Therefore, **populations of species must also be assessed and continually monitored**." (Emphasis added.)

Over the duration of the 1987 forest plans the FS has failed to provide adequate protection for designated old growth, resulting in a widespread loss of vital old-growth snag component due to firewood cutting and other activities adjacent to open roads. (*See* Bate and Wisdom, 2004.)

Marcot et al., 1991 make several points about old growth:

- In current planning and management activities on National Forests, old growth has several values (Sirmon 1985), and one of them is its importance as wildlife habitat (Meehan and others 1984, Meslow and others 1981, Raphael and Barrett 1984, Thomas and others 1988). Old growth provides optimal habitat for some management indicator species, including spotted owl, pileated woodpecker, and marten, and for many other species of plants, fish, amphibians, reptiles, birds, and small mammals (Harris and others 1982, Meslow and others 1981, Raphael 1988c, Raphael and Barrett 1984). It also provides thermal and hiding cover for ungulates, especially in winter (Schoen and others 1984, Wallmo and Schoen 1980). Old growth, therefore, plays an important role in providing for productive populations of some species of special ecological and administrative interest. For some of these species, old growth may be a key factor in providing for continued population viability.

- Additional values of old growth are as natural research areas for scientific study (Greene 1988, Sheppard and Cook 1988) and its ecological role in providing long-term forest productivity (Franklin and others 1981, Perry and others 1988). Other interests in old growth include its recreational, aesthetic, and spiritual significance (Anderson 1988), its contribution to watershed protection (Sedell and Swanson 1984), and its importance as a contributor to biological diversity (Harris 1984, Luman and Neitro 1980, Norse and others 1986).

- Without adequate inventories and without a clear understanding of the amount and distribution of old growth it is difficult for the decision maker to determine what is practical or feasible (Ham 1984:69).

- An old-growth inventory must be designed with a specified degree of reliability. The degree of error and confidence in the statements of amount and distribution should be known, at least qualitatively. The reliability of an inventory is a function of many factors. These include the correctness and usefulness of the classification scheme used; the quality of the sampling design by which remote-sensing images are interpreted and vegetation surveys in the field are conducted; the consistency with which inventory criteria are applied across various land units, taking into account the need to vary criteria by forest type and land form; the availability and quality of remotely sensed images: the expense and training involved in having people interpret the remotely sensed images; the experience and training of field crews; and the sample sizes used in field verification testing and from which subsequent classification strata are derived.

- Some wildlife species may have co-evolved with, and depend on, specific amounts and conditions of old-growth forests. Specific kinds, sizes, and patterns of old-growth environments are, therefore, keys to the long-term survival of these species. Land

allocations affect the distribution of old growth across the landscape over time and the effectiveness of old growth as habitat for wildlife. Resulting spatial patterns of old growth influence the viability of many wildlife species that depend on the ecological conditions of old forests. Old growth may provide population "reservoirs" for species that find early successional stages of second-growth conifer stands marginal habitat.

- Landscape attributes affecting the perpetuation of old-growth dependent and associated wildlife include the spatial distribution of old growth; the size of stands; the presence of habitat corridors between old-growth or old-forest stands; proximity to other stands of various successional stages and especially for well-developed mature-forest stages and species with different seasonal uses of habitats; and the susceptibility of the old-growth habitat to catastrophic loss (such as wildfire, insects, disease, wind and ice storms, and volcanic eruptions.

- Stand size, in combination with its landscape context (the condition, activities, or both on the adjacent landscape that affect the stand), is of major significance in perpetuating old-growth resources and can have a major effect on their use by wildlife. Wide-ranging species may be able to use stands of various structural- , size- , and age-classes. If such stands are separated by unsuitable habitat or disruptive activities, however, the remaining old-growth stands become smaller in effective (interior) size, more fragmented, and possibly not suitable for occupancy or for successful reproduction. An old-growth inventory that quantifies such stand and landscape attributes is a prerequisite for evaluating possible context and landscape effects on species' presence.

Bollenbacher and Hahn, 2008 state:

- Relative to harvested forests, OG stands had higher species richness (Mazurek and Zielinski 2004; birds: Beese and Bryant 1999), supported more small mammal individuals and biomass (Rosenberg and Anthony 1993; Carey 1995; Carey and Johnson 1995), and allowed for greater movement and genetic diversity (tailed frog *Ascaphus truei*: Wahbe et al. 2004, 2005).

- Related studies examining wildlife responses in OG stands compared to younger stands revealed extensive variability, which may be attributed to differences among studies in location; stand type, treatment and size; and pre- and post-treatment stand conditions. Clearly, more work is needed; in particular, we need to rigorously investigate OG treatment effects on forest structure and composition and wildlife populations in the Northern Region.

Rose et al., 2001 is scientific information on dead wood in forest ecosystems. Snags and down dead wood are a defining element of old growth. Rose et al., 2001 cite dozens of other scientific sources (internal citations are omitted):

- Decaying wood has become a major conservation issue in managed forest ecosystems. Of particular interest to wildlife scientists, foresters, and managers are the roles of wood decay in the diversity and distribution of native fauna, and ecosystem processes.

Numerous wildlife functions are attributed to decaying wood as a source of food, nutrients, and cover for organisms at numerous trophic levels. Principles of long-term productivity and sustainable forestry include decaying wood as a key feature of productive and resilient ecosystems. (Internal cites omitted.)

- Inputs of decaying wood are crucial to most aspects of stream processes, such as channel morphology, hydrology, and nutrient cycling.
- Wood decay in forests of the Pacific Northwest has recently become a topic of renewed interest at national and global scales, regarding the role of terrestrial carbon storage in the reduction of atmospheric CO2 (a greenhouse gas).
- New research over the past three decades has emphasized the significance of decaying wood to many fish and wildlife species, and to overall ecosystem function. The importance of decaying wood to ecosystem biodiversity, productivity, and sustainability is a keynote topic in two recent regional ecosystem assessments in Oregon and Washington. These, and other publications address both the specific roles of wood decay in ecosystem processes and functions, as well as ecological functions of wildlife species associated with wood decay.
- Interactions among wildlife, other organisms, and decaying wood substrates are essential to ecosystem processes and functions. In the process of meeting their needs, animals accomplish ecosystem work with respect to transformation of energy and cycling of nutrients in wood. For example, chipmunks and squirrels disperse mycorrhizal fungi which play key roles in nutrient cycling for tree growth; birds, bats, and shrews consume insects that decompose wood or feed on invertebrates and microbes; beavers and woodpeckers create habitats by modifying physical structures; arthropods build and aerate soil by decomposing wood material. Relations between wood decay and wildlife have been examined in several recent analyses.
- Managed forests, on average, have lower amounts of large down wood and snags than do natural forests.
- Emphasis on concepts of long-term productivity in this chapter reflects an underlying principle that habitat functions of decaying wood are inextricably linked to ecosystem processes. Careful attention to the whole ecosystem is a prerequisite to successful management of decaying wood for wildlife.

Wood Legacies in Managed Forests

John Hayes

Legacies are structures or components of ecosystems that exist prior to a disturbance and are "inherited" by the post-disturbance community. Legacies can provide important temporal connectivity within a stand, allowing organisms present in a pre-disturbance community to persist in an area following disturbance. In addition, legacy wood can provide structural elements and complexity in a stand that would otherwise require very long periods of time to develop. In managed forests, wood legacies, including large diameter trees, snags, and down wood, are ecologically important structures that play central roles in diverse ecosystem processes and functions, such as geomorphic processes, hydrology, nutrient cycling, and habitat for fish and wildlife. The ecological value of wood legacies has begun to gain widespread recognition only within the past two decades.[122, 164]

As a result of a variety of operational, safety, and economic considerations, application of intensive forest management practices often results in removal of legacy structures from stands and minimal retention of future legacy structures. Growing replacement structures with similar characteristics (e.g., large diameter trees with large diameter branches, thick and deeply-furrowed bark, and complex crown structure) requires decades or longer. Moreover, unless special provisions are made, large diameter trees, snags, and logs with these characteristics may never be produced in forests managed intensively on short- to moderate-length rotations. Habitat quality for species that depend upon or are closely associated with these structures can be seriously diminished with their loss from forest stands. The ecological importance of wood legacies combined with the difficulties of creating replacement structures provide convincing reasons to conserve legacy structures during management activities.

Managing wood legacies through time in managed forests is a multi-staged process. Existing structures that will serve as legacy structures in the post-disturbance environment should be identified prior to a disturbance event, such as logging. In some cases, it may be adequate to rely on the timber sale administrator or loggers to identify appropriate structures and implement the management strategy in the field. Since one intent of legacy structures is to provide various functions through time, it will often be valuable to either individually mark important legacy structures, or to document their location and purpose so that future managers can take the structures into account. Of equal importance, plans for recruitment of future legacy structures should be prepared to ensure that legacy structures will be available in future stands. Innovative silvicultural practices can be employed to create conditions favorable to development of future legacy structures.

- Of the biological agents of wood decay, insects and fungi are the principal players in coniferous forest ecosystems.
- Down wood, snags, and live trees with decay serve vital roles in meeting the life history needs of wildlife species in Oregon and Washington.
- Woodpeckers, sapsuckers, and nuthatches are highly specific in their selection of tree species for nesting and roosting, and this selectivity is attributed to the presence of decay fungi.
- To be useful to most cavity excavators, live trees usually must contain wood in a Class 2 stage of decomposition. For example, strong excavators, such as Williamson's sapsuckers, pileated woodpeckers, and black-backed woodpeckers, select trees with a sound exterior sapwood shell and decaying heartwood to excavate their nest cavities.
- Hollow trees larger than 20 inches (51 cm) in diameter at breast height (dbh) are the most valuable for denning, shelter, roosting, and hunting by a wide range of animals. Hollow chambers are used as dens by black bears, as night roosts by woodpeckers, and as dens, shelter, roosts, and hunting sites by a variety of animals, including flying squirrels, wood rats, bats, American marten, northern flickers and Vaux's swift.
- Hollow trees and down wood are formed from only a few tree species that can maintain bole structural integrity as the heartwood decays. Western redcedar is especially valuable in providing hollow trees because the decay-resistant sapwood remains structurally sound for centuries. In the Interior Columbia Basin, grand fir and western larch form the best hollow trees for wildlife uses.

- Broomed trees caused by mistletoe, rust, or needlecast fungi may remain alive for decades, and have attributes distinct from decay patches in live trees. Abundant forage is produced from mistletoe shoots and fruits. Regardless of the extent of decay, broom infections provide various habitat functions to wildlife depending on how and where they form along the bole. For example, mistletoe brooms form platforms used for nesting, roosting, and resting sites by owls, hawks, and song birds; roosting by grouse; and resting cover by squirrels, porcupines, and marten.
- The abundance of cavity-using species is directly related to the presence or absence of suitable cavity trees. Habitat suitability for cavity-users is influenced by the size (diameter and height), abundance, density, distribution, species, and decay characteristics of snags. In addition, the structural condition of surrounding vegetation determines foraging opportunities.
- Stumps provide a variety of wildlife habitats. Stumps with sloughing bark (Class 2) provide sites for bat roosts, and foraging sites for flickers, and downy, hairy and pileated woodpeckers. In openings, tall stumps with advanced decay (Class 3) provide nest sites for flickers, and subsequently for blue birds and other secondary cavity-nesters associated with openings. Squirrels and chipmunks also use stumps as lookouts and platforms for cone-shredding.
- Down Woody Material (logs). Down wood affords a diversity of habitat functions for wildlife, including foraging sites, hiding and thermal cover, denning, nesting, travel corridors, and vantage points for predator avoidance. Larger down wood (diameter and length) generally has more potential uses as wildlife habitat. Large diameter logs, especially hollow ones are used by vertebrates for hiding and denning structures. Bears forage for invertebrates in logs during summer and fall. Fishers use large logs to a limited degree as den sites.
- Lynx select dense patches of downed trees for denning. Jackstrawed piles of logs form a habitat matrix offering thermal cover, hiding cover, and hunting areas for species such as marten, mink, cougar, lynx, fishers, and small mammals (Figure 8). Smaller logs benefit amphibians, reptiles, and mammals that use wood as escape cover and shelter. Small mammals use logs extensively as runways (Figure 9). California red-backed voles use Class 2-3 down logs for cover, and feed on fungi (especially truffles) and lichens growing in close association with down wood.
- The moist environment beneath loose bark, bark piles and in termite channels of logs with advanced decay provides a protected area for foraging by salamanders. The cool, moist environment of rotten wood may be required for some species of salamanders to survive heat stress during summer. Decaying wood also provides habitat for invertebrates on which salamanders and other foraging vertebrates feed (e.g., collembolans, isopods, millipedes, mites, earthworms, ants, beetles, flies, spiders and snails). The folding-door spider constructs a silk tube within the cracks and crevices of wood with advanced decay.
- Habitat structures in upper layers of the forest floor (soil, litter, duff) result from processes involving organic material (litter, decaying roots, vertebrate and invertebrate carrion, and fecal matter) and a diverse community of organisms, including bacteria, fungi, algae, protozoa, nematodes, arthropods, earthworms, amphibians, reptiles, and small mammals. The complex trophic web supported by nutrient and moisture conditions within the litter and duff layers transforms plant material into a variety of degradation products, thereby storing and releasing nutrients within the ecosystem.

- Decaying wood forms many habitat structures in riparian forests. Accumulations of large wood on stream banks provide habitat for small mammals and birds that feed on stream biota, and provide structural diversity in streamside forests.
- The role of down wood in salmon habitat has received much attention over the past two decades. Large wood is a key component of salmonid habitat both as a structural element and as cover and refugia from high flows. Large wood serves key functions in channel morphology, as well as sediment and water routing. The importance of wood to salmon habitat varies from headwater to stream mouth. As stream order increases and gradient decreases in third- to fifth-order streams, down wood is a dominant channel-forming feature. Larger wood deflects water and increases hydraulic diversity, producing a range of pool conditions that serve as habitats for juvenile salmonids in summer. Diverse channel margins are a primary aspect of rearing habitat. Flow obstructions created by large wood provide foraging areas for young salmonid fry that are not yet able to swim in fast currents, and provide refugia to juvenile salmonids at high flow. In higher order streams, flow deflections created by large wood trap sediments and nutrients, and enhance the quality of gravels for spawning. Down wood is less of a channel-forming feature along large rivers, but defines meander cutoffs and provides cover and increased invertebrate productivity for juvenile salmonids.
- Processes that sustain the long-term productivity of ecosystems have become the centerpiece of new directives in ecosystem management and sustainable forestry. Given the key role of decaying wood in long-term productivity of forest ecosystems in the Pacific Northwest, the topic should remain of keen interest to scientists and managers during the coming decade. Below, we highlight functions of decaying wood directly linked to long-term productivity, including influences on the frequency and severity of disturbances such as fire, disease, and insect outbreaks.
- Nutrient Cycling and Soil Fertility. Decaying wood has been likened to a savings account for nutrients and organic matter, and has also been described as a short-term sink, but a long-term source of nutrients in forest ecosystems.
- Nutrient cycling via foliage and fine litter has been well-described. Substantial amounts of nitrogen are returned to the soil from coarse wood inputs, yet even where annual rates of wood input are high, 4 to 15 times more nitrogen is returned to the forest floor from foliage than from large wood. This is a consequence of the higher nutrient concentrations and shorter turnover times of leaf litter compared to wood. The relative contribution of large wood to the total nutrient pool in an ecosystem depends to a large extent, on the size of other organic pools in the system.
- The slow rate of nutrient release from decomposing wood may serve to synchronize nutrient release with nutritional demands in forests, and also to minimize nutrient losses via leaching to the ground water. In addition to nitrogen bound chemically within wood, down wood reduces nutrient losses from ecosystems by intercepting nutrients in litterfall and throughfall. Favorable temperature and moisture conditions also makes large decaying wood sites of significant nitrogen inputs via N-fixation.
- Soil is the foundation of the forest ecosystem. Large wood is a major source of humus and soil organic matter that improves soil development.
- Moisture Retention. Water stored in large decomposing wood accelerates microbial decay rates by stabilizing temperature and preventing desiccation during the summer. Moist conditions within the wood favor decay by attracting burrowing and tunneling

mammals and invertebrates that improve aeration of wood, and by providing colonization substrate and moisture for mycorrhizae and other fungi. Moist nurse logs also provide excellent sites for seedling establishment and production of sporocarps. These processes increase retention and cycling of nutrients within ecosystems and contribute to higher biodiversity and biomass production.

- Mycorrhizae. Mycorrhiza, meaning fungus-root, is a symbiotic association of fungi with plant roots. The fungus improves nutrient and water availability to the host in exchange for energy derived from plant sugars. Mycorrhizae are necessary for the survival of numerous tree families, including pine, hemlock, spruce, true fir, Douglas-fir, larch, oak, and alder. Mycorrhizal associations are a source of nutrients to promote wood decay. By the time a log reaches more advanced stages of decomposition (Class 3) fungal colonization leads to the accumulation of nutrients in hyphae, rhizomorphs and sporocarps, especially for ectomycorrhizal fungi, where >90% of the fungal activity is associated with organic material. Ectomycorrhizal fungi decrease the ratio of carbon to nitrogen in decomposing wood, and mediate nutrient availability to plants while improving nutrient retention by forest ecosystems.
- The energy derived from falling or flowing water is the driving force behind erosion processes in Pacific Northwest forests. By covering soil surfaces and dissipating energy in flowing and splashing water, logs and other forms of coarse wood significantly reduce erosion. Large trees lying along contours reduce erosion by forming a barrier to creeping and raveling soils, especially on steep terrain. Material deposited on the upslope side of fallen logs absorbs moisture and creates favorable substrates for plants that stabilize soil and reduce runoff.
- Stand Regeneration and Ecosystem Succession. Decomposing wood serves as a superior seed bed for some plants because of accumulated nutrients and water, accelerated soil development, reduced erosion, and lower competition from mosses and herbs. In the Pacific Northwest, decaying wood influences forest succession by serving as nursery sites for shade-tolerant species such as western hemlock, the climax species in moist Douglas-fir habitat. Wood that covers the forest floor also modifies plant establishment by inhibiting plant growth, and by altering physical, microclimatic, and biological properties of the underlying soil. For example, elevated levels of nitrogen fixation in Ceanothus velutinus and red alder have been reported under old logs.
- Streams and Riparian Forests. Long-term productivity in streams and riparian areas is closely linked to nutrient inputs, to attributes of channel morphology, and to flow dynamics created by decaying wood. Small wood contributes to nutrient dynamics within streams and provides substrates to support biological activity by microorganisms, as well as invertebrates and other aquatic organisms. Much of the organic matter processed by the aquatic community originates in riparian forests and is stored as logs.
- Large wood is the principal factor determining the productivity of aquatic habitats in low- and mid-order forested streams. Large wood stabilizes small streams by dissipating energy, protecting streambanks, regulating the distribution and temporal stability of fast-water erosional areas and slow-water depositional sites, shaping channel morphology by routing sediment and water, and by providing substrate for biological activity. The influence of large wood on energy dissipation in streams influences virtually all aspects of ecological processes in aquatic environments, and is responsible for much of the habitat diversity in stream and riparian ecosystems. The stair-step gradients produced by

wood in small stream basins supports higher productivity and greater habitat diversity than that found in even-gradient streams lacking wood structure.

- The input rates and average piece size of dead wood generally increase with stand age, although the amount of decaying wood can follow a U-shaped pattern if young forests inherit large amounts of decaying wood and live trees from preceding stands.
- Insects and pathogens play a key role in maintaining diverse and productive forests by creating habitat and stimulating nutrient cycling
- Intensive forest management activities that have decreased the density of large snags in early forest successional stages (sapling/pole and small tree stages) may have had adverse impacts on the 61 associated wildlife species (Figure 12). Similarly, the lesser amount of large down wood in early forest successional stages may not provide as well for the 24 associated wildlife species. Such results suggest the continuing need for specific management guidelines to provide large standing and down dead wood in all successional stages.
- These silvicultural practices clearly altered the abundance and recruitment of large down wood and snags in managed forests of the Pacific Northwest, including:
    1. Lower abundance of large diameter snags and down wood legacies in managed forests (and streams); e.g. lack of the U-shaped pattern; higher accumulation of smaller-diameter fuels in eastside forests.
    2. Reduced recruitment and retention of large trees to provide future legacies.
    3. Shorter mean residence time for down wood (i.e. faster decomposition as a function of reduced log diameter).
    4. Altered species composition of forests (westside: more Douglas-fir, less western red cedar; eastside: less pine, more true fir species).
- Several major lessons have been learned in the period 1979-1999 that have tested critical assumptions of these earlier management advisory models:
    - Calculations of numbers of snags required by woodpeckers based on assessing their biological potential. (that is, summing numbers of snags used per pair, accounting for unused snags, and extrapolating snag numbers based on population density) is a flawed technique. Empirical studies are suggesting that snag numbers in areas used and selected by some wildlife species are far higher than those calculated by this technique.
    - Setting a goal of 40% of habitat capability for primary excavators, mainly woodpeckers, is likely to be insufficient for maintaining viable populations.
    - Numbers and sizes (dbh) of snags used and selected by secondary cavity-nesters often exceed those of primary cavity excavators.
    - Clumping of snags and down wood may be a natural pattern, and clumps may be selected by some species, so that providing only even distributions may be insufficient to meet all species needs.
    - Other forms of decaying wood, including hollow trees, natural tree cavities, peeling bark, and dead parts of live trees, as well as fungi and mistletoe associated with wood decay, all provide resources for wildlife, and should be considered along with snags and down wood in management guidelines.
    - The ecological roles played by wildlife associated with decaying wood extend well beyond those structures per se, and can be significant factors influencing community diversity and ecosystem processes.

- Furthermore, although the analysis of inventory data presents data on dead wood abundance, management actions at the local level may best be focused on the ecological processes that lead to development of these forest structures rather than on the abundance of structures themselves. Management decisions also may require information on the spatial distribution (landscape pattern) of dead wood, which cannot be estimated from sample-based inventories.
- If detailed data on the current and historical range of natural conditions is lacking (which is likely), it may be preferable to substitute functional target values for specific wildlife species. For example, to provide maximum habitat elements for specific cavity-nesting species, a designated quantity and distribution of snags
- Effective management of decaying wood must do more than simply provide for inputs of dead trees. Rather, management should strive to provide for diversity of tree species and size classes, in various stages of decay and in different locations and orientations within the stand and landscape.
- Green trees function as a refugium of biodiversity in forests. For example, many species of invertebrate fauna in soil, stem, and canopy habitats of old-growth forests do not disperse well, and thus, do not readily recolonize clear-cut areas. The same concept holds for many mycorrhizae-forming fungal species. Added benefits of green tree retention include moderated microclimates of the cutover area, which may increase seedling survival, reduce additional losses of biodiversity on stressed sites, and facilitate movement of organisms through cutover patches of the landscape.
- In situations where forest management objectives extend beyond wood production to broader biological and human values, intensive forestry practices by themselves may inadequately maintain or restore biodiversity, especially in early and late successional forest development phases. Species, processes, and values associated with older stages of stand development (transition and shifting gap stages) are likely impaired or absent from intensively managed stands. Species and processes associated with the early establishment phase also have shorter duration than may occur naturally. This does not mean that intensive forest management practices are incompatible with multiple forest objectives at a landscape scale, but rather that species and processes associated with early and late stages of forest development should be assessed over large areas such as landscapes, subregions, and regions.
- Management for certain species must consider habitat requirements at different spatial and temporal scales. It may then be possible to modify silvicultural practices at the stand scale to meet multiple objectives at landscape and larger scales. The landscape perspective also is pertinent to managing riparian systems, where the role of wood decay in riparian environments varies according to the type and geography of the associated water body.
- The decline of species associated with late-successional forest structures, as well as the prolonged time needed to produce wood legacies, suggests that it is both ecologically and economically advantageous to retain legacy structures across harvest cycles wherever possible, rather than attempt to restore structures that have been depleted. This is especially obvious for slow-growing tree species and very large wood structures. Retention of old- growth structural legacies has been identified as critical to conservation of biodiversity between large reserves and conservation areas.

Old-Growth Inventory

The LMP expresses the need for the FS to maintain a quantitative inventory of old growth on the NPCNF:

> MA2 and MA3-DC-FOR-10. Amounts of old growth where the cover type is Ponderosa pine, western larch, western white pine, and whitebark pine **are maintained or increased from existing amounts**. Amounts of old growth where the cover type is western redcedar, Pacific yew, and western hemlock **are maintained through time**.

(Emphases added). In a similar vein, the 1987 Nez Perce National Forest Plan required the Forest Service to "Inventory, Survey and Delineate" old-growth habitat by 1990. In 2020 FOC staff requested a meeting with the NPCNF Forest Supervisor and the FS's qualified experts regarding its old-growth inventory, but ultimately the Supervisor refused to cooperate. This is documented in a FOIA "OG FOIA 2020-03332 Final Response", a letter "OG Meeting Request", our notes "OG Meeting notes6-11-20" and email strings "Re Meeting Requestemail 6-15-20.pdf" and "RE Meeting Request". These documents are incorporated into and being submitted as part of this objection.

Thirty-four years post-deadline, the FS still cannot produce a reliable forestwide old-growth inventory for the Nez Perce National Forest. Although there is no clear direction to maintain an inventory on the Clearwater National Forest, the situation is the same: there is no comprehensive forestwide inventory of old growth. The FS has not maintained a publicly accessible inventory of old growth for either the CNF or the NPNF. This strongly implies LMP direction in MA2 and MA3-DC-FOR-10 is meaningless. The FS never intends to be able to conduct quantitative analyses of old-growth acres on the NPCNF. There isn't even a Monitoring Question asking how much old growth exists on the NPCNF in the LMP Monitoring Plan.

On June 24, 2022 the Court in *Friends of the Clearwater v. Probert* declared that the Hungry Ridge FEIS was not in compliance with the Forest Plan 10% old growth forestwide standard. It would be reasonable to expect the FS to have a fairly complete forest-wide inventory of old growth simply because nearly every area of the NPNF outside Wilderness or Roadless has been logged over the life of the 1987 Nez Perce Forest Plan. This means it was subject to analysis that needed to document compliance with quantitative Forest Plan forestwide and watershed old-growth standards. Again, a similar situation exists for the CNF. Whereas the FS should be able to produce a reasonably comprehensive forestwide old-growth inventory from previously generated project area inventories, they have not done so in the context of LMP revision.

Instead, the FS has taken to claiming the Forest Inventory and Analysis (FIA) data gathered by technicians off the Forest represents a forestwide inventory. The FS has repeatedly claimed it is meeting 1987 Forest Plan standards requiring 10% minimum old growth. And as evident from the LMP Monitoring Plan ["Percent of estimated old growth based on minimum screen criteria in Green et al. (by forest and by PVT using FIA"], that is the way the FS intends to go forward. But this is problematic for several reasons.

FOC comments on the original Hungry Ridge Draft EIS asked how many FIA plot survey locations in the NPNF and Project Area meet old-growth criteria. The FS replied, "The exact locations of FIA plots are not disclosed to the Forest." FOC's Objection to the original Hungry Ridge draft ROD and Final EIS followed, stating:

> …the Forest Service cannot rely on FIA inventory to prove that it is meeting its old growth requirements. The FS Region 1 report Bollenbacher, et al., 2009 states concerning the FIA inventory: "All northern Idaho plots utilized a primary sample unit (PSU) composed of four fixed radius plots with trees 5 – 20.9 inches tallied on a 1/24th acre plot and trees 21.0 inches DBH and larger tallied on a ¼ acre plot." Also, Czaplewski, 2004 states, "Each FIA sample location is currently a cluster of field sub-plots that collectively cover an area that is nominally one acre in size, and FIA measures a probability sub-sample of trees at each sub-plot within this cluster." In addition, Bollenbacher and Hahn, 2008 under "Defining Old Growth" state: "There are no specific criteria for minimum patch size for OG in the Northern Region definitions" but recognize "There are, however, some Forest Land Management Plans that may include guidance for a minimum map unit for OG stands." As Forest Plan Appendix N indicates, the Nez Perce NF has one of those Plans with minimum old-growth stand size requirements. Despite that, Bollenbacher and Hahn, 2008 try to make a case for smaller minimum stand sizes, saying "The regional vegetation minimum map unit of 5 acres for a stand polygon would be a reasonable lower limit for all vegetation classes of forest vegetation including OG stands." Clearly, whether the FS is using a ¼-acre, one-acre, or five-acre minimum map unit, none conform to the Forest Plan old-growth minimum stand size criteria. Furthermore, it would be ludicrous to propose that any old-growth associated MIS, Sensitive, or ESA-listed species could survive on even a five-acre old-growth stand—there is no scientific evidence to support such a premise.

In preparing the Supplemental EIS for the Hungry Ridge project, the FS cites Reyes and Morgan (2022) who also relied upon FIA for making quantitative forestwide estimates including old growth.

Sample design for FIA plots is semi-systematic; samples are taken at randomly located spots within a systematically placed fixed grid consisting of established polygons. The location of plots is confidential, and for good reasons—managers are not allowed to know the location of FIA plots within national forests, to prevent skewing of data which would result from intentionally managing differently at plot locations. As a result, conclusions such as the percentages claimed by NEPA analyses cannot be verified by independent investigators. This prevents independent peer review—a hallmark of the scientific method. The FIA "inventory" of old growth is akin to an anonymous poll or survey. Not even the Forest Supervisor is allowed to know where the FIA plots are located on the NPCNF. The FS is using the FIA for purposes it cannot serve.

USDA Forest Service, 2007a points out that "FIA data is consistent across the Region and the state, but **it was not developed to address site-specific stand conditions for a project area.**" (Emphasis added.)

In describing the ecological importance of old growth, the 1987 NPNF Forest Plan Final EIS at III-35 states:

> Habitat diversity is a measure of the variety, distribution, and structure of plant communities as the progress through various stages. Each stage supports different wildlife species. **One of the most critical elements of diversity in a managed forest is old growth. If sufficient old growth is retained, all other vegetative stages from grassland through mature forest will be represented in a managed forest.**

(Emphasis added.) In recognizing that ecological importance of old growth, including the critical role it plays for wildlife, the 1987 NPNF Forest Plan includes a nondiscretionary standard requiring the FS to comply with the quantitative, spatial and temporal requirements of Forest Plan Appendix N in order to insure viability of wildlife species.

The 1987 forest plans for the NPNF and CNF include ecological definitions for old growth, which include spatial and quantitative requirements recognizing habitat needs for old-growth associated wildlife species. They also include requirements to maintain amounts of replacement or recruitment old growth for when fires or other natural processes regenerate existing old-growth stands to an initial or earlier stage of forest succession, which are essentially temporal standards. As stated above, at most each FIA plot samples a maximum of one acre—far smaller than an old-growth stand—and thus resulting estimates cannot indicate the capability to meet biological needs of the associated wildlife. And FIA protocol indicates samples are repeated in the same plot location once every ten years.

FIA statistics have no correlation to spatial needs of wildlife species' habitat needs. No mapping of existing old growth or wildlife habitat quality is possible using FIA data. The location of existing old-growth stands cannot be specified using FIA. Neither the managers of the forest, agency specialists, independent researchers nor members of the public can possibly know the location of any stand of old growth based on FIA data. And the FS can cite no scientific study revealing a correlation between FIA estimates and the results from field surveys of old-growth habitat, nor a correlation between FIA data and the presence of old-growth associated wildlife species.

Stands of trees meeting old-growth criteria are a part of **old-growth ecosystems** as recognized in the above quote from the NPNF Forest Plan Final EIS, as stated in the FS's Green et al, and as discussed in Juel (2021) and the scientific sources cited therein.

Franklin and Spies, 1991 also make several relevant points about old growth:

- Old-growth forest is a biological or ecological concept that presumes ecosystems systematically change as they persist over long periods. An ecosystem has, in effect, a series of linked life stages …which vary in composition, function, and structure. Such progressions can take a very long time in forests because the dominant organisms, trees, typically live very long.

- Characterizing old-growth forests is possible based on these concepts. Obviously, a series of ecological attributes must be considered because of the many relevant compositional, functional, and structural features. For practical reasons, however, a working definition—one for everyday use in gathering stand data—emphasizes structural and compositional rather than the conceptually important functional features that are difficult to measure.

- Old-growth forests are later stages in forest development that are often compositionally and always structurally distinct from earlier successional stages.

- The age at which forests become old growth varies widely with forest type or species, site conditions, and stand history.

- Structurally, old-growth stands are characterized by a wide within-stand range of tree sizes and spacing and include trees that are large for the particular species and site combination. Decadence is often evident in larger and older trees. Multiple canopy layers are generally present. Total organic matter accumulations are high relative to other developmental stages. Functionally, old-growth forests are characterized by slow growth of the dominant trees and stable biomass accumulations that are constant over long periods.

- Our failure to study old-growth forests as ecosystems is increasingly serious in considerations of old-growth issues. Without adequate basic knowledge of the ecosystem, we risk losing track of its totality in our preoccupation with individual attributes or species. Definitional approaches to old growth based on attributes, including those that we have presented here, predispose us to such myopia. The values and services represented by old-growth ecosystems will be placed at ever greater risk if we perpetuate our current ignorance about these ecosystems. It will also increase doubts about our ability to manage for either old-growth ecosystems or individual attributes (for example, species and structures) associated with old growth. We must increase ecosystem understanding and management emphasis on holistic perspectives as we plan for replacement of old-growth forests. How can we presume to maintain or re-create what we do not understand? Some may presume that ignorance (on ecological values of old growth) is bliss, but this attitude creates high risk that we will continue to be blindsided by subsequent discoveries.

The FS exhibited a lack of understanding about old growth on the NPNF almost since the Forest Plan was adopted. In 2012, twenty years after the Northern Region's publication of the controversial Green et al old-growth criteria, the FS hired a consultant in an attempt to figure out the meaning of the direction for old growth found in the NPNF 1987 Forest Plan and Forest Plan FEIS. (*See* Jahn, 2012[4]). Whereas we don't agree with all of the consultant's interpretations and conclusions, that the Jahn (2012) document even exists is a testament to agency muddled thinking and policy.

[4] A document, "121204JHudsonEmsgPhilJahnOldGrowthIntentIn1987NPForestPlan.pdf" from the Clear Creek project files provides some context on the development of the FS's Jahn, 2012 paper.

We incorporate within this Objection documents representing NEPA analyses of recent projects implemented on the NPCNF (including Hungry Ridge, Twentymile and Clear Creek), to inform the review of this Objection and also possible future implementation of the LMP on the issue of old growth. Therefore we also include statements written in the context of those projects in our objection Appendix A.

The LMP does not include strong restrictions against constructing new roads through existing old-growth stands. Rather, MA2 and MA3-GDL-FOR-03 state: "To prevent fragmentation of existing old growth where the cover type is Ponderosa pine, western larch, western white pine, Pacific yew, western redcedar, western hemlock, and whitebark pine, permanent road construction should be avoided in these old growth cover types unless a site-specific analysis determines that route is optimal considering other desired conditions." Direction containing such vague language is known as a loophole. When the FS wants to log an area that would require new road access, all it has to say is "that route is optimal considering other desired conditions." It's really that arbitrary. USDA Forest Service (1990) states, "Roads are generally undesirable within an old-growth habitat patch. The road corridor fragments the habitat by creating edge, and access may result in loss of snags to woodcutting."

The question has arisen as to what definition, or set of criteria, should be used to identify and inventory old growth. As discussed above, the 1987 forest plans have definitions that include spatial, temporal, ecological and quantitative criteria. More recently, the FS has moved toward replacing some or all of those criteria during implementation of those forest plans. The LMP Glossary states, "In the context of the Nez Perce-Clearwater ecosystem, the definitions for old growth are those provided within the document titled "Old Growth Forest Types of the Northern Region" (Green et al. 1992, Green et al. 2011)."

In dropping 1987 forest plan old growth criteria, the FS reduces the number of large, old trees needed for stands to qualify as old growth. Also, in using Green et all, the FS **conflates its original purpose as an old-growth screening criteria with a minimum requirement for old-growth.**

An important fact is that the management paradigm upon which the original, current, 1987 Forest Plans are based doesn't insert itself into the natural processes that create and sustain old growth. Within that paradigm, in contemplating management actions the FS is to insure that the specified percentages of existing old growth are retained in project areas and forestwide to meet overarching Forest Plan old-growth Standards, e.g.: "Provide management for minimum viable populations of old-growth and snag- dependent species by **adhering to the standards stated in Appendix N**" (NPNF Forest Plan, emphasis added). There is no direction in the 1987 Forest Plans to log any old growth for the purpose of somehow improving it, or that logging would result in still maintaining it as old growth. Jahn, 2012 addresses this in his section entitled "Protecting Old Growth Habitat In Excess of Minimums Prescribed In the NPNF Plan." On the last three pages of KNF Forest Plan Old Growth Appendix 17, the FS rejects the notion that logging is consistent with preserving old growth. But as seen in the LMP the FS is promoting the idea that active management should be the defining relationship between the agency and old growth. In an attempt to sugar coat the habitat destruction logging and road building cause, the

FS pretends it can play God in old growth, outperforming the natural processes that are the only known way old growth has ever come to existence in these forest ecosystems. Such hubris does not belong in a context of managing public resources.

This same controversy was the topic of a public comment on the Clear Creek project. From the Clear Creek Final Supplemental Impact Statement (FSEIS) at pp. 323-324:

> Your old growth analysis as outlined in the FEIS, your response to public comment and your desire to incorporate the guidelines as a Forest Plan amendment all suggest complete reliance on numbers. For example, the wording in the proposed amendment (FEIS - Appendix D) calls the numbers "definitions" rather than screening criteria. You have used the numbers to calculate overall Forest level of old growth from 2007 Forest Inventory Data (FEIS 3-103) and rely on stand exam numbers as method to "field verify" old growth stands (FEIS 3-104). You suggest that 288 acres of improvement harvest and 2 miles of internal road construction "will not change old growth status per Green et al. (1992 as amended)" - (Draft Record of Decision - page 38). This is presumably due to the fact that the minimum tree numbers as identified by Green et al. (1992) will still remain following logging. The desire to adopt the Green et al. (1992) screening criteria as the definition for old growth in Clear Creek appears to be related to the fact that only 10 trees per acre >21 inches were utilized for the screening criteria in habitats common to the project area. The existing Forest Plan has six criteria for identifying old growth one of which states: "At least 15 trees per acre > 21 inches diameter at breast height (DBH). Providing trees of this size in the lodgepole pine and sub- alpine fir stands may not be possible." This would call into question the 2007 Forest Wide Inventory since current Forest Plan Definitions were not utilized.

In response, the Clear Creek FSEIS at p. 323 stated: "Please see FEIS Volume 2 (September 2015), Appendix L, response 21/15 (pg. L-12)." From a reading of that "response 21/15" it is clear the FS avoids addressing criticism of the way it applies Green et al.

Juel (2021) further discusses this topic:

> Green et al., 1992 recognizes a fairly common "old growth type" in the North Idaho Zone where one often finds large, old Douglas-fir, grand fir, western larch, western white pine, Engelmann spruce, subalpine fir, and western hemlock trees on cool, moist environments. (*Id*.) Such old growth is relatively dense: "There are an average of 27 trees per acre 21 inches DBH or more. The range of means across forests and forest types is from 12 to 53." (*Id*.)
>
> However, Green et al., 1992 sets the "minimum number" of trees per acre 21 inches DBH at only ten. (*Id.*). Which means, under the above Idaho Panhandle Forest Plan standard, the "average" stand could experience logging 17 of its 27 largest, oldest trees and still qualify as old growth.
>
> So why does Green et al., 1992 specify such a small minimum number of large, old trees—so far below the recognized average, and even less than the bottom limit of the recognized

range? The answer lies in how those authors intended the criteria to be used: "The number of trees over a given age and size (diameter at breast height) were used as **minimum screening criteria** for old growth. …The **minimum screening criteria** can be used to identify stands that **may meet** the old growth type descriptions. " (*Id*., emphases added.) Green et al., 1992 further explain:

> The minimum criteria in the "tables of old growth type characteristics" are meant to be used as a screening device to select stands that maybe suitable for management as old growth, and the associated characteristics are meant to be used as a guideline to evaluate initially selected stands. They are also meant to serve as a common set of terms for old growth inventories. Most stands that meet minimum criteria will be suitable old growth, but there will also be some stands that meet minimum criteria that will not be suitable old growth, and some old growth may be overlooked**. Do not accept or reject a stand as old growth based on the numbers alone; use the numbers as a guide.**

(*Id.*, emphasis in the original.) **So the abuse of the Green et al., 1992 minimum large tree screening criteria results in logging of large, old trees from old growth. And even if the existing stand in the above example possesses only the bare minimum large, old trees, managers could still log smaller and/or younger trees in the old-growth stand without disqualifying it, because numbers of such trees are not a part of the minimum criteria.**

Likewise, the Green et al. 1992 minimum total basal area was set well below the recognized range, again presumably for its utilization as a screening device. For the same old growth type discussed above, the "average basal area is 210 ft^2 per acre. The range is 160 to 270 ft^2". Yet the minimum is either 80 or 120 ft^2 depending upon type sub-categorization.[5] Basal area is a measure of stand density, or the square footage of an acre that is occupied by tree stems. So logging a stand with a basal area of 270 ft^2 (upper end of range) down to 80 ft^2 ("minimum") could result in the loss of medium diameter trees—another enticement for managers with timber priorities to log within old-growth stands.

In the above examples, the artificially reduced abundance of younger, smaller trees has unknown but dubious implications for the stand's potential development and habitat quality, since it is deviating from a natural trajectory.

So this leads to the situation where the FS is justifying significant logging disturbance within old-growth stands, making nonsense statements that the logged old growth is still old growth: "…**shelterwood harvest, which can still meet old growth definitions**." (Hungry Ridge FEIS, emphasis added.) And now, "**Intermediate harvest** would be conducted in a way to **preserve old growth stand characteristics** where the two overlap." (Hungry Ridge Draft Supplemental EIS, emphases added.)

This is also a topic of Kootenai National Forest (2004), which we incorporate into this objection:

[5] With the issuance of the Green et al. 1992 (**errata correction 2007**) the Forest Service emphasizes and clarifies that stand basal area is one of the "minimum criteria."

The publication "Old-Growth Forest Types of the Northern Region" (Green et al. 1992) is to be used as a means to initially define old growth, not as a management or prescriptive guide. The Green et al., document is not manual or handbook direction and not formally adopted as Regional guidance. It is, however, the only peer-reviewed document of old growth definitions in the Northern Rockies and recommended for use within Regional protocols. According to Green et al., old growth "…encompasses the later stages of stand development that typically differ from earlier stages in characteristics such as tree age, tree size, number of large trees per acre and basal area. In addition, attributes such as decadence, dead trees, the number of canopy layers and canopy gaps are important but more difficult to describe because of high variability". In other words, minimum attribute characteristics of trees per acre, DBH, age, and basal area along with attributes of snags, structural layering, and downed wood minimally define old growth – not any one attribute or any minimum value of specific attributes.

Pages 11 and 12 of Green et al. state the appropriate use of the document. The following are pertinent quotes from the document to aid in that interpretation:

1. No set of generated numbers can capture all the variation that may occur at any given age or stage in forest development.
2. Because of the great variation in old growth stand structures, no set of numbers can be relied upon to correctly classify every stand.
3. Do not accept or reject a stand as old growth based on the numbers alone; use the numbers as a guide.
4. The minimum criteria are used to determine if a stand is potentially old growth. Where these values are clearly exceeded, a stand will usually be old growth. The associated structural characteristics may be useful in decision making in marginal cases, or in comparing relative resource values when making old growth evaluations.
5. The basic concept is that old growth should represent "the late stages of stand development …distinguished by old trees and related structural attributes."
6. A stand's landscape position may be as important, or more important as any stand old growth attribute. The landscape is dynamic. We need to do more than draw lines to manage this dynamic system. Consider the size of old growth blocks (large blocks have special importance), their juxtaposition and connectivity with other old growth stands, their topographic position, their shapes, their edge, and their stand structure compared to neighboring stands. Stands are elements in dynamic landscapes. We need to have representatives of the full range of natural variation, and manage the landscape mosaic as a whole in order to maintain healthy and diverse systems.

The Green et al. document is an aid intended to define, evaluate, and monitor old growth – not to be used as a prescriptive, management guide with minimum attribute values as thresholds. This will not achieve the objective of maintaining old growth.

Another memo from the Forest Supervisor (May 14, 2003) states, "When minimums are used, they are intended to illustrate the beginning of what could be identified as old growth—or late seral, successional development for a specific habitat group within a specific zone—not what is recommended".

(Emphases in the original.) Although we disagree with a statement in that document ("no one is advocating a 'hands off' policy toward old growth"), its nascent hypothesizing that managing in old-growth stands and replacement old growth might be appropriate, and its interpretation of science, that doesn't nullify the point we are making here on the intended purposes of Green et al and how it is being abused by the NPCNF.

So the FS's intent to log within every type of old growth found on the NPCNF is found in the LMP:

> MA3-STD-FOR-01. Within old growth where the cover type is Ponderosa pine, western larch, western white pine, Pacific yew, western redcedar, western hemlock, and whitebark pine, vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would **no longer meet the minimum screening criteria of an old growth type**. **See glossary** (Appendix 2) for old growth definitions.

(Emphasis added; and again—the glossary is referring to Green et al.). What this means is, if a stand in such cover types has lots of large, 300 year-old trees, the LMP has no restriction on logging the stand down to the bare "minimum screening criteria" which means a timber sale could remove thousands of centuries old trees and also inflict collateral damage to snags and large, down wood and other "associated characteristics" that just happen to provide vital habitat for old-growth associated wildlife. Based on the direction for riparian zones in the LMP, this could also happen near streams where the trees provide shade, cooling—and when they fall—pool forming and cover for native fish species such as salmon and trout.

And what of those unfortunate ("undesirable dominance types" as per the FEIS) stands of old growth that are <u>not</u> of the cover types identified in MA3-STD-FOR-01? The LMP does not place a value on that old growth in any way except for timber. This means, of the many thousands of acres of old growth on the NPCNF that consist predominantly of species such as Englemann spruce, grand fir, Douglas-fir, subalpine fir, lodgepole pine, cottonwood, mountain hemlock or any combination of those—even including a minor constituent of the tree species mentioned in MA3-STD-FOR-01—the LMP contains no ban on logging a single centuries old tree within them, and in fact encourages clearcutting. Because they're of an "undesirable dominance type" according to the FS.

Finally, in on December 20, 2023 the FS published a Notice of intent to prepare an environmental impact statement to amend Land Management Plan Direction for Old-Growth Forest Conditions across the National Forest System, "to include consistent direction to conserve and steward existing and recruit future old-growth forest conditions and to monitor their condition across planning areas of the National Forest System." This means NPCNF LMP direction is already obsolete.

<u>Remedy:</u>

- Install a standard into the LMP that completely bans all logging in areas that meet minimum old-growth "screening" criteria as per the LMP definition adopting Green et al.

- Eliminate all logging in areas FS has found to qualify as replacement or recruitment old growth as defined in the 1987 forest plans, incorporating temporal and spatial considerations to plan for future old growth.
- Re-draft the LMP and EIS to reflect updated information on old growth, its historic extent and distribution on the NPCNF, and best available science.
- Respond affirmatively and timely to FOC's request to meet with the appropriate NPCNF experts for a transparent discussion about the NPCNF old-growth inventory and methodology.
- Incorporate policy changes as indicated in the December 20, 2023 Notice of intent to amend the NPCNF LMP (among all others in the national forest system).
- Incorporate old-growth associated species into the NPCNF SCC list.

MOOSE

The LMP includes moose in a category of species it calls "Multiple Use Wildlife" (p. 63). The only direction specifically for moose in the LMP is: "**FW-DC-WLMU-03**. Pacific yew plant communities and timbered areas with mature yew-wood thickets provide moose winter habitat."

The NPNF Forest Plan at III-56 defines Management Area (MA) 21 as "timber stands in timber productivity classes 3 and 4 that are old-growth, grand fir-Pacific yew vegetative communities that have been identified as **moose** winter range." It includes standard: "7. **Maintain leave-strips between yew stands sufficient to provide travel corridors for moose**."

The NPCNF's 2023 Twentymile Proposed Action describes concerns for moose populations:

> **Moose populations are believed to have declined substantially within the DAU since 1980s**; however, **there has been no population data collected by IDFG on a regular basis (IDFG, 2020).** Broadscale declines of moose populations are also happening in other areas along the southern distribution of moose in the United States. Potential contributors to these declines include climate change and related shifts in plant phenology and changes in parasite abundance/impacts (IDFG, 2018).

So IDFG are not watching moose population despite the concern expressed, and also the LMP would provide no nondiscretionary protection of moose habitat. Furthermore, no road density or other habitat security standards appear in the LMP. Since the FS has not designated the moose as an SCC, they have no direction to maintain viable populations. Apparently they believe it's okay for moose to be entirely extirpated from the NPCNF.

MOUNTAIN GOATS

FOC et al. DEIS/Draft LMP comments discuss mountain goats in a section starting at p. 334.

The LMP includes mountain goats in a category of species it calls "Multiple Use Wildlife" (p. 63). There is no direction specifically for mountain goats in the LMP.

The DEIS recognizes low numbers of mountain goats in many places. It discusses mountain goats:

> Threats identified in the Draft Idaho Mountain Goat Plan include road building, timber harvest, mining, power or infrastructure, oil and gas extraction, wildfire and fire suppression, or changing climate, which may reduce the limited habitat that currently exists (Idaho Fish and Game, 2019a). Fire suppression could negatively affect mountain goat habitat by preventing late successional forests from being converted to early successional stages, reducing forage. Mountain goats are susceptible to disturbance by recreational activities, both motorized and non-motorized, and may abandon preferred high-quality areas because of disturbance. Several modes of backcountry recreation, including snowmobiling and heli-skiing, have the potential to disturb goats. Helicopters generate the disturbance of greatest concern. Repeated disturbance by helicopters, snowmobiles, logging, or road building can cause displacement from habitat, group dissolution, nanny-kid separations, and injury. The extent to which these disturbance threats are in effect in the plan area depends upon whether these activities are allowed where the herds are currently located. Nearly all existing herds are observed within either Idaho Roadless Rule areas or designated wilderness. Since road building and logging are restricted in these two areas, these threats are greatly reduced. There is local concern for impacts of winter motorized recreation on mountain goat populations in the plan area.

The DEIS states, "The most acute decline is within the Blacklead population within the Hoodoo Recommended Wilderness Area, where the Idaho Department of Fish and Game has documented sharp declines in mountain goat numbers." Also, "…because most mountain goat habitat is too steep for comfortable snowmobile use. However, some areas predicted to have high probability values in the snowmobile model are in proximity to known mountain goat herds, particularly the herd on Blacklead Mountain, which may leave them susceptible to access by highly skilled snowmobilers."

Clearly, from the LMP and FEIS, the FS is uncomfortable saying no to snowmobilers. Yet it is clear there can be no compromise—riding machines inside or anywhere near what the snowmobilers want for playing can't happen without basically writing off the goat population within the Hoodoo Recommended Wilderness Area.

So despite IDFG and public concerns about mountain goats, the LMP provides no nondiscretionary protection of mountain goat habitat. The Preferred Alternative would fragment the Hoodoo Roadless Area. Further, no road density or other habitat security standards appear in the LMP. The FS downplays the effects of illegal snowmobile incursions, and fails to examine FS culpability in poor enforcement. Since the FS has not designated the mountain goat as an SCC, they have no direction to maintain viable populations. Apparently the FS believes it's okay for them to be entirely extirpated from the NPCNF.

FIRE ECOLOGY AND FIRE MANAGEMENT

Objectors' comments extensively discuss fire ecology, the science and logic of risk reduction to private homes and structures, and the FS's misrepresentations of science and fire. See, for

example, the FOC et al comments on the draft LMP/EIS with a section starting on page 63. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

LMP emphasis on Wildland fire risk reduction actions outside the Home Ignition Zone will be ineffective

The FS' dysfunctional relationship with wildland fire is reflected in the vast sums of money spent annually in fighting fires, implementing "fuel reduction" and "fire risk" mitigation actions while accomplishing very little in measurable outcomes other than the taxpayer money spent. Much of the dysfunctionality stems from the agency's absurd pretense of being in control of natural processes such as fire, fomented in part to justify its existence. And the FS furthers this pretense of control to justify its extreme bias toward logging, as discussed further in this Objection. Until this systemic dysfunction is properly addressed, the agency will continue to wreak havoc upon the integrity of the ecosystems it's charged with conserving. Another aspect of this dysfunction is the Forest Service's failure to monitor the outcomes of its activities, which results in lack of awareness of its failures and also evasion of accountability.

The FEIS distorts and misrepresents the facts and science behind the causes and solutions to wildland fire threats to homes and property. Law, et al. (2023) describe it this way in their Abstract:

> As the climate warms, extended drought and heat events in the United States are driving an increase in acres burned and homes lost to wildfire. The most devastating wildfires happen when dry winds carry embers long distances, start spot fires and ignite homes. Burning homes then become the fuel that ignites other nearby homes, causing mass conflagrations. Today wildfire is largely approached as a problem that can be controlled through vegetation treatments and firefighting, but that strategy has not stopped the loss of homes and even entire communities. However, new observational and analytical tools have given firefighters, governments, and the public a better understanding of wildfire and how to prepare for it. **By redefining the wildfire problem as a home ignition problem, communities can survive even extreme fires and can safely reintroduce fire to the land.**

(Emphasis added.) Calkin et al. (2023) agree:

> The wildfire management system's default response is to suppress wildfire wherever and whenever possible, with few exceptions. It extends an urban fire service model into the wildlands. With fire exclusion as the primary solution to both community and wildland protection, risk reduction translates to fire suppression and landscape fuel reduction. As wildfire losses increase, the assumption that community protection should be a primary

> focus of federal wildfire management efforts has become entrenched within both agency culture and federal legislation.
>
> But even as wildfire suppression costs and use of technology have skyrocketed, we are experiencing more damaging urban fires. Clearly, the answer to community adaptation resides in the communities themselves, **and until the WU fire problem statement is redefined to recognize the key role of structure ignition and focus on creating ignition-resistant communities, risk-reduction strategies will continue to be ineffective and insufficient.**

(Emphasis added.) The perspective of two co-authors (a former Forest Service researcher and a Missoula County commissioner) illustrates why the FEIS's representations of wildland fire as a risk to communities is wrong:

> …research has shown that home ignitions during extreme wildfires result from conditions local to a home. A home's ignition vulnerabilities in relation to nearby burning materials within 100 feet principally determine home ignitions. … Although an intense wildfire can loft firebrands more than one-half mile to start fires, the minuscule local conditions where the burning embers land and accumulate determine ignitions….. Thus, community wildfire risk should be defined as a home ignition problem, not a wildfire control problem.

(Cohen and Strohmaier, undated.) The fire protection for homeowners implied by the LMP and FEIS is pretty much imaginary. Responsibility for reducing risk of fire burning private structures ought to and does rest squarely on the shoulders of the owners of those structures—not on U.S. taxpayers.

In his July 23, 2007 opinion (Guest column: Sensible fire policy easy to implement), scientist David Bayles states:

> Clear policy is needed because large fires cannot be avoided. Large fires are driven by climate and weather, and we can no more control them than we can control earthquakes, hurricanes and tornadoes, volcanoes or floods. The illusion that we can control large fires stems from our success at controlling small ones. … Protecting lives and property primarily requires implementing "firewise" techniques within a few yards of human habitations, and developing site-specific firefighter access. Distant forest "thinning" will not protect lives or property.

Still, the agency refuses to hear.

The FEIS completely omitted any mention of the well-documented uncertainty of the LMP strategy using logging to reduce future fire behavior, especially logging of mature forests which could serve as fire refugia. It is increasingly understood and accepted that reducing fuels does not consistently prevent large fires and does not reduce the outcome of these fires. *See* Lydersen et al. 2014.

Former U.S. Forest Service Deputy Chief James Furnish weighs in:

For a long time, we have heard that the problem is in the forests, and that we must ramp the pace and scale of work in these forests. The proponents ask for our continued faith that scaling is possible, even though they have been at it for nearly 30 years and most of our home and community loss happens in grasslands and shrublands.

Let me begin by citing the large Jasper Fire, in SD's Black Hills National Forest, circa 2000. Jasper Fire burned almost 90,000 acres of intensively managed Ponderosa pine forest, about 10 percent of the entire national forest. Human caused, it was ignited on a hot, dry, windy July day – quite typical of weather in peak burning periods nowadays. Suppression efforts were immediate and used every tool in the agency's tool box… to no avail. Notably, the burned terrain exemplifies what we consider the best way to reduce fire intensity, if not fireproof, a forest. This mature forest of small saw timber had been previously thinned to create an open stand intended to limit the likelihood of a crown fire. Yet, the fire crowned anyway and raced across the land at great speed, defying control efforts. Much of the area remains barren 20 years later, while the Forest Service slowly replants the area.

I cite this example, because it represents precisely what agencies posit as the solution to our current crisis: 1) aggressively reduce fuel loading through forest thinning on a massive scale of tens if not hundreds of millions of acres (at a cost of several $ billion, and then do it again), while trying to 2) come up with sensible answers about how to utilize the finer woody material that has little or no economic value; and 3) rapidly expanding the use of prescribed fire to reduce fire severity. These solutions are predicated on the highly unlikely (less than 1%) probability that fire will occur exactly where preemptive treatments occurred before their benefits expire. These treatments are not durable over time and space, and only work if weather conditions are favorable, and fire fighters are present to extinguish the blaze.

To be blunt, the ineffectiveness of current practices has led many scientists to suggest, based on peer reviewed science and field research as opposed to modeling, that agency "fire dogma" needs to be revisited. The call for a true paradigm shift is occurring both within and outside the agency. Several truths have emerged:

1) Fires burn in ways that do not "destroy", but rather reset and restore forests that evolved with fire in ways that enhance biodiversity.
2) Forest carbon does not "go up in smoke" – careful study shows that more than 90 percent remains in dead and live trees, as well as soil, because only the fine material burned.
3) The biggest trees in the forest are the most likely to survive fire, and thinning efforts that remove mature and older trees are counter-productive. We are seeing more cumulative fire mortality in thinned forests, than in natural forests that burn.
4) Thinning and other vegetation removal increases carbon losses more than fire itself and, if scaled up, would release substantial amounts of carbon at a time when we must do all we can to keep carbon in our forests.
5) If reducing home loss is our goal, experts are telling us that the condition of the

> structure itself and vegetation immediately adjacent to the home are the primary drivers of home ignition and loss, and that the condition of vegetation more than 100 feet from the home has nothing to do with the ignitability or likelihood a home will burn.
> 6) Large, wind-driven fires defy suppression efforts and many costly techniques simply waste money and do more damage. Weather changes douse big fires, people do not.

(Furnish, 2022.) And Downing et al. (2022) state, "Focusing on minimizing damages to high-value assets may be more effective than excluding fire from multijurisdictional landscapes."

In his opinion piece in the *Missoulian*, biologist and fire ecologist Hutto (2022) echoes those points. Also see DellaSala (2022). Yet in NEPA documents and other policy statements the FS keeps spewing the same old fear mongering propaganda, representing to the public that logging is needed to protect firefighters and homeowners from fire.

During hot, dry, and/or windy conditions, no amount of "fuel reduction" would significantly alter any of the LMP/FEIS ill-defined metrics and fire concepts. It is during those occasions when wildland fires cover the most acres, most quickly—largely nullifying all "fuel reduction" and suppression efforts.

Large fires are driven by several conditions that completely overwhelm fuels. (Meyer and Pierce, 2007.) Because weather is often the greatest driving factor of a forest fire, and because the strength and direction of the wildfire is often determined by topography, fuels reduction projects cannot guarantee fires of less severity. (Rhodes, 2007; Carey and Schumann, 2003.)

We question the wisdom of attempting to control wildfire instead of learning to adapt to fire. See Powell 2019 (noting that severe fires are likely inevitable and unstoppable). See also Schoennagel et al., 2017 (explaining, "[o]ur key message is that wildfire policy and management require a new paradigm that hinges on the critical need to adapt to inevitably more fire in the West in the coming decades"). The FS must recognize that past logging and thinning practices likely increased risk of intense fire behavior on this landscape. But instead of learning from these past mistakes, with implementing the LMP the FS is hell-bent on making the same mistakes by proposing widespread logging and repeated burning across the landscape. It is well-established that communities (homes) are best protected from fire by home hardening, and judicious removal of fuels within the surrounding 100-200 ft. radius. (Syphard et al. 2014; Cohen, 2000.) The FS fails to disclose the fact that addressing the home ignition zone will do more to protect property than the proposed activities.

Below we present a 2021 news article with criticism of FS policies as represented by the LMP:

Missoula CURRENT
Missoula's News Journal

Missoula County to Forest Service: More emphasis on home ignition zones

By Martin Kidston
December 23, 2021

https://missoulacurrent.com/outdoors/2021/12/missoula-ignition-zones/

In a letter to the Forest Service, Missoula County is asking the local agency to make greater emphasis of home ignition zones and the role they can play in preventing the devastating fires that have plagued other Western communities in recent years.

Relying on forest management alone may leave some with a false sense of security, the county said.

“There might be good reason to do those forest treatments, for landscape ecology or restoration purposes,” said Commissioner Dave Strohmaier. “But nobody’s hope should be elevated to think that’s going to appreciably do anything to save your home in a fire.”

The county’s letter, addressed to the Missoula Ranger District, relates to the Wildfire Adapted Missoula plan being developed by the Lolo National Forest. Among other things, the plan calls for a number of forest treatment projects across more than 455,000 acres, including 177,000 acres on Forest Service lands.

Several demonstration projects have already taken place, such as the Grant Creek Fuels Reduction project, the Marshall Woods Forest Restoration Project and maintenance work in Pattee Canyon.

The plan’s environmental assessment was recently released and the county has commented throughout the process. The Forest Service recently issued its Record of Decision, though the county believes it doesn’t give adequate play to home ignition zones.

"There's 100 years of institutional inertia focused on fire control and some fundamental lack of awareness," Strohmaier said. "The sort of community destruction we've seen, whether it's those abutting forest lands or in Denton, where there's not a tree in site, has much more to do with what you do in your home ignition zone than some of the forest treatments that are sometimes promised as a means to protect your community."

The county believes the agency's Wildfire Adapted Missoula plan must parallel efforts to restore the role that fire plays on the landscape. The county also acknowledged that new tools are needed as climate change unfolds.

That may challenge the "institutional culture" of the Forest Service, the county wrote.

"Largely, we commented on the importance of home ignition zones relative to community wildfire resiliency," said county planner Chet Crowser. "It's fair to say we haven't felt like those concerns have been heard as well as we'd like, but the conversations have moved forward."

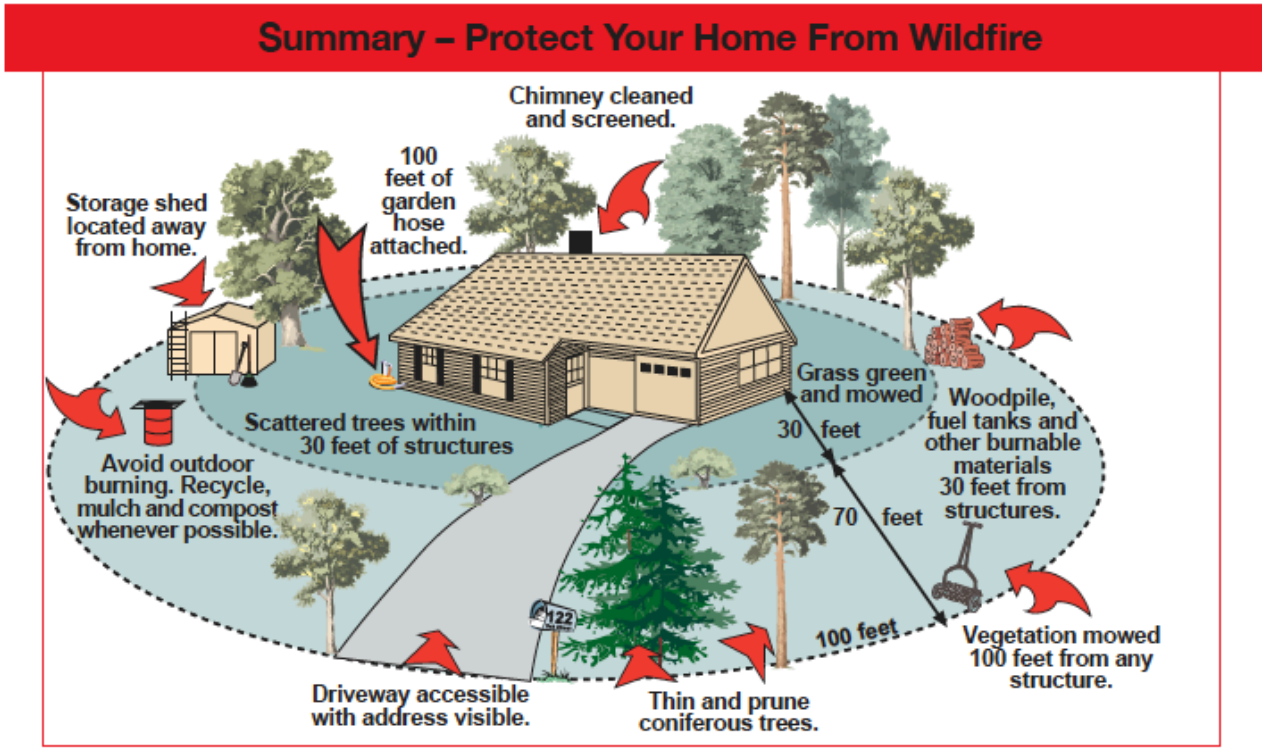
Strohmaier and Jack Cohen, a retired fire scientist with the Fire Sciences Laboratory in Missoula, have been vocal in recent years in asking the Forest Service and the public to abandon their expectations that 100% of all wildland fires can be doused 100% of the time.

Rather, they've worked to shift the conversation to the role home ignition zones play in the equation. In Cohen's research, he's seen houses burn to the ground while nearby trees are still green and wooden fences still stand.

Lofted embers can spark new fires outside the burn and neglecting the home ignition zones can lead to disaster. Keeping fires outside the urban interface may rely more heavily on preparation than on large scale forest treatment plans, Strohmaier said.

"There's still an opportunity to have some of that language included in a modified record of decision," Strohmaier said of the Forest Service plan. "There's also some other things on our end we can start working on, like updating our Community Wildfire Protection Plan, which admittedly might need to have the dust blown off it a little bit."

The FEIS and LMP fail to provide direction that could lead property owners to implement critical firewise steps they are uniquely positioned to implement.



From LIVING WITH FIRE: HOMEOWNERS' FIRESAFE GUIDE FOR MONTANA, 2009

"The key is to reduce fire intensity as wildfire nears the house. Consequently**, the most important person in protecting a house from wildfire is not a firefighter, but the property owner**. And it's the action taken by the owner before the wildfire occurs (such as proper landscaping) that is critical." (Living With Fire, 2009 emphasis added.)

The Firesafe Guide emphasizes that fuel conditions within the Home Ignition Zone ("the home itself and the immediate surrounding 30 to 200 feet") most influence structure survival during a wildfire. Yet with the LMP and FEIS the FS instead chooses to propagandize that "fuel" conditions well beyond the Home Ignition Zone (HIZ) are most important—attempting to harness the public's fear so as to neutralize opposition to its timber production agenda.

An article in the *Missoulian* ("Fire Strategy Stuck with old tactics, experts warn") quotes retired Forest Service fire scientist Jack Cohen responding to the government's recent set of false solutions. Cohen stated, "I saw no new strategy but rather a potential increase in the same fire control strategy of 'fuel treatment' to enhance fire control." Below are more passages from that article:

> Cohen found no evidence that the writers considered best available science, which shows that wildland-urban disasters are mainly a factor of how houses catch fire, not forest management, he said. He cited extensive research explaining how community wildfire destruction (incidents where more than 100 homes get destroyed) happens when fires overrun the fuel breaks and forest treatments intended to control them. But it's not the "big flames of high intensity wildfires (that) cause total home destruction," but rather "lofted burning embers (firebrands) on the home and low intensity surface fire spreading to contact

> the home" that did the damage, often hours after the main fire had subsided or moved elsewhere.
>
> "The use of tired, old, ill-defined language such as 'hazardous fuels' does little to describe what the fuels (i.e., wildland vegetation) is hazardous to," said Missoula County Commissioner Dave Strohmaier... "We seem to have learned nothing from recent fires that have resulted in community destruction, such as Denton, Montana. This was a grass fire, and there were no forests to thin or otherwise eliminate the risk of crown fire from."
>
> "Community destruction is (a home ignition zone), not a fire control problem," Strohmaier said. Throwing more money at treatments that won't get the expected outcomes "does no one any good and sets up false expectations as to what will truly reduce the risk of community destruction and improve ecological and community resilience."

The LMP defines Wildland Urban Interface (WUI): "The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire." The FEIS states, "Some As wildfire protection plans map and define the wildland urban interface." FEIS Figure 84 displays "Wildland urban interface areas proposed for fuels exemptions." Also, the FEIS Appendix has two maps entitled "Wildland Urban Interface Areas (WUI)". Inspection of those maps shows the FS has declared roughly 40% to 50% of the NPCNF to be inside the WUI. The FEIS also states, "Wildland-urban interface areas, as identified in Benewah, Clearwater, Latah, Lewis, and Idaho Counties' Community Wildfire Protection Plans, were used for analysis to inform the models where vegetation treatments could take place in relation to constraints of the Northern Rockies Lynx Management Direction (U.S. Department of Agriculture 2007f)."

The FEIS rationale used in delineating the WUI is piecemeal, confusing and lacking in crosswalks to statutory and regulatory mechanisms on the subject. This undermines informed environmental analysis and decisionmaking. County WUI delineations have not been subject to NEPA/public review. As FOC et al. DEIS/draft plan comments stated, "if the Forest Service choosesto use these county fire plans, they must be subject to environmental review. NFMA and NEPA both require it." In many cases, counties include large swaths of backcountry inside WUI boundaries, which biases management outcomes toward expediting logging operations well away from homes and communities. Such politically- and economically-inspired WUI boundary delineations fail to adequately consider ecological implications. Proper WUI delineation is critical because a stated need for just about every project on the NPCNF these days is to reduce hazardous fuels within the WUI.

With such a huge swath of the NPCNF being designated WUI, the FEIS essentially presents a justification for conducting large-scale mechanical manipulations, including logging, is so much of the Forest, with less restrictions than what might be imposed on the rest of the NPCNF:

> The use of prescribed fire within the wildland urban interface is a high-risk action and is often more expensive than prescribed fire in the non-wildland urban interface. This is due to the extra steps taken to ensure public safety and mitigate hazards to private property. Additionally, impacts from smoke emissions adjacent to homes for extended periods limit

> the number of acres that can be treated. Within the wildland urban interface, there is an increased need to rely on mechanical and hand treatments rather than fire. In addition, social issues, such as the effects of treatments on scenery, air quality, noise, and wildlife viewing, can be more contentious.

The problem is compounded because there is no LMP direction for determining whether or not a project ought to be planned and implemented under various authorities affecting NEPA and NFMA implementation, including the Health Forest Restoration Act (HFRA) and numerous recently created categorical exclusions. For example, the Ninth Circuit Opinion in *Alliance for the Wild Rockies v. Petrick* (No. 21-35504 D.C. No. 2:19-cv-00332-REP) discusses the WUI in the context of HFRA:

> …HFRA provides a statutory categorical exclusion to NEPA when the project is located "in the wildland-urban interface." 16 U.S.C. § 6591b(c)(2)(A). Broadly speaking, a "wildland-urban interface" is an area where structures and other human development intermingle with undeveloped wild areas. Wildfires pose extraordinary risks to life and property in such areas. HFRA specifically defines a "wildland-urban interface" as "an area within or adjacent to an *at-risk community* that is identified in recommendations to the Secretary in a *community wildfire protection plan*." *Id.* § 6511(16)(A) (emphases added). An "at-risk community" must satisfy multiple requirements; as relevant here, it "is comprised of . . . a group of homes and other structures with basic infrastructure and services . . . within or adjacent to Federal land." *Id.* § 6511(1)(A)(ii).
>
> …A separate definition applies "in the case of any area for which a community wildfire protection plan is not in effect." *Id.* § 6511(16)(B). That definition is not applicable here because there is a community wildfire protection plan in place.

See "A New Direction for California Wildfire Policy—Working from the Home Outward" dated February 11, 2019 from the Leonard DiCaprio Foundation. It criticizes policies from the state of California, which are essentially the same FS fire policies on display in the NPCNF. From the Executive Summary: "These policies try to alter vast areas of forest in problematic ways through logging, when instead they should be focusing on helping communities safely co-exist with California's naturally fire-dependent ecosystems by prioritizing effective fire-safety actions for homes and the zone right around them. This new direction—working from the home outward—can save lives and homes, save money, and produce jobs in a strategy that is better for natural ecosystems and the climate." It also presents a revealing analysis of the Camp Fire, which destroyed the California town of Paradise.

See also:

- John Muir Project document "Forest Thinning to Prevent Wildland Fire …vigorously contradicted by current Science"
- "Open Letter to Decision Makers Concerning Wildfires in the West" signed by over 200 scientists
- "Land Use Planning More Effective Than Logging to Reduce Wildfire Risk"
- Fire Strategy Stuck with old tactics, experts warn
- Colorado's Suburban Firestorm

- Forests need fire — communities do not
- The 'ecological hate speech' developed around wildfire
- Nuance in Wildfire Policy is Badly Needed
- Living With Fire
- Living With Fire, 2009
- A New Direction for California Wildfire Policy
- As California burns, some ecologists say it's time to rethink forest management
- Logging makes forests and homes more vulnerable to wildfires
- Scientists Letter, 2018
- Scientists Letter, 2021

The risks of fire are best dealt with in the immediate vicinity of homes, and by focusing on routes for home occupier egress during fire events—not by logging national forest lands well away from human occupied neighborhoods. The FEIS ignores scientific information demonstrating that the only effective way to prevent structure damage is to manage the fuels in the immediate vicinity of those homes, which happens to a very small portion of the LMP's expansive WUI.

The nine-part Wildfire Research Fact Sheet Series was produced by the National Fire Protection Association (NFPA)'s Firewise USA® program, as part of the NFPA/USDA Forest Service cooperative agreement and with research provided by the Insurance Institute for Business and Home Safety (IBHS). They are a product of the research done by the IBHS lab in South Carolina, covering a wide range of issues. This Firewise approach begs the question—why isn't the NPCNF implementing an aggressive outreach and education program to assist homeowners living in and near national forests via the LMP?

In support of focusing on manipulating limited areas near homes, Finney and Cohen, 2003, state:

> Research findings indicate that a home's characteristics and the characteristics of a home's immediate surroundings within 30 meters principally determine the potential for wildland-urban fire destruction. This area, which includes the home and its immediate surroundings, is termed the home ignition zone. The home ignition zone implies that activities to reduce the potential for wildland-urban fire destruction can address the necessary factors that determine ignitions and can be done sufficiently to reduce the likelihood of ignition. Wildland fuel reduction outside and adjacent to a home ignition zone might reduce the potential flame and firebrand exposure to the home ignition zone (i.e., within 30 m of the home). However, the factors contributing to home ignition within this zone have not been mitigated. Given a wildfire, wildland fuel management alone (i.e., outside the home ignition zone) is not sufficient nor does it substitute for mitigations within the home ignition zone. ...(I)t is questionable whether wildland fuel reduction activities are necessary and sufficient for mitigating structure loss in wildland urban fires.
>
> …(W)ildland fuel management changes the … probability of a fire reaching a given location. It also changes the distribution of fire behaviors and ecological effects experienced at each location because of the way fuel treatments alter local and spatial fire behaviors (Finney 2001). **The probability that a structure burns, however, has been**

> **shown to depend exclusively on the properties of the structure and its immediate surroundings (Cohen 2000a).** (Emphasis added.)

Finney and Cohen (2003) indicates that there is much uncertainty over effects of fuel reduction, which the FEIS fails to acknowledge or recognize. The authors point out:

> Although the conceptual basis of fuel management is well supported by ecological and fire behavior research in some vegetation types, the promise of fuel management has lately become loaded with the expectation of a diffuse array of benefits. Presumed benefits range from restoring forest structure and function, bringing fire behavior closer to ecological precedents, reducing suppression costs and acres burned, and preventing losses of ecological and urban values. For any of these benefits to be realized from fuel management, a supporting analysis must be developed to physically relate cause and effect, essentially evaluating how the benefit is physically derived from the management action (i.e. fuel management). Without such an analysis, the results of fuel management can fail to yield the expected return, potentially leading to recriminations and abandonment of a legitimate and generally useful approach to wildland fire management.

Finney and Cohen, 2003 recognize: "To reduce expected loss from home ignition, it is necessary and **often sufficient to manage fuels only within the home ignition zone** …**and abide by fire resistant home construction standards**…" (Emphasis added).

The LMP prioritizes adapting a fire-prone ecosystem to the presence of human development, yet the science leads to an opposite conclusion—that the emphasis must be on assisting human communities to adapt to the fire-prone ecosystems within which they've been built.

Best available science supports mitigating the safety and property risks from fire by implementing firewise activities around homes and structures.(Kulakowski, 2013; Cohen, 1999a) Also, see Firewise Landscaping[6] as recommended by Utah State University, and the Firewise USA website by the National Fire Protection Association[7] for examples of educational materials.

An article in Phys.org describes results of a study by DellaSala and Hanson, 2019:

> They found no significant trend in the size of large high-severity burn patches between 1984 and 2015, disputing the prevailing belief that increasing megafires are setting back post-fire forest regeneration. "This is the most extensive study ever conducted on the high-severity fire component of large fires, and our results demonstrate that there is no need for massive forest thinning and salvage logging before or after a forest fire," says Dr. Dominick A. DellaSala, lead author of the study and Chief Scientist at the Geos Institute. "The perceived megafire problem is being overblown. After a fire, conditions are ideal for forest re-establishment, even in the interior of the largest severely burned patches. We

[6] https://extension.usu.edu/ueden/ou-files/Firewise-Landscaping-for-Utah.pdf
[7] http://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA/The-ember-threat-and-the-home-ignition-zone

found conditions for forest growth in interior patches were possible over 1000 feet from the nearest low/moderately burned patch where seed sources are most likely."

DellaSala, et al. (1995) state:

> Scientific evidence does not support the hypothesis that intensive salvage, thinning, and other logging activities reduce the risk of catastrophic fires if applied at landscape scales ... At very local scales, the removal of fuels through salvage and thinning may hinder some fires. However, applying such measures at landscape scales removes natural fire breaks such as moist pockets of late-seral and riparian forests that dampen the spread and intensity of fire and has little effect on controlling fire spread, particularly during regional droughts. ... Bessie and Johnson (1995) found that surface fire intensity and crown fire initiation were strongly related to weather conditions and only weakly related to fuel loads in subalpine forest in the southern Canadian Rockies. . . . Observations of large forest fires during regional droughts such as the Yellowstone fires in 1988 (Turner, et al. 1994) and the inland northwest fires of 1994 . . . raise serious doubts about the effectiveness of intensive fuel reductions as "fire-proofing" measures.

"Only treating fuels in the immediate vicinity of the homes themselves can reduce risk to homes, not backcountry fuel reductions projects that divert scarce resources away from true home protection." DellaSala et al. 2015 (Chapter 13), p. 384 (citing Cohen, 2000; Gibbons et al. 2012; Calkin et al. 2013; Syphard et al, 2014).

Implementation of mechanical vegetation management actions under the LMP would exacerbate fire impacts and cause unintended ecological damage

FS researchers have long since recognized that logging, especially the extensive and homogeneous logging "regeneration" cuts create, actually *increase* fire severity where the fire might otherwise have been severe. Stone et al. (2008) discuss a study of a forested area southeast of Missoula, Montana affected by the Cooney Ridge fire complex. The scientists found fire severely and uniformly burned a watershed which had been extensively and homogeneously logged, in contrast to an adjacent watershed with higher fuel loads but greater heterogeneity which experienced mosaic of burn severities. They conclude, "Harvesting timber does not translate simply into reducing fire risk." Similar results have been repeatedly found in other published science.

The LMP management strategy to mimic the results of disturbance processes will end up disrupting biological diversity. McRae et al. (2001) provide a scientific review summarizing empirical evidence that illustrates several significant differences between logging and wildfire—differences which the FS fails to address. Also, Naficy et al. 2010 found a significant distinction between fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 and paired fire-excluded, unlogged counterparts:

> We document that fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 have much higher average stand density, greater homogeneity of stand structure, more standing dead trees and increased abundance of fire-intolerant trees than

> paired fire-excluded, unlogged counterparts. Notably, the magnitude of the interactive effect of fire exclusion and historical logging substantially exceeds the effects of fire exclusion alone. These differences suggest that historically logged sites are more prone to severe wildfires and insect outbreaks than unlogged, fire-excluded forests and should be considered a high priority for fuels reduction treatments. Furthermore, we propose that ponderosa pine forests with these distinct management histories likely require distinct restoration approaches. We also highlight potential long-term risks of mechanical stand manipulation in unlogged forests and emphasize the need for a long-term view of fuels management.

Bradley et al. 2016 studied the fundamental premise that mechanical fuel reduction will reduce fire risk. The study "found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading." In fact, the study's results suggest the opposite: "(B)urn severity tended to be higher in areas with lower levels of protection status (more intense management), after accounting for topographic and climatic conditions in all three model runs. Thus, we rejected the prevailing forest management view that areas with higher protection levels burn most severely during wildfires." The study goes on to discuss other findings:

> An extension of the prevailing forest/fire management hypothesis is that biomass and fuels increase with increasing time after fire (due to suppression), leading to such intense fires that the most long-unburned forests will experience predominantly severe fire behavior (e.g., see USDA Forest Service 2004, Agee and Skinner 2005, Spies et al. 2006, Miller et al. 2009b, Miller and Safford 2012, Stephens et al. 2013, Lydersen et al. 2014, Dennison et al. 2014, Hessburg 2016). However, this was not the case for the most long-unburned forests in two ecoregions in which this question has been previously investigated—the Sierra Nevada of California and the Klamath-Siskiyou of northern California and southwest Oregon. In these ecoregions, the most long-unburned forests experienced mostly low/moderate-severity fire (Odion et al. 2004, Odion and Hanson 2006, Miller et al. 2012, van Wagtendonk et al. 2012). Some of these researchers have hypothesized that as forests mature, the overstory canopy results in cooling shade that allows surface fuels to stay moister longer into fire season (Odion and Hanson 2006, 2008). This effect may also lead to a reduction in pyrogenic native shrubs and other understory vegetation that can carry fire, due to insufficient sunlight reaching the understory (Odion et al. 2004, 2010).

From a news release announcing the results of the Bradley et al. 2016 study:

> "We were surprised to see how significant the differences were between protected areas managed for biodiversity and unprotected areas, which our data show burned more severely," said lead author Curtis Bradley, with the Center for Biological Diversity.
>
> The study focused on forests with relatively frequent fire regimes, ponderosa pine and mixed-conifer forest types; used multiple statistical models; and accounted for effects of climate, topography and regional differences to ensure the findings were robust.

> "The belief that restrictions on logging have increased fire severity did not bear out in the study," said Dr. Chad Hanson, an ecologist with the John Muir Project. "In fact, the findings suggest the opposite. The most intense fires are occurring on private forest lands, while lands with little to no logging experience fires with relatively lower intensity."
>
> "Our findings demonstrate that increased logging may actually increase fire severity," said Dr. Dominick A. DellaSala, chief scientist of Geos Institute. "Instead, decision-makers concerned about fire should target proven fire-risk reduction measures nearest homes and keep firefighters out of harm's way by focusing fire suppression actions near towns, not in the back country."

Zald and Dunne, 2018 state, "intensive plantation forestry characterized by young forests and spatially homogenized fuels, rather than pre-fire biomass, were significant drivers of wildfire severity."

Wales, et al. 2007 modeled various potential outcomes of fire and fuel management scenarios on the structure of forested habitats in northeast Oregon. They projected that the **natural disturbance scenario resulted in the highest amounts of all types of medium and large tree forests combined** and best emulated the Natural Range of Variability for medium and large tree forests by potential vegetation type after several decades. Restoring the natural disturbances regimes and processes is the key to restoring forest structure and functionality similar to historical conditions.

In his testimony before Congress, DellaSala, 2017 discusses "…how proposals that call for increased logging and decreased environmental review in response to wildfires and insect outbreaks are not science driven, in many cases may make problems worse, and will not stem rising wildfire suppression costs" and "what we know about forest fires and beetle outbreaks in relation to climate change, limitations of thinning and other forms of logging in relation to wildfire and insect management" and gives "recommendations for moving forward based on best available science."

Typically, attempts to control or resist the natural process of fire have been a contributor to deviations from historic conditions. The FS analyses skew toward considering fire as well as native insects and other natural pathogens as threats to the ecosystem rather than rejuvenating natural processes. LMP implementation would replace natural processes with "treatments" and "prescriptions" with scientific support for assuming that ecosystems can be restored or continuously maintained by such manipulative actions entirely lacking.

FEIS consideration of fire ecology is biased and sorely inadequate

Baker et al., 2023 is new scientific information addressing agency bias in explaining fire ecology. The Abstract states:

> The structure and fire regime of pre-industrial (historical) dry forests over ~26 million ha of the western USA is of growing importance because wildfires are increasing and spilling over into communities. Management is guided by current conditions relative to the

> historical range of variability (HRV). Two models of HRV, with different implications, have been debated since the 1990s in a complex series of papers, replies, and rebuttals. The "low-severity" model is that dry forests were relatively uniform, low in tree density, and dominated by low- to moderate-severity fires; the "mixed-severity" model is that dry forests were heterogeneous, with both low and high tree densities and a mixture of fire severities. Here, we simply rebut evidence in the low-severity model's latest review, including its 37 critiques of the mixed-severity model. A central finding of high-severity fire recently exceeding its historical rates was not supported by evidence in the review itself. A large body of published evidence supporting the mixed-severity model was omitted. These included numerous direct observations by early scientists, early forest atlases, early newspaper accounts, early oblique and aerial photographs, seven paleo-charcoal reconstructions, ≥18 tree-ring reconstructions, 15 land survey reconstructions, and analysis of forest inventory data. Our rebuttal shows that evidence omitted in the review left a falsification of the scientific record, with significant land management implications. The low-severity model is rejected and mixed-severity model is supported by the corrected body of scientific evidence.

So let's follow the money. Baker et al., 2023 point out that many research scientists who are funded by or work for the FS promote the "low severity fire model" so the agency can justify the myth that logging will prevent forests from being "destroyed" by the prevailing fire regime: mixed- and high-severity fires. So we have the latest so-called government-declared "emergency situation" is a smokescreen for expedited logging. Since fire cannot be entirely removed from a landscape that will continue to feature mixed- and high-severity fires, actions taken in the Home Ignition Zone of the privately owned structures are the real key for structure survival. Furthermore, the public has never been provided a guarantee of hazard-free ingress/egress—nor should we. That would essentially involve an annual removal of all combustible vegetation adjacent to roads, and furthermore everywhere from whence a fire could emit firebrands that could be carried by the thermal forces and the wind onto private properties—a ridiculous proposition whereby the U.S. taxpayers provide infinite subsidies for the uncertain benefits of a few.

Furthermore, those responsible for firefighter safety will always need to mitigate and minimize the risk. This will always involve the choice to withhold personnel from entering dangerous situations, simply because dangers are potentially omnipresent.

Veblen (2003) states:

> The premise behind many projects aimed at wildfire hazard reduction and ecological restoration in forests of the western United States is the idea that unnatural fuel buildup has resulted from suppression of formerly frequent fires. This premise and its implications need to be critically evaluated by conducting area-specific research in the forest ecosystems targeted for fuels or ecological restoration projects. Fire regime researchers need to acknowledge the limitations of fire history methodology and avoid over-reliance on summary fire statistics such as mean fire interval and rotation period. While fire regime research is vitally important for informing decisions in the areas of wildfire hazard mitigation and ecological restoration, there is much need for improving the way

> researchers communicate their results to managers and the way managers use this information.

The FEIS does not disclose a realistic fire management regime as would be imposed by the LMP. Issues such as frequency, intensity, extent of "treatments" and very importantly—taxpayer affordability—to achieve or maintain "desired conditions" are largely ignored.

The FEIS does not analyze and disclose the temporal effectiveness of the "fuel" reductions the LMP would impose. It's unlikely the area will see unplanned wildland fire the moment the fuel "treatments" are finished. Rhodes & Baker (2008) studied fire records and found that, over the 20-year period that fuel reduction is assumed to be effective, approximate 2.0-4.2% of untreated areas would be expected to burn at high or high-moderate severity. This, considered with the science above, renders the FS's assumption that logging can satisfy the fuel-reduction purpose and need controversial at best.

As noted in Graham, 2003:

> The prescriptions and techniques appropriate for accomplishing a treatment require understanding the fuel changes that result from different techniques and the fire behavior responses to fuel structure. Fuel treatments, like all vegetation changes, have temporary effects and require repeated measures, such as prescribed burning, to maintain desired fuel structure.

Riggers, et al. 2001 state:

> (T)he real risk to fisheries is not the direct effects of fire itself, but rather the existing condition of our watersheds, fish communities, and stream networks, and the impacts we impart as a result of fighting fires. Therefore, attempting to reduce fire risk as a way to reduce risks to native fish populations is really subverting the issue. If we are sincere about wanting to reduce risks to fisheries associated with future fires, we ought to be removing barriers, reducing road densities, reducing exotic fish populations, and re-assessing how we fight fires. At the same time, we should recognize the vital role that fires play in stream systems, and attempt to get to a point where we can let fire play a more natural role in these ecosystems.

Those FS biologists emphasize, "the importance of wildfire, including large-scale, intense wildfire, in creating and maintaining stream systems and stream habitat. ...(I)n most cases, proposed projects that involve large-scale thinning, construction of large fuel breaks, or salvage logging as tools to reduce fuel loading with the intent of reducing negative effects to watersheds and the aquatic system are largely unsubstantiated."

Kauffman (2004) recognizes that fires are beneficial and suggests that current FS fire policies are failing:

> Large wild fires occurring in forests, grasslands and chaparral in the last few years have aroused much public concern. Many have described these events as "catastrophes" that

> must be prevented through aggressive increases in forest thinning. **Yet the real catastrophes are not the fires themselves but those land uses, in concert with fire suppression policies that have resulted in dramatic alterations to ecosystem structure and composition**. The first step in the restoration of biological diversity (forest health) of western landscapes must be to implement changes in those factors that have resulted in the current state of wildland ecosystems. Restoration entails much more than simple structural modifications achieved through mechanical means. **Restoration should be undertaken at landscape scales and must allow for the occurrence of dominant ecosystem processes, such as the natural fire regimes achieved through natural and/or prescribed fires at appropriate temporal and spatial scales.** (Emphases added.)

Noss et al. (2006) state:

> Forest landscapes that have been affected by a major natural disturbance, such as a severe wildfire or wind storm, are commonly viewed as devastated. Such perspectives are usually far from ecological reality. Overall species diversity, measured as number of species–at least of higher plants and vertebrates – is often highest following a natural stand replacement disturbance and before redevelopment of closed-canopy forest (Lindenmayer and Franklin 2002). Important reasons for this include an abundance of biological legacies, such as living organisms and dead tree structures, the migration and establishment of additional organisms adapted to the disturbed, early-successional environment, availability of nutrients, and temporary release of other plants from dominance by trees. Currently, early-successional forests (naturally disturbed areas with a full array of legacies, i.e. not subject to post-fire logging) and forests experiencing natural regeneration (i.e. not seeded or planted), are among the most scarce habitat conditions in many regions.

High-severity fire is ecologically important. (Bond et al. 2012.) Hanson (2010) states snag forest habitat "is one of the most ecologically important and biodiverse forest habitat types in western U.S. conifer forests (Lindenmayer and Franklin 2002, Noss et al. 2006, Hutto 2008)."

With the LMP and FEIS, the FS is exacerbating and exploiting public concerns and fear about fire to justify logging as "restoration."

Following from the FEIS's position that it can perpetually impose effective fire suppression are ecological problems that the FEIS only indirectly implies. This includes as unnatural stand-replacing fires, altered fire regimes and wide-scale disruption of habitats for wildlife, rare plants, tree insect and disease patterns and increase of noxious weeds. The FEIS only focuses on fire suppression's alleged benefits.

Implications of implementing the LMP are clear: logging and fire suppression is intended to continually dominate, except in those weather situations when and where suppression actions are ineffective, in which case fires of high severity will occur across relatively wide areas. No cumulative effects analysis at any landscape scale exists to disclose the environmental impacts.

Churchill, 2011 explains how natural processes would best mitigate landscape conditions alleged to be out of whack:

> Over time, stand development processes and biophysical variation, along with low and mixed-severity disturbances, **break up these large patches into a finer quilt of patch types**. **These new patterns then constrain future fires**. Landscape pattern is thus generated from a blend of finer scale, feedback loops of vegetation and disturbance and broad scale events that are driven by extreme climatic events. (Emphases added.)

Churchill describes above the ongoing natural processes that will alleviate problems alleged in the FEIS—without expensive and ecologically risky logging and road building. This is also consistent with Baker et al. (2023b) investigation of a Nature-based Solution (NbS).

The FEIS does not cite the results of scientific studies of the ecological effects from recent fires in the NPCNF supporting its hypothesizing that landscape-level detrimental effects have been occurring on the Forest because of a lack of management manipulations. FEIS fear-mongering statements about "departures" are speculative and not based upon data or any empirical evidence, in violation of NEPA.

The most significant fire events are weather-driven, not fuels-driven. When the conditions exist for a major fire—which includes drought, high temperatures, low humidity and high winds—nothing, including past logging, halts blazes. Such fires typically self-extinguish or are stopped only when less favorable conditions occur for fire spread.

There has been extensive research in forests about the ecological benefits of mixed-severity (which includes high-severity) fire over the past two decades, so much so that in 2015 science and academic publishers Elsevier published a 400-page book, *The Ecological Importance of Mixed-Severity Fires: Nature's Phoenix* which synthesizes published, peer-reviewed science investigating the value of mixed- and high-severity fires for biodiversity (DellaSala and Hanson, 2015). The book includes research documenting the benefits of high-intensity wildfire patches for wildlife species, as well as a discussion of mechanical "thinning" and its inability to reduce the chances of a fire burning in a given area, or alter the intensity of a fire, should one begin under high fire weather conditions, because overwhelmingly weather, not vegetation, drives fire behavior (DellaSala and Hanson, 2015, Ch. 13, pp. 382-384).

In his book, "Fire Ecology in Rocky Mountain Landscapes" William Baker writes, "…a prescribed fire regime that is too frequent can reduce species diversity (Laughlin and Grace 2006) and favor invasive species (M.A. Moritz and Odion 2004). Fire that is entirely low severity in ecosystems that historically experience some high-severity fire may not favor germination of fire-dependent species (M.A. Moritiz and Odion 2004) or provide habitat key animals (Smucker, Hutto, and Steele 2005)." (P. 435.) Also, "Fire rotations equal the average mean fire interval across a landscape and are appropriate intervals at which individual points or the whole landscape is burned. Composite fire intervals underestimate mean fire interval and fire rotation (chap 5) and should not be used as prescribed burning intervals as this would lead to too much fire and would likely lead to adversely affect biological diversity (Laughlin and Grace 2006)." (P. 436.)

Baker estimates the high severity fire rotation to be 135 - 280 years for lodgepole pine forests. (P. 162.). And on pp. 457-458: "Fire rotation has been estimated as about 275 years in the Rockies as a whole since 1980 and about 247 years in the northern Rockies over the last century, and both figures are near the middle between the low (140 years) and high (328 years) estimates for fire rotation for the Rockies under the HRV (chap. 10). These estimates suggest that since EuroAmerican settlement, fire control and other activities may have reduced fire somewhat in particular places, but a general syndrome of fire exclusion is lacking. Fire exclusion also does not accurately characterize the effects of land users on fire or match the pattern of change in area burned at the state level over the last century (fig. 10.9). In contrast, fluctuation in drought linked to atmospheric conditions appear to match many state-level patterns in burned area over the last century. Land uses that also match fluctuations include logging, livestock grazing, roads and development, which have generally increased flammability and ignition at a time when the climate is warming and more fire is coming."

Schoennagel et al., 2004 state:

> High-elevation subalpine forests in the Rocky Mountains typify ecosystems that experience infrequent, high-severity crown fires []. . . The most extensive subalpine forest types are composed of Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), and lodgepole pine (Pinus contorta), all thin-barked trees easily killed by fire. Extensive stand-replacing fires occurred historically at long intervals (i.e., one to many centuries) in subalpine forests, typically in association with infrequent high-pressure blocking systems that promote extremely dry regional climate patterns.
>
> …(I)t is unlikely that the short period of fire exclusion has significantly altered the long fire intervals in subalpine forests. Furthermore, large, intense fires burning under dry conditions are very difficult, if not impossible, to suppress, and such fires account for the majority of area burned in subalpine forests.
>
> Moreover, there is no consistent relationship between time elapsed since the last fire and fuel abundance in subalpine forests, further undermining the idea that years of fire suppression have caused unnatural fuel buildup in this forest zone.
>
> No evidence suggests that spruce–fir or lodgepole pine forests have experienced substantial shifts in stand structure over recent decades as a result of fire suppression. Overall, variation in cli-mate rather than in fuels appears to exert the largest influence on the size, timing, and se-verity of fires in subalpine forests []. We conclude that large, infrequent stand replacing fires are 'business as usual' in this forest type, not an artifact of fire suppression.
>
> Contrary to popular opinion, previous fire suppression, which was consistently effective from about 1950 through 1972, had only a minimal effect on the large fire event in 1988 []. Reconstruction of historical fires indicates that similar large, high-severity fires also occurred in the early 1700s []. Given the historical range of variability of fire regimes in high- elevation subalpine forests, fire behavior in Yellowstone during 1988, although severe, was neither unusual nor surprising.

> Mechanical fuel reduction in subalpine forests would not represent a restoration treatment but rather a departure from the natural range of variability in stand structure.
>
> Given the behavior of fire in Yellowstone in 1988, fuel reduction projects probably will not substantially reduce the frequency, size, or severity of wildfires under extreme weather conditions.
>
> The Yellowstone fires in 1988 revealed that variation in fuel conditions, as measured by stand age and density, had only minimal influence on fire behavior. Therefore, we expect fuel- reduction treatments in high-elevation forests to be generally unsuccessful in reducing fire frequency, severity, and size, given the overriding importance of extreme climate in controlling fire regimes in this zone. Thinning also will not re-store subalpine forests, because they were dense historically and have not changed significantly in response to fire suppression. Thus, fuel-reduction efforts in most Rocky Mountain subalpine forests probably would not effectively mitigate the fire hazard, and these efforts may create new ecological problems by moving the forest structure out-side the historic range of variability.

The FS also trots out a premise that tree mortality from native insect activity and other agents of tree mortality increase risk of wildfire. Again, this is not supported by science. Meigs, et al., 2016 found "that insects generally reduce the severity of subsequent wildfires. … By dampening subsequent burn severity, native insects could buffer rather than exacerbate fire regime changes expected due to land use and climate change. In light of these findings, we recommend a precautionary approach when designing and implementing forest management policies intended to reduce wildfire hazard and increase resilience to global change." [Also *see* Black, 2005; Black, et al., 2010; DellaSala (undated); Kulakowski (2013); Hanson et al., 2010; Hart et al., 2015.] And for an ecological perspective from the FS itself, see Rhoades et al., 2012, who state: "While much remains to be learned about the current outbreak of mountain pine beetles, researchers are already finding that **beetles may impart a characteristic critically lacking in many pine forests today: structural complexity and species diversity**." (Emphasis added.)

Frissell and Bayles (1996) state:

> …The concept of range of natural variability …suffers from its failure to provide defensible criteria about **which factors ranges should be measured**. Proponents of the concept assume that a finite set of variables can be used to define the range of ecosystem behaviors, when ecological science strongly indicates many diverse factors can control and limit biota and natural resource productivity, often in complex, interacting, surprising, and species-specific and time-variant ways. **Any simple index for measuring the range of variation will likely exclude some physical and biotic dimensions important for the maintenance of ecological integrity and native species diversity.** (Emphases added.)

George and Zack, 2001 "recommend that managers: (1) identify the wildlife species they want to target for restoration efforts, (2) consider the size and landscape context of the restoration site and whether it is appropriate for the target species, (3) identify the habitat elements that are necessary for the target species, (4) develop a strategy for restoring those **elements and the**

ecological processes that maintain them, and (5) implement a long-term monitoring program to gauge the success of the restoration efforts." (Emphasis added.)

See Attachment 5, which is a collection of news media articles, quoting experts including those in the FS, who do understand the high value of severely burned forest for wildlife and other resources.

The FS fails to disclose or acknowledge the scientific information that indicates severe fires burning across landscapes are normal for the NPCNF, and that fire intensity and severity are dependent much more upon weather than fuels. The FEIS does not comply with NEPA's requirements for scientific integrity.

Huff et al., 1995 state:

> In general, rate of spread and flame length were positively correlated with the proportion of area logged (hereafter, area logged) for the sample watersheds. …The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree.
>
> Logged areas generally showed a strong association with increased rate of spread and flame length, thereby suggesting that tree harvesting could affect the potential fire behavior within landscapes. In general, rate of spread and flame length were positively correlated with the proportion of area logged in the sample watersheds.
>
> As a by-product of clearcutting, thinning, and other tree-removal activities, activity fuels create both short- and long-term fire hazards to ecosystems. The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree. Even though these hazards diminish, their influence on fire behavior can linger for up to 30 years in the dry forest ecosystems of eastern Washington and Oregon.

See DellaSala, et al. (2018), a synopsis of current literature summarizing some of the latest science around top-line wildfire issues, including areas of scientific agreement, disagreement, and ways to coexist with wildfire.

The LMP provides no coherent plan for integrating wildland fire into this ecosystem. Nothing is being changed to learn from the alleged ecological damage from the FS's suppression over the years. The LMP is all about continuing a repressive and suppressive regime, The "plan" is clearly to impose logging along with, continuous suppression of fire, and yet more logging in the future while alleging a "need" to address the effects of fire suppression.

Odion and DellaSala, 2011 describe this situation: "…fire suppression continues unabated, creating a self-reinforcing relationship with fuel treatments which are done in the name of fire

suppression. Self-reinforcing relationships create runaway processes and federal funding to stop wildfires now amounts to billions of tax dollars each year."

Tingley et al., 2016 note the diversity of habitats following a fire is related to the diversity of burn severities: "(W)ithin the decade following fire, different burn severities represent unique habitats whose bird communities show differentiation over time… Snags are also critical resources for many bird species after fire. Increasing densities of many bird species after fire—primarily wood excavators, aerial insectivores, and secondary cavity nesters—can be directly tied to snag densities…"

Similarly, Hutto and Patterson, 2016 state, "the variety of burned-forest conditions required by fire-dependent bird species cannot be created through the application of relatively uniform low-severity prescribed fires, through land management practices that serve to reduce fire severity or through post-fire salvage logging, which removes the dead trees required by most disturbance-dependent bird species."

Hutto et al., 2016 urge "a more ecologically informed view of severe forest fires":

> Public land managers face significant challenges balancing the threats posed by severe fire with legal mandates to conserve wildlife habitat for plant and animal species that are positively associated with recently burned forests. Nevertheless, land managers who wish to maintain biodiversity must find a way to embrace a fire-use plan that allows for the presence of all fire severities in places where a historical mixed-severity fire regime creates conditions needed by native species while protecting homes and lives at the same time. This balancing act can be best performed by managing fire along a continuum that spans from aggressive prevention and suppression near designated human settlement areas to active "ecological fire management" (Ingalsbee 2015) in places farther removed from such areas. This could not only save considerable dollars in fire-fighting by restricting such activity to near settlements (Ingalsbee and Raja 2015), but it would serve to retain (in the absence of salvage logging, of course) the ecologically important disturbance process over most of our public land while at the same time reducing the potential for firefighter fatalities (Moritz et al. 2014). Severe fire is not ecologically appropriate everywhere, of course, but the potential ecological costs associated with prefire fuels reduction, fire suppression, and postfire harvest activity in forests born of mixed-severity fire need to considered much more seriously if we want to maintain those species and processes that occur only where dense, mature forests are periodically allowed to burn severely, as they have for millennia.

Essentially the LMP rigs the game, as its "desired conditions" would only be achievable by resource extractive activities. But since desired conditions must be maintained through repeated management/manipulation the management paradigm conflicts with natural processes—the real drivers of the ecosystem.

Fire, insects & disease are endemic to western forests and are natural processes resulting in the forest self-thinning. This provides for greater diversity of plant and animal habitat than logging can achieve. In areas that have been historically and logged there are less diversity of native

plants, more invasive species, and less animal diversity. Six et al., 2014 documented that logging to prevent or contain insect and disease has not been empirically proven to work, and because of lack of monitoring the FS can't content this method is viable for containing insect outbreaks.

See David Erickson's news article "Experts: more logging and thinning to battle wildfires might just burnt taxpayer dollars". It cites testimony to Congress from scientist Tania Schoennagel (Schoennagel, 2017.)

The FEIS fails to present an analysis of the cumulative effects of livestock grazing on fire regimes. USDA Forest Service 2012c states:

> Fire regime condition class ... is used to describe the degree of departure from the historic fire regimes that results from alterations of key ecosystem components such as composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, **grazing**, introduction and establishment of nonnative plant species, insects or disease (introduced or native), or other past management activities. (Id., emphasis added.)

"The transient effects of treatments on forest, coupled with the relatively low probability of higher-severity fire, makes it unlikely that fire will affect treated areas while fuel levels are reduced." (Rhodes, 2007; internal citations omitted.) Rhodes (2007) also points out that using mechanical fuel treatments (MFT) to restore natural fire regimes must take into consideration the root causes of the alleged problem:

> In order to be ultimately effective at helping to restore natural fire regimes, fuel treatments must be part of wider efforts to address the root causes of the alteration in fire behavior. At best, MFT can only address symptoms of fire regime alteration. Evidence indicates that primary causes of altered fire regimes in some forests include changes in fuel character caused by the ongoing effects and legacy of land management activities. These activities include logging, post-disturbance tree planting, livestock grazing, and fire suppression. Many of these activities remain in operation over large areas. Therefore, unless treatments are accompanied by the elimination of or sharp reduction in these activities and their impacts in forests where the fire regime has been altered, MFT alone will not restore fire regimes. (Internal citations omitted.)

Cohen, 1999a recognizes "the imperative to separate the problem of the wildland fire threat to homes from the problem of ecosystem sustainability due to changes in wildland fuels" (Id.). In regards to the latter—ecosystem sustainability—Cohen and Butler (2005) state:

> Realizing that wildland fires are inevitable should urge us to recognize that excluding wildfire does not eliminate fire, it unintentionally selects for only those occurrences that defy our suppression capability—the extreme wildfires that are continuous over extensive areas. If we wish to avoid these extensive wildfires and restore fire to a more normal ecological condition, **our only choice is to allow fire occurrence under conditions other than extremes. Our choices become ones of compatibility with the inevitable fire occurrences rather than ones of attempted exclusion.** (Emphasis added.)

In their conclusion, Graham, et al., 1999a state:

> Depending on intensity, thinning from below and possibly free thinning can most effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species. Such intermediate treatments can reduce the severity and intensity of wildfires for a given set of physical and weather variables. **But crown and selection thinnings would not reduce crown fire potential.** (Emphasis added.)

The FEIS does not disclose that logging increases the rate of fire spread. Graham, et al., 1999a point out that fire modeling indicates:

> For example, the 20-foot wind speed[8] must exceed 50 miles per hour for midflame wind speeds to reach 5 miles per hour within a dense Stand (0.1 adjustment factor). In contrast, in an open stand (0.3 adjustment factor), the same midflame wind speeds would occur at only a 16-mile-per-hour wind at 20 feet.

The FEIS also fails to consider the implications of how the fire regimes are changing due to climate change.

Numerous direct and indirect effects of fire suppression are also ignored in the FEIS. For example, Ingalsbee, 2004 describes the direct, indirect, and cumulative environmental impacts of firefighting:

> Constructing firelines by handcrews or heavy equipment results in a number of direct environmental impacts: it kills and removes vegetation; displaces, compacts, and erodes soil; and degrades water quality. When dozerlines are cut into roadless areas they also create long-term visual scars that can ruin the wilderness experience of roadless area recreationists. Site-specific impacts of firelines may be highly significant, especially for interior-dwelling wildlife species sensitive to fragmentation and edge effects.
>
> ...Another component of fire suppression involves tree cutting and vegetation removal. Both small-diameter understory and large-diameter overstory trees are felled to construct firelines, helispots, and safety zones.
>
> ...A host of different toxic chemical fire retardants are used during fire suppression operations. Concentrated doses of retardant in aquatic habitats can immediately kill fish, or lead to algae blooms that kill fish over time. Some retardants degrade into cyanide at levels deadly to amphibians. When dumped on the ground, the fertilizer in retardant can stimulate the growth of invasive weeds that can enter remote sites from seeds transported inadvertently by suppression crews and their equipment.
>
> ...One of the many paradoxes of fire suppression is that it involves a considerable amount of human-caused fire reintroduction under the philosophy of "fighting fire with fire." The

[8] Velocity of the wind 20 feet above the vegetation, in this case tree tops.

> most routine form of suppression firing, "burnout," occurs along nearly every linear foot of perimeter fireline. Another form of suppression firing, "backfiring," occurs when firefighters ignite a high-intensity fire near a wildfire's flaming edge, with or without a secured containment line. In the "kill zone" between a burnout/backfire and the wildfire edge, radiant heat intensity can reach peak levels, causing extreme severity effects and high mortality of wildlife by entrapping them between two high-intensity flame fronts.
>
> ...Firelines, especially dozerlines, can become new "ghost" roads that enable unauthorized or illegal OHV users to drive into roadless areas. These OHVs create further soil and noise disturbance, can spread garbage and invasive weeds, and increase the risk of accidental human-caused fires.
>
> ...Roads that have been blockaded, decommissioned, or obliterated in order to protect wildlife or other natural resource values are often reopened for firefighter vehicle access or use as firelines.
>
> ...Both vegetation removal and soil disturbance by wildfire and suppression activities can create ideal conditions for the spread of invasive weeds, which can significantly alter the native species composition of ecosystems, and in some cases can change the natural fire regime to a more fire-prone condition. Firefighters and their vehicles can be vectors for transporting invasive weed seeds deep into previously uninfested wildlands.
>
> ...Natural meadows are attractive sites for locating firelines, helispots, safety zones, and fire camps, but these suppression activities can cause significant, long-term damage to meadow habitats.

The FEIS does not disclose scientifically-acknowledged limitations of the use of Fire Regime Condition Classes. This creates issues of scientific integrity with the implementation of WUI policies. Fire Regime Condition Class is a metric that estimates the departure of the forest from historic fire processes and vegetation conditions. Fire regime condition class is derived by comparing current conditions to an estimate of the historical conditions that existed before significant Euro-American settlement. The method likely has very limited accuracy and tends to overestimate the risk of higher-severity fire posed by fuel loads, as documented by studies of recent fires (Odion and Hanson, 2006). Those researchers state:

> Condition Class, was not effective in identifying locations of high-severity fire. … In short, Condition Class identified nearly all forests as being at high risk of burning with a dramatic increase in fire severity compared to past fires. Instead, we found that the forests under investigation were at low risk for burning at high-severity, especially when both spatial and temporal patterns of fire are considered.

Another critique is from Rhodes (2007):

> Several of the biases …are embodied in the Fire Regime Condition Class (FRCC) approach (Hann and Bunell, 2001), which is widely used to provide an index of the potential for uncharacteristically severe fire and fire regime alteration. The FRCC relies on of estimates of mean fire intervals, but does not require that they be estimated on the basis of site-

> specific historical data. It emphasizes fire scar data, but does not require its collection and analysis on a site-specific basis. The FRCC's analysis of departure from natural fire regimes also relies on estimates of how many estimated mean fire intervals may have been skipped. The method does not require identification and consideration of fire-free intervals in site-specific historic record. Notably, a recent study that examined the correlation of FRCC estimates of likely fire behavior with actual fire behavior in several large fires recently burning the Sierra Nevada in California concluded: "[Fire Regime] Condition Class was not able to predict patterns of high-severity fire. . . . Condition Class identified nearly all forests as being at high risk of burning with a dramatic increase in fire severity compared to past fires. Instead, we found that the forests under investigation were at low risk for burning at high-severity, especially when both spatial and temporal patterns of fire are considered." (Odion and Hanson, 2006.) These results corroborate that FRCC is biased toward overestimating the alteration of fire regimes and the likelihood of areas burning at uncharacteristically high severity if affected by fire. Therefore, in aggregate there is medium degree of certainty that the FRCC is biased toward overestimating departures from natural fire regimes and the propensity of forests to burn at higher severity when affected by fire.

A Phys Org online article poses the question: "Nature effectively 'managed' forests through millennia of major climate changes and episodes of natural disturbances (e.g., wildfires, droughts, bark-beetle outbreaks), so why would nature not now be best able to restore and adapt forests to climate change?" Baker et al. (2023b) set out to study the feasibility of a "Nature-based Solution" (NbS) for better restoring dry forests to climate change, and what is needed to protect the built environment so an NbS is feasible and more broadly acceptable. These dry forests "are characterized by ponderosa pine (Pinus ponderosa) and dry mixed-conifer forests (ponderosa and/or P. jeffreyi plus other trees) that cover ~25.5 million ha of the western USA." They describe a social problem that results in ecological problems:

> (A)gency scientists, collaborators, and land managers often still favor large programs to expand fuel-reduction management to reduce fire severity and fire extent in dry forests. Similar efforts have also long been expended to attempt to halt or prevent bark-beetle outbreaks, using pesticides, thinning, and reducing basal area to low levels. These are command-and-control approaches that, in general, seek to constrain natural variability to provide predictable short-term products and services. Command-and-control approaches can be considered to represent a common, but failing, hypothesis about how to manage natural disturbances in ecosystems.
>
> Command-and-control approaches often create future problems, as Holling and Meffe …explained: "If natural levels of variation in system behavior are reduced through command-and-control, then **the system becomes less resilient to external perturbations, resulting in crises and surprises.** We provide several examples of this pathology in management."

(Emphasis added.) Another frequently invoked FS bogeyman is the effect of fire suppression, especially as pertaining to the drier forest types in western Montana. This bogeyman has also largely been debunked. Baker, 2015, states: "Programs to generally reduce fire severity in dry

forests are not supported and have significant adverse ecological impacts, including reducing habitat for native species dependent on early-successional burned patches and decreasing landscape heterogeneity that confers resilience to climatic change. …Dry forests were historically renewed, and will continue to be renewed, by sudden, dramatic, high-intensity fires after centuries of stability and lower-intensity fires." Also, "The evidence presented here shows that efforts to generally lower fire severity in dry forests for ecological restoration are not supported." (Id.)

It makes no scientific sense to replace dense conifer forests with clearcuts and densely packed little trees in the name of reducing severe fire behavior. Atchley et al., 2021 note that heavier fuels actually slow fire spread. They also state:

> Wind entrainment associated with large, sparse canopy patches resulted in both mean and localised wind speeds and faster fire spread. Furthermore, the turbulent wind conditions in large openings resulted in a disproportional increase in TKE [Turbulence Kinetic Energy] and crosswinds that maintain fire line width.

Good graphics can be found on the interagency "Living with Fire" publications, which span many regions. On page 4 one provides the graphics showing that an open pine forest can burn at 150 acres per hour while dense conifer forest can burn at 15 acres per hour with 20 mph wind speeds. A second version of "Living with Fire" includes an additional graphic showing "dense confer reproduction" can burn at 650 acres per hour with 20 mph winds, second only to grass and brush fires.

We incorporate the folder "Wildfire Resilient Homes" which contains contents from "The nine-part Wildfire Research Fact Sheet Series … produced by the National Fire Protection Association (NFPA)'s Firewise USA® program, as part of the NFPA/USDA Forest Service cooperative agreement and with research provided by the Insurance Institute for Business and Home Safety (IBHS)."

Hutto (2008) states:

> (C)onsider the question of whether forests outside the dry ponderosa pine system are really in need of "restoration." While stem densities and fuel loads may be much greater today than a century ago, those patterns are perhaps as much of a reflection of human activity in the recent past (e.g., timber harvesting) as they are a reflection of historical conditions (Shinneman and Baker 1997). Without embracing and evolutionary perspective, we run the risk of creating restoration targets that do not mimic evolutionarily meaningful historical conditions, and that bear little resemblance to the conditions needed to maintain populations of native species, as mandated by law (e.g., National Forest Management Act of 1976).

We believe the FEIS oversells the ability of land managers to make conditions safe for landowners and firefighters. This could lead to landowner complacency—thereby increasing rather that decreasing risk. Many likely fire scenarios involve weather conditions when firefighters can't react quickly enough, or when it's too unsafe to attempt suppression. With

climate change, this will occur more frequently. Other likely scenarios include situations where firefighting might be feasible but resources are stretched thin because of higher priorities elsewhere.

LMP direction for "salvage" of post-fire habitat is misguided

The LMP includes three elements that specifically allow or facilitate logging as if fire is a call to quickly log the post-fire forest and there's nothing to be ecologically concerned about (see FW-STD-TBR-12, FW-GDL-TBR-01, FW-GDL-TBR-04). The definition of "salvage" denotes saving something from going to waste. For the FS to consider trees killed or otherwise affected, directly or indirectly, by the natural process of wildland fire—a process that is vital in sustaining the ecosystem and its interwoven components—to be "wasted" if allowed to play out their ecological roles as dead trees is contradicts 2012 Planning Rule direction for ecological sustainability. The entire notion of "salvage" as it pertains to forest management is propaganda—a way to mislead the public into accepting ecosystem damage under the guise of stewardship. The philosophy underlying "salvage" is hostile towards the naturally functioning ecosystem's propensity to recover on its own.

We are submitting as part of this Objection an Annotated Bibliography of Literature on the Ecological Benefits of Fire and the Damage Cause by Post-Fire Logging. As seen in the Annotated Bibliography, fires—including severe fires—are nature's means of renewal and are a sign of ecosystem resiliency.

Also see the October 30, 2013 Open Letter to Members of Congress from 250 Scientists Concerned about Post-fire Logging.

SOIL ECOLOGY

"The social lesson of soil waste is that no man has the right to destroy soil… The soil requires a duty of man which we have been slow to recognize." [U.S. Dept. of Agriculture, 1957 Yearbook (quoting 1938 yearbook), p. vii.]

FOC et al. comments on the draft revised forest plan/DEIS included an extensive, detailed critique regarding soils beginning on p. 76. Much of that criticism is based on scientific information cited. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why our interpretations of the science is incorrect, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between EIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

The Importance of Soil

"Soil is a critical component to nearly every ecosystem in the world, sustaining life in a variety of ways—from production of biomass to filtering, buffering and transformation of water and nutrients." (Lacy, 2001.) Over twenty years ago, Lacy examined laws and regulations relating to

soil and public lands, and concluded there is a failure of regulatory mechanisms to adequately address soils. "Countless activities, including livestock grazing, recreation, road building, logging, and mining, degrade soils on public lands. …(T)he lack of a public lands soil law leaves the soil resource under-protected and exposed to significant harm, and emasculates the environmental protections afforded to other natural resources." (Lacy, 2001.) The LMP exemplifies Lacy's concerns, as we discuss in this section.

The FEIS recognizes the importance of soil:

> Soil is the primary medium for regulating the movement and storage of energy and water and for regulating cycles and availability of plant nutrients (Quigley et al. 1996). Soils have biological, chemical, and physical properties that are fundamental to the productivity of forest ecosystems and play an integral role in the hydrological behavior of watersheds (Neary et al. 1999). Other resource values, such as water quality and quantity, wildlife habitat, and biomass production are often dependent on and closely related to properly functioning and productive soils. Soils also provide a variety of ecosystem services, such as providing physical support, sequestering carbon, storing and regulating water, cycling nutrients, regulating temperatures, decomposing and filtering waste and toxins, and supporting life (Dominati et al. 2010). **It can take hundreds to thousands of years for a soil to develop; therefore, protecting and restoring the soil resource is critical to sustaining ecological processes and functions so that desired ecosystem services are provided in perpetuity.**

(Emphasis added.) Guerra et al. (2021) sum up the critical importance of soil for earth's biological diversity: "Soils not only are a main repository of terrestrial biodiversity, harboring roughly one-quarter of all species on Earth, but also provide a wide variety of functions (e.g., nutrient cycling, waste decomposition) and benefits (e.g., climate regulation, pathogen resistance); they regulate the diversity and functioning of aboveground systems, including their contributions to human well-being."

The United States Department of Agriculture (USDA) Natural Resources Conservation Service website lists a couple definitions of soil. One is: "The unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants." A second is more detailed:

> Soil is a natural body comprised of solids (minerals and organic matter), liquid, and gases that occurs on the land surface, occupies space, and is characterized by one or both of the following: horizons, or layers, that are distinguishable from the initial material as a result of additions, losses, transfers, and transformations of energy and matter or the ability to support rooted plants in a natural environment.

Healthy soil is fundamental to the productivity of forest ecosystems and regulation of hydrological cycles (USDA Forest Service, 2019g). If soil is not intact and ecologically functioning, most other natural resource values suffer the consequences. USDA Forest Service (2019g) states:

> Soil is the primary medium for regulating the movement and storage of energy and water and for regulating cycles and availability of plant nutrients (Quigley, Haynes, & Graham, 1996). **Soils have biological, chemical, and physical properties that are fundamental to the productivity of forest ecosystems** and play an integral role in the hydrological behavior of watersheds (Neary, Klopatek, DeBano, & Ffolliott, 1999). Other resource values, such as water quality and quantity, wildlife habitat, and biomass production, are often dependent on and closely related to properly functioning and productive soils.

(Emphasis added.) USDA Forest Service, 2014a explains the potential for management activities to damage soil properties:

> Direct and indirect effects may include **alterations to physical, chemical, and/or biological properties**. Physical properties of concern include structure, density, porosity, infiltration, permeability, water holding capacity, depth to water table, surface horizon thickness, and organic matter size, quantity, and distribution. Chemical properties include changes in nutrient cycling and availability. Biological concerns commonly include abundance, distribution, and productivity of the many plants, animals, microorganisms that live in and on the soil and organic detritus.

The regulatory landscape

The laws and regulations regarding soil on national forests originate from the notion of **land productivity**, as explained by a U.S. Forest Service soil scientist (USDA Forest Service, 2016a):

> Concepts of multiple-use, sustained yield, and maintaining land productivity are embedded throughout the foundational, environmental laws governing how National Forests are to be managed: the Multiple-Use, Sustained-Yield Act of 1960 (P.L. 86-517, 74 Stat. 215: 16 S.S.C. 528-531), Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (16 U.S.C. 1600-1614) and the National Forest Management Act (NFMA) of 1976 (16 U.S.C. 472a). **Without maintaining land productivity, neither multiple use nor sustained (yield) can be supported by our National Forests**. Direct references to maintaining productivity are made in the Sustained Yield Act "…coordinated management of resources without impairment of the productivity of the land" and in the Forest and Rangeland Renewable Resources Act "…substantial and permanent impairment of productivity must be avoided".

(Emphasis added). As that soil scientist recognizes, the National Forest Management Act (NFMA) includes mandates for the Forest Service to "insure …(based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it **will not produce substantial and permanent impairment of the productivity of the land**" and "insure that timber will be harvested from National Forest System lands only where …**soil**, slope, or other watershed conditions **will not be irreversibly damaged**" (emphases added).

NFMA also mandates the agency "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area" and "preserve the diversity of tree

species similar to that existing in the region controlled by the plan." The proper functioning of soil is essential for sustaining the productivity of the land.

NFMA directs that forest plans be written for each national forest and national grassland, however NFMA is not explicit for mandating **how** forest plans are to sustain soil and land productivity. Nor did the Forest Service's original (1982) NFMA implementing regulations require forest plans to include standards for protecting soil productivity, relegating the writing of standards and guidelines instead to later technical handbooks or directives [36 CFR § 219.27(f)]:

> *Soil and water.* **Conservation of soil and water resources** involves the analysis, protection, enhancement, treatment, and evaluation of soil and water resources and their responses under management and **shall be guided by instructions in official technical handbooks.** These handbooks must show specific ways to avoid or mitigate damage, and maintain or enhance productivity on specific sites. These handbooks may be regional in scope or, where feasible, specific to physiographic or climatic provinces.

The 2012 Planning Rule includes direction to conserve soil:

- § 219.2 Levels of planning and responsible officials. (b)(5) The Chief shall: (iii) Establish procedures in the Forest Service Directive System for obtaining inventory data on the various renewable resources, and soil and water.

- § 219.8(a)(2) The plan must include plan components, including standards or guidelines, to maintain or restore: (ii) Soils and soil productivity, including guidance to reduce soil erosion and sedimentation.

- § 219.11(d) (2) Timber harvest would occur only where soil, slope, or other watershed conditions would not be irreversibly damaged; (3) Timber harvest would be carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources.

- A standard is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. …A guideline is a constraint on project and activity decisionmaking that allows for departure from its terms, so long as the purpose of the guideline is met. …Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

Yet the LMP constrains very little in regards to its implementation. Exemplary is FW-STD-SOIL-01: "Land management activities shall be designed and implemented in a manner that maintains soil function and productivity." The LMP does not indicate what "maintains" means, nor does it say how "soil function and productivity" are to be measured. The Monitoring Plan does nothing to address our concerns, and its nature (implementation) is long post hoc anyway.

The FEIS Glossary describes various categories of detrimental soil conditions, which means such soils are suffering somewhat in their "soil function and productivity", but it does not suggest measurements. The LMP also includes no direction for measuring detrimental soil conditions, nor does it establish any meaningful limits on management to avoid measurable detrimental soil conditions. The FEIS mentions two FS policy directives that suggest "soil quality standards" and ways of measuring detrimental soil conditions, yet nothing in the LMP actually adopts them as nondiscretionary direction or limits on management. These two are described in the FEIS:

Policy

> **Forest Service Manual, Chapter 2550 for Soil Management**: directs land managers to "coordinate validation studies of soil quality criteria and indicators with Forest Service Research and Development staff to ensure soil quality measurements are appropriate to protect soil productivity." Six different soil functions are described: soil biology, soil hydrology, nutrient cycling, carbon storage, soil stability and support, and the capacity to filter and buffer environmental contaminants.

Forest Service Manual Northern Region Supplement 2550-2014-1 (U.S. Department of Agriculture 2014o): Regionally, Chapter 2550 was supplemented most recently in 2014 and includes definitions and thresholds for soil monitoring of soil quality related to local conditions. It outlines soil indicators related to disturbance along with thresholds by which disturbance could be severe enough to adversely affect forest growth.

Forest Service Manual Northern Region Supplement 2550-2014-1 states it is the responsibility of Forest Supervisors to:

> a. Ensure that Forest-wide and project-level plans include soil quality standards.
> b. Assess the extent to which soil quality standards are being met and whether they are effective in maintaining or improving soil quality.
> c. Provide training in the application of soil quality standards.
> d. Evaluate the effectiveness of soil quality standards and recommend adjustments to the Regional Forester.
> e. Report monitoring results to the Regional Forester.

Yet nothing in the LMP provides meaningful direction, which means the FS is ignoring this policy in violation of NEPA and NFMA.

Forest Service Manual, Chapter 2550 for Soil Management directs the Washington Office Director of Watershed, Fish, Wildlife, Air, and Rare plants to "coordinate validation studies of soil quality criteria and indicators with Forest Service Research and Development staff to ensure soil quality measurements are appropriate to protect soil productivity." The FEIS doesn't cite these validation studies, which would be considered best available scientific information for forest management and planning purposes. Again, nothing in the LMP provides meaningful direction, which means the FS is ignoring that policy in violation of NEPA and NFMA.

A recent IPNF forest plan monitoring report (USDA Forest Service 2013a) revealed the relatively high frequency of violating the FSM 15% standard. Other units of the national forest

system have monitored DSD with very mixed results (e.g., Reeves et al., 2011). The point is, as weak as the standards are, even FS pledges to meet standards must be taken with a grain of salt.

The FEIS fails to provide any quantitative estimates of existing forestwide reductions of soil productivity due to past management actions. This includes "timber harvest and associated skid trails; landings and temporary roads; fuels reduction activities; landscape prescribed burning; livestock grazing; mining; road and trail construction; wildfire suppression operations; dispersed camping; introduction of invasive plant species; invasive plant treatment; and off-road motor vehicle use" as mentioned in the DEIS. This violates NEPA.

Impacts of noxious weeds on soil productivity

As FOC et al. draft LMP comments stated, "Despite the fact that noxious weed infestation is a significant degradation of soil productivity, the DFP proposes nothing but increased weed infestation and therefore lower soil productivity." The ecological functions of soil organisms in relationship to invasive species is a relatively new direction of scientific inquiry; although not a lot is known, the implications are significant for soil productivity.

The Soil Report prepared for the Custer-Gallatin National Forest draft forest plan and draft EIS admits:

> Another source of soil disturbance prevalent on certain areas of the Custer Gallatin is infestation of lands by noxious weed species. **Weed seed** when it becomes prevalent in surface soil horizons **becomes a biological factor of the soil** that has the potential to **reduce land productivity** and restrict management options. Strong correlations have been found on the Custer Gallatin, especially on certain soil-landscape types, between past soil disturbance and the occurrence of noxious weeds. These **infection sites then become source areas for the spread of noxious weeds** into adjacent, non-disturbed areas. Noxious weed spread can follow disturbance since weeds have opportunistic traits and can exploit disturbed soil conditions (Williamson and Harrisburg 2002; Norton et al. 2007; James et al. 2010) typical of many pioneer species. The expansion of weed infestations into new areas can **alter nutrient regimes and organic carbon levels in the soil** which shifts the competitive balance on a site away from desired native species (Wolf and Klironomos 2005; Steinlein 2013). Management options and **growth potential** are both **reduced** when weed infestations exceed thresholds where restoration becomes difficult, creating new novel plant assemblages (Seastedt et al. 2008). Once a noxious weed becomes a co-dominant species on a site, whether in a grassland area or as a forest understory plant, **changes to the soil and reduced site potential are consistent with the concept of "permanently degraded**" as used in the National Environmental Policy Act (1970) and the National Forest management Act (1976). (Emphases added.)

(Custer-Gallatin National Forest, 2017). The Custer-Gallatin National Forest draft forest plan draft EIS explains the very high correlation between noxious weed infestation and losses of soil productivity:

The relationship between noxious weeds and soils is tightly intertwined. Certain types of soil disturbance (especially disturbance that exposes low quality subsoil or substrate materials or otherwise creates unsuitable surface soil conditions for establishment of native, perennial plants) will almost invariably result in localized noxious weed infestations. These become the infestation sites from which the subsequent spread of noxious weeds to surrounding areas originate in a classic source-sink fashion. In return, the presence of dense noxious weeds populations such as spotted knapweed, Dalmatian toadflax, or Canada thistle at landings, along temporary roads, or on hillsides are often accompanied by evidence of accelerated erosion due to poor ground cover in these areas. The presence of noxious weed seed in the soil, especially at high concentrations, becomes a biological property of the soil. Although this alone would not be considered detrimental soil disturbance in accordance with the 1999 Northern Region supplement, it does reduce soil productivity and at high levels, limits land management options.

Wolfe and Klironomos (2005) "review some of the recent advances made in understanding interactions between soil organisms and exotic plant species in the context of the links between aboveground and belowground communities." They state, "Recent studies have demonstrated that soil organisms play an important role in the invasion of exotic plant species. Soil communities differentially respond to the presence of exotic plant species and can have strong effects on the process of plant invasion." These two figures from the article demonstrates these effects:

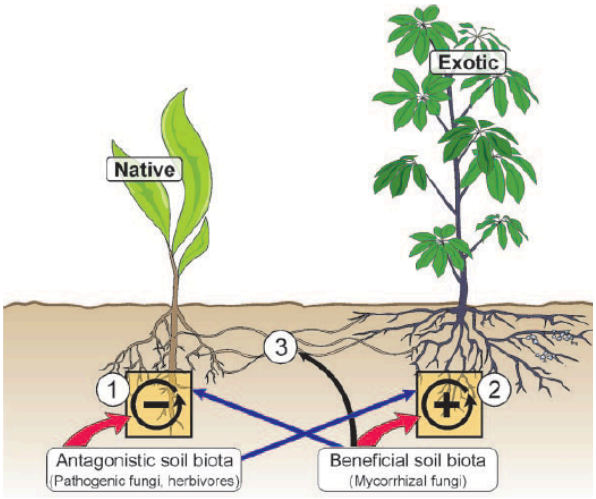


Figure 5. Conceptual diagram illustrating three potential pathways by which soil organisms can differentially affect native plants (on the left) and exotic plants (on the right). (1) Antagonistic soil organisms such as pathogenic fungi and root herbivores can accumulate in the rhizosphere of native plants, leading to negative feedbacks of these species with soil biota. (2) Some exotic plants appear to escape the negative effects of antagonistic soil organisms and may receive benefits from mutualistic soil organisms such as arbuscular mycorrhizal fungi, leading to positive feedbacks between exotic plant and soil biota. (3) Exotic plants may also exploit resources of neighboring plants via hyphal connections among plants. Soil organisms that are not directly associated with roots, such as those involved with detrital food webs, are not represented in this diagram because their role in observed plant feedbacks is currently unknown.

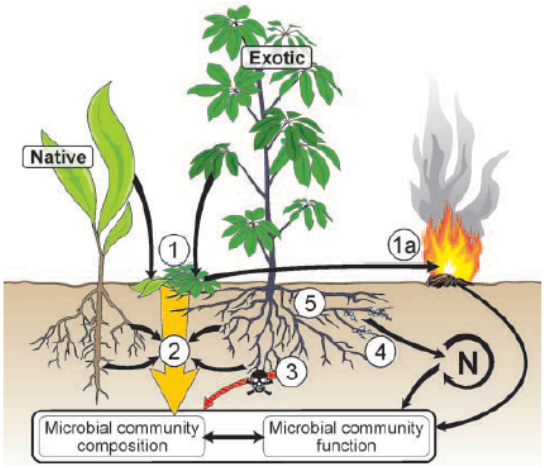


Figure 2. Conceptual diagram illustrating potential pathways by which the displacement of native plant species (plant on left) by exotic plants (taller plant on right) can cause shifts in soil community composition and function. Five direct pathways are illustrated: differences in the quantity or quality of (1) litter production or (2) root exudates, altering resource availability for belowground communities; (3) release of novel chemicals with antimicrobial activities; (4) novel nutrient acquisition strategies such as nitrogen fixation that can alter biogeochemical processes; and (5) differences in the local soil environment induced by changes in root architecture or function. These direct mechanisms may lead to indirect effects, such as changes in disturbance regimes, including fire (1a). The effects of one exotic plant species on soil biota may be manifested by one of these mechanisms or by several mechanisms acting simultaneously.

These scientists note, "In numerous ecosystems, the invasion of exotic plant species has caused major shifts in the composition and function of soil communities. Soil organisms, such as pathogenic or mutualistic fungi, have direct effects on the establishment, growth, and biotic interactions of exotic plants. An integrated understanding of how aboveground and belowground biota interact with exotic plants is necessary to manage and restore communities invaded by exotic plant species." Also, Weidenhamer and Callaway (2010) note:

> Invasive plants have a multitude of impacts on plant communities through their direct and indirect effects on soil chemistry and ecosystem function. For example, plants modify the soil environment through root exudates that affect soil structure, and mobilize and/or chelate nutrients. The long-term impact of litter and root exudates can modify soil nutrient pools, and there is evidence that invasive plant species may alter nutrient cycles differently from native species. …Invasive plants also can exert profound impact on plant communities indirectly through the herbicides used to control them.

Forest Service critiques of its soil policies

Curran et al. (2021) note, "Soil disturbance from harvesting, site preparation or forest health treatments have been shown to cause soil degradation and have increased, decreased or neutral

effects on long-term forest productivity depending on the net effect on growth limiting factors and hydrologic properties (Curran et al. 2005a; Heninger et al. 2002)." Those researchers continue: "Because these various effects can take more than two decades to measure and understand (Morris and Miller 1994; Tan et al. 2009), **soil disturbance** after harvesting and site preparation **is used as a proxy** for the longer-term effects on soil condition, forest productivity and hydrologic function (Curran et al. 2009; Page-Dumroese et al. 2009)." (Emphases added.)

There is much internal controversy over aspects of the FS proxy approach. Page-Dumroese et al., 2000 (scientists in the agency's research branch) recognize the thresholds found in Forest Service directives fail to account for the diversity of soil and site conditions:

> Research information from short- or long-term research studies supporting the applicability of disturbance criteria is often lacking, or is available from a limited number of sites which have relative narrow climatic and soil ranges. …Application of selected USDA Forest Service standards indicate that **blanket threshold variables applied over disparate soils do not adequately account for nutrient distribution within the profile or forest floor depth. These types of guidelines should be continually refined to reflect pre-disturbance conditions and site-specific information.**

(Emphasis added.) FS researchers Miller et al. (2010) state: "…percentage of increase in soil BD[9] is not a reliable indicator of growth impacts **when used across a wide range of climates and soils with different textures, mineralogy, and organic matter contents.** Therefore, a single numerical standard defining detrimental compaction for an entire region is not realistic."

(Emphasis added.) Delving deeper, the validity of utilizing impacts on soil properties (soil disturbance) as a proxy for soil productivity has been questioned. Beginning with the FSH R-1 1994 national directive, the Forest Service noted a weak tie between **soil productivity** and the impacts of management on **soil properties**: "The relationships between management-induced changes in soil properties and productivity are not well documented or understood. Improving our understanding of these relationships will require data-intensive sampling designs, such as permanent growth and yield plots."

USDA Forest Service, 2016a also explores controversy arising from the use of soil quality as a proxy for soil productivity:

> Soil quality is a more recent addition to Forest Service Standards. …Although the fundamental laws that directly govern policies of the U.S. Forest Service clearly indicate that land productivity must be preserved, increasingly **references to land or soil productivity in Forest Service directives were being replaced by references to soil quality as though soil quality was a surrogate for maintaining land productivity. This was unfortunate, since although the two concepts are certainly related, they are not synonymous.**

[9] BD = bulk density, which is one metric used to determine if detrimental soil compaction has resulted from management activities.

> Our understanding of the relationship between soil productivity and soil quality has continued to evolve since 1974. Amendments to the Forest Service Manual, Chapter 2550 – Soil Management in 2009 and again to 2010 have helped provide some degree of clarity on this issue and acknowledged that **the relationship is not as simple as originally thought**. (An) amendment to … the Forest Service Manual …directs the Washington Office Director of Watershed, Fish, Wildlife, Air and Rare plants to "Coordinate validation studies of soil quality criteria and indicators with Forest Service Research and Development staff to ensure soil quality measurements are appropriate to protect soil productivity" …**Inadvertently this directive concedes that the relationship between soil productivity and soil quality is not completely understood.**

(Emphases added.) In their lengthy critique, Miller et al. (2010) state:

> Existing regional numerical standards for soil quality assume a direct linkage between tree performance and detrimentally changed soil properties. Current scientific literature, however, does not support generalizations about the impact of soil-disturbing activities and their practical consequences for tree growth. Results at each location depend on many factors and their interactions.

The controversy extends to the use of specific numerical thresholds such as changes in soil bulk density—which results mostly where heavy logging machinery compacts forest soils. In a timber sale NEPA document. The Nez Perce-Clearwater National Forest's 2015 Johnson Bar FEIS states:

> Defining the threshold at which productivity is detrimentally disturbed is controversial. The rationale for the 15% limit of change in soil bulk density was largely based on the collective judgment of soil researchers, academics, and field practitioners, and the accepted inability to detect changes in productivity less than 15% using current monitoring methods (Powers 1990). Powers (1990) states that the soil quality guidelines are set to detect a decline in potential productivity of at least 15%. This statement does not mean that the Forest Service tolerates productivity declines at this level, but that **it recognizes problems with detection limits.**

(Emphasis added.) This soil compaction detection issue is further explained by former Northern Region soil scientist Nesser (2002): "The 15% standard for increases in bulk density originated as the point at which we could reliably measure significant changes, considering natural variability in bulk density. It may or may not mean that a 15% increase in BD is detrimental. That may depend on the soil and ecosystem in which it is found."

Another critique is expressed in a timber sale NEPA document (USDA Forest Service, 2008b): "The 15% change in aerial (sic) extent realizes that timber harvest and other uses of the land result in some impacts and impairment that are unavoidable. **This limit is based largely on what is physically possible, while achieving other resource management objectives.** (Emphasis added.) In other words, it indicates the directives' numerical limits on detrimental soil disturbance (e.g., nor more than 15% in an "activity area") are based simply on the operational

feasibility of limiting soil damage in the course of carrying out industrial logging—not science relating the impacts to soil or land productivity.

Nesser (2002) expresses this FS conundrum in notes taken during a symposium where he quotes a Research Station soil scientist: "(A)pplying the 15% areal limit for detrimental damage is not correct... . That was never the intent of the 15% limit ...and NFMA does not say that we can create up to 15% detrimental conditions, it says basically that we cannot create significant or permanent impairment, period. How that works out in terms of practicality is the problem."

Miller et al. (2010) question the capability of the Forest Service to conform to the foundational legal mandate to sustain **land productivity**:

> Protecting the productive capacity of soil is a paramount goal of sustainable forest management. To support this goal, controlling or restricting forestry activities that could detrimentally reduce onsite productivity and quality of water for drinking or for aquatic habitat is critical. **Current science and knowledge, however, do not enable us to reliably predict which, where, and when specified forest activities cause "substantial and permanent impairment of the productivity of the land"** (NFMA 1976). Inadequate knowledge limits (1) reliability of prescriptions for activities, practices, and methods; (2) interpreting results of after-activity "effectiveness" monitoring, including severity and areal extent of soil disturbance; (3) developing cost-effective prescriptions for restorative or rehabilitative efforts; and (4) assessing the tradeoffs in risks to soil capacity between activities to reduce fuels and wildfire hazard compared to consequences of wildfire.

(Emphasis added.) Miller et al. (2010) also state:

> …the relation between soil disturbance and long-term tree and stand performance (the variable needed for economic analysis) must be quantified to know the practical consequences of soil compaction.

Miller et al. (2010) conclude:

> (N)ew standards for judging "detrimental" compaction and other types of soil disturbance are needed. …Based on current knowledge and professional experience, we acknowledge current uncertainties and complexity of biological variation and relationships and recommend more research to set realistic thresholds that are clearly and consistently detrimental to plant growth. **Until further validation research has occurred, only classification or description of soil disturbance is justified.** Conversely, general predictions about tree response based simply on such visual classes are not justified.

(Emphasis added.) This calls into the question as to whether the FS can actually preserve long-term land productivity, as NFMA mandates, in the process of applying repeated industrial logging on forest sites.

From the viewpoint of its own experts, FS policy and management directives are not adequate for maintain soil functioning and therefore they do not adequately serve to meet the NFMA

mandate to avoid "impairment of the productivity of the land." Given that the LMP is even less restrictive, more vague in measurement methodology, and fails to respond to the scientific information FOC et al. draft Forest Plan comments presented, we agree with those FS experts.

In sum, FS management direction for sustaining land and soil productivity using specified limits to damage during management activities lacks solid scientific basis, as admitted by agency scientists and specialists. But even setting aside the scientific question, genuine application of its soil policies in the context of management activities requires strong commitments from forest managers to reliable measurement and frequent monitoring. Such commitments are absent from the LMP.

Inherent soil diversity

Although NFMA mandates the agency "provide for diversity of plant and animal communities…" the diversity found in soil is vastly underappreciated in FS management plans and direction. Partly this may be due to the limitation of the words "plant and animal" if a wider, more holistic meaning of "communities" is not emphasized. The importance for soil functions of life forms that are neither plant nor animal—as well as those lesser-known species that are—is discussed below.

Food and Agriculture Organization of the United Nations (FAO et al., 2020) believe, "Soil biodiversity could constitute, if an enabling environment is built, a real nature-based solution to most of the problems humanity is facing today, from the field to the global scale. Therefore efforts to conserve and protect biodiversity should include the vast array of soil organisms that make up more than 25% of the total biodiversity of our planet." And from Harvey et al., 1994 (emphases added):

> Contemporary studies indicate that **soil quite literally resembles a complex living entity**, living and breathing through **a complex mix of interacting organisms-from viruses and bacteria, fungi, nematodes, and arthropods to groundhogs and badgers**. **In concert, these organisms are responsible for developing the most critical properties that underlie basic soil fertility, health, and productivity** (Amaranthus and others 1989, Harvey and others 1987, Jurgensen and others 1990, Molina and Amaranthus 1991, Perry and others 1987). **Biologically driven properties resulting from such complex interactions require time lines from a few to several hundreds of years to develop, and no quick fixes are available if extensive damages occur (Harvey and others 1987)**.
>
> **Microbial Ecology**
> **The variety of organisms residing in forest soils are extensive; all contribute to soil development and function, some in very critical ways** (Amaranthus and others 1989). Although this section concentrates on the microbes (primarily bacteria and fungi), we recognized that **several orders of insects, earthworms, and burrowing mammals make significant and sometimes critical contributions to organic matter decomposition, soil mixing, and microbe propagule movement within many forest soils** (Molina and Amaranthus 1991, Wilson 1987).

> The numbers and biomass of microbes in forest soil can be staggering; for example 10 to 100 million bacteria and actinomycetes, 1000 to 100,000 fungal propagules, and several kilometers of hyphae (fungal strands) can be present in a single gram of soil (Bollen 1974). The biomass related to such numbers is also staggering. Old-growth Douglas-fir forests of the Pacific Northwest can contain 4200 kg/ha dry weight of fungal hyphae and 5400 kg/ha of ectomycorrhizal root tips alone (Fogel and others 1973). Bacterial biomass could equal or exceed fungal biomass, and **the total biomass of an inland cedar/hemlock forest should be very nearly comparable to a coastal Douglas-fir forest. Thus, microbial biomass in eastside forests could easily reach 10,000 kg/ha and are a force to consider in management methods.**
>
> …The ...descriptions of microbial structures and processes suggest that they are likely to provide highly critical conduits for the input and movement of materials within soil and between the soil and the plant. Nitrogen and carbon have been mentioned and are probably the most important. Although the movement and cycling of many others are mediated by microbes, sulfur phosphorus, and iron compounds are important examples.
>
> The relation between forest soil microbes and N (nitrogen) is striking. Virtually all N in eastside forest ecosystems is biologically fixed by microbes... Most forests, particularly in the inland West, are likely to be limited at some time during their development by supplies of plant-available N. Thus, to manage forest growth, we must manage the microbes that add most of the N and that make N available for subsequent plant uptake. (Internal citations omitted.)

FAO et al., 2020 discusses soil diversity:

> The critical importance of soil biodiversity was fully recognized by the World Soil Charter. The first point of the Charter states that "Careful soil management is one essential element of sustainable agriculture and also provides a valuable level for climate regulation and a pathway for safeguarding ecosystem services and biodiversity". Point 8 of the Charter states the following:
>
> > Soils are a key reservoir of global biodiversity, which ranges from microorganisms to flora and fauna. This biodiversity has a fundamental role in supporting soil functions and therefore ecosystem goods and services associated with soils. Therefore it is necessary to maintain soil biodiversity to safeguard these functions.

Thirty years ago, Harvey et al., 1994 asked: "Can individuals (or groups) parasitize one another, that is to say, move nutrients or photosynthate around within a stand to balance temporary shortfalls? Such movement has yet to be widely demonstrated, except in simple microcosms (Read and others 1985), but it seems likely, particularly on highly variable sites that include harsh or infertile environments (Perry and others 1989)." More recent research answers that question with a resounding **yes.** (*E.g.* Simard et al., 2015; Gorzelak et al., 2015.)

Simard et al., 2013 state, "Disrupting network links by reducing diversity of mycorrhizal fungi… can reduce tree seedling survivorship or growth (Simard et al, 1997a; Teste et al., 2009),

ultimately affecting recruitment of old-growth trees that provide habitat for cavity nesting birds and mammals and thus dispersed seed for future generations of trees."

The relationships between soil fungi and plant nutrients was recognized by Amaranthus, Trappe, and Molina (in Perry, et al., 1989a): "(M)ycorrhizal fungus populations may serve as indicators of the health and vigor of other associated beneficial organisms. Mycorrhizae provide a biological substrate for other microbial processes."

The dynamics of this mycorrhizal network extends well beyond an exchange of nutrients, into the essential nature and functioning of the ecosystem itself. The news blog *Return to Now* published an interview with ecologist Suzanne Simard based upon her research. In that blog (*Trees Talk to Each Other in a Language We Can Learn, Ecologist Claims)* Simard states:

> What she discovered was a vast tangled web of hair-like mushroom roots — an information super highway allowing trees to communicate important messages to other members of their species and related species, such that the forest behaves as "a single organism." …(Trees) communicate by sending mysterious chemical and hormonal signals to each other via the mycelium, to determine which trees need more carbon, nitrogen, phosphorus and carbon, and which trees have some to spare, sending the elements back and forth to each other until the entire forest is balanced. "The web is so dense there can be hundreds of kilometers of mycelium under a single foot step," Simard says."

The science magazine *Nautilus* featured Simard in an article, "Never Underestimate the Intelligence of Trees." Therein she states:

> I've come to think that root systems and the mycorrhizal networks that link those systems are designed like neural networks, and behave like neural networks, and a neural network is the seeding of intelligence in our brains. …All networks have links and nodes. In the example of a forest, trees are nodes and fungal linkages are links. Scale-free means that there are a few large nodes and a lot of smaller ones. And that is true in forests in many different ways: You've got a few large trees and then a lot of little trees. A few large patches of old-growth forest, and then more of these smaller patches. This kind of scale-free phenomenon happens across many scales.
>
> I made these discoveries about these networks below ground, how trees can be connected by these fungal networks and communicate. But if you go back to and listen to some of the early teachings of the Coast Salish and the indigenous people along the western coast of North America, they knew that already. It's in the writings and in the oral history. The idea of the mother tree has long been there. The fungal networks, the below-ground networks that keep the whole forest healthy and alive, that's also there. That these plants interact and communicate with each other, that's all there. They used to call the trees the tree people. The strawberries were the strawberry people. Western science shut that down for a while and now we're getting back to it. … I think this work on trees, on how they connect and communicate, people understand it right away. It's wired into us to understand this. And I don't think it's going to be hard for us to relearn it.

Also see the phenomenon documented in the film "Intelligent Trees", in the TED Talk "How trees talk to each other") and in the YouTube video "Mother Tree" embedded within the Suzanne Simard "Trees Communicate" webpage.

Sterkenberg, et al. (2019) investigated the abundance and diversity of ectomycorrhizal (ECM) fungi following varying levels of logging, ranging from clearcutting to 100% retention (control treatment). They explain that ECM fungi "represent a large part of the biodiversity in boreal forests. They depend on carbohydrates from their host trees and are vital for forest production, as uptake of nutrients and water by the trees is mediated by the ECM symbiosis. ECM fungal mycelium forms a basis for soil food webs." The researchers conclude:

> Our results confirm the value of retaining trees in forest management as a measure to maintain ECM fungal biodiversity. There was a clear and positive relationship between the amount of retention trees and ECM fungal species richness as well as the relative abundance of ECM fungi in the total fungal community. Frequent ECM fungi are likely to withstand logging with at least 30% of the trees retained, but at reduced mycelial abundance in the soil. Although **clear-cutting cause ECM fungal communities to be strongly impoverished even with FSC requirements of tree retention met**, the most common species survive harvest. Higher levels of tree retention, that is, in continuous cover forestry, may counteract local extinctions also of less frequent species and thus support efforts to manage for sustained high ECM fungal diversity. **Several rare species, and species predominantly confined to old natural forests, appear to rarely re-establish after clear-cutting** and are hence red-listed. For the survival of these species, **protection of forests with high conservation values and forest management directed towards conservation needs are unequivocally needed**. (Emphases added.)

Since the FS does not acknowledge the critical role mycorrhizal networks play in ecosystems, the LMP does not provide any effective protection for these networks.

Mycorrhizal networks play important roles in mitigating the impacts of climate disruption to forest ecosystems. They facilitate regeneration of migrant species that are better adapted to warmer climates and primed for resistance against insect attacks. (Song et al, 2015.) To achieve these benefits all of the parts and processes of highly interconnected forest ecosystems must be preserved and protected.

Mycorrhizal fungi distribute photosynthetic carbon by connecting the roots of the same or different tree species in a network allowing each to acquire and share resources. Large mature trees become the hubs of the network and younger trees the satellite nodes.

Mycorrhizal networks transmit water, carbon, macronutrients, micronutrients, biochemical signals and allelochemicals from one tree to another, usually from a sufficient tree to a tree in need. This type of source-sink transfer has been associated with improved survivorship, growth and health of the needy recipient trees in the network.

Recognition of kin is also evident between established large hub trees and their seedlings and saplings. Hub trees shuttle their kin more micro-elements and support more robust mycorrhizal

networks providing them with a competitive advantage. However, hub trees also share resources with strangers, suggesting these evolutionary mechanisms exist not just for individual species but also at the community level.

Injury to a tree from defoliation by an insect herbivore or by physically removing foliage results in the transmission of defense signals through the connecting mycorrhizal mycelium to neighboring trees. These neighbors respond with increased defense-gene expression and defense-enzyme activity, resulting in increased pest resistance.

In Douglas-fir, sudden injury to a hub tree not only increases defense enzymes of healthy neighbors but elicits a rapid transfer of photosynthate carbon to a healthy neighbor. This suggest that the exchange of biochemicals between trees elicits meaningful changes in the senders' and receivers' behavior that enables the community to achieve greater stability in the face of a changing climate. (Song et. al. 2015.)

Appendix C is a document on mycology related information and references provided to the Lolo National Forest plan revision team on December 18, 2023 by the Western Montana Mycological Association (WMMA) for consideration during forest plan revision. Among other things, the document cites a series of general technical reports on the role of fungi in forest ecosystems and conservation of various mushrooms, published by the Forest Service Pacific Northwest Research Station. Much of that resulted from the 1993 Pacific Northwest Forest Plan. Appendix D is a portion of FOC's 2023 comments on the Lolo National Forest Draft Assessment, also providing scientific discussions on forests and fungi. We incorporate Appendix C and Appendix D because they also pertains to ecological, economic and social sustainability on the NPCNF.

LIVESTOCK AND GRAZING

Objectors' comments discuss this topic much detail. See, for example, the FOC et al. comments on the draft LMP/EIS in a section beginning on p. 346. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why commenters' concerns and/or interpretations of the scientific information is so incorrect that it was subsequently largely ignored, failed to explain why the authors of those sources made wrong conclusions, failed to explain why the cited science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

The FEIS Fails to Consider A Range of Reasonable Grazing Alternatives despite the Harmful Impacts of Livestock Grazing Admitted in the FEIS

The FEIS fails to consider a range of reasonable alternatives with respect to livestock grazing in the NPCNF. In an EIS, the USFS must study, develop, and describe alternatives to the proposed action, and analyze "reasonable alternatives." 40 U.S.C. § 4332(C)(iii); 40 C.F.R. § 1502.14. "[T]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992) (internal quotation omitted). Under this standard, the FEIS must analyze at least one

alternative in which livestock grazing is reduced as an activity within the multiple-use management scheme for the NPCNF.

Instead, none of the alternatives in the FEIS evaluates substantive changes to the livestock grazing regime in the NPCNF. Rather, the FEIS wholly overlooks the potential for livestock grazing changes to further NPCNF management goals, to protect fish, wildlife, and plant species, and to improve ecological conditions more broadly. As the FEIS concedes: "None of the alternatives close any allotments, change the existing allotment boundaries, convert status, or alter permitted animal unit months (AUMS)." FEIS 1578. Indeed, rather than engage in such analysis, the FEIS abnegates this responsibility as "[a]ll alternatives maintain the current level of animal unit months." FEIS 1610.

The FEIS and consequently the draft Record of Decision (ROD) thus fail to evaluate the effects of no grazing and reduced grazing alternatives even in light of the many negative consequences of livestock grazing that the FEIS recognizes. These harmful impacts include promoting the spread of invasive species, impairing soil function, marring water quality, damaging riparian areas and meadows, injuring wildlife by depriving these species of forage, displacing them, and transmitting diseases to them, promoting the deterioration of cultural and historical resources, and creating conflict with recreational users and otherwise blighting the recreational experience. *See* FEIS 1598-1605. These impacts are not merely hypothetical but have occurred and continue to occur in the NPCNF. For instance, 79 percent of livestock grazing allotment acres fail to meet the "functioning properly" watershed threshold overall, with 83 percent failing to meet this standard on the critical dimension of riparian and wetland vegetation conditions. FEIS 1573, Table 381. 50 percent of streams in allotments are "water quality limited," including impairments that threaten wildlife like temperature and sedimentation as well as those that can cause harm to humans such as *Escherichia coli* (E. coli), and fecal coliform. FEIS 1574.

Numerous studies verify the harmful impacts of livestock grazing recognized by the FEIS. Grazing domestic cattle and sheep has been the leading cause of watershed, stream, and grassland degradation, and in some cases, the outright destruction of these areas. Belsky et al. 1999, Fleischner 1994, Donahue 1999. As a result, some ecologists consider grazing to be "the most insidious and pervasive threat" to grassland biodiversity. Noss and Cooperrider 1994. Grazing adversely affects native reptiles, mammals and songbirds, especially those that nest or forage on or near the ground and may alter bird community composition. Finch et al. 1997, Schulz and Leininger 1991. Grazing also affects some species of small mammals, reptiles and amphibians by altering habitat or insect prey base. Kie et al. 1991. Selective grazing or "highgrading" by stock of the most nutritious plants results in loss of forage for native species, and ultimately decreases the abundance and diversity of native herbivores. Donahue 1999. It is well understood that livestock significantly displace certain native ungulates. Wallace and Krausman 1987. Elk and deer densities can decline by as much as 92 percent in response to the introduction of livestock. Clegg 1994. Carnivore numbers also inevitably decline as prey availability decreases and they are also often eliminated by the government at the request of the livestock industry. Brown 1992, Mech 1995, Robinson et al. 2008.

Livestock further contribute to the invasion and spread of noxious weeds. Livestock graze and trample native plants which clears vegetation and destroys soil crusts. This prepares weed

seedbeds through hoof action. Additionally, livestock transport and disperse seeds on their coats and through their digestive tracks. 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 or become so dense. At the least, these invasive species would not be invading as rapidly, and certainly not over the vast area of western grasslands, shrublands, and woodlands as they are now. Belsky and Gelbard 2000. Livestock grazing corresponds with increased cheatgrass occurrence and prevalence regardless of variation in climate, topography, or community composition. Williamson et al., 2019.

Alteration of fire regimes at a regional scale by cheatgrass has been quantified. (Balch et al., 2013; Bradley, et al., 2018.) The interactions between the invasive grass cheatgrass and fire regimes is a positive feedback system which has led to very extensive infestation in the western US. Wildfire and this flammable grass feed off each other. The plant grows well in areas that have been disturbed, so fire generally results in more cheatgrass, which results in more fire, which again results in more cheatgrass. Livestock grazing corresponds with increased cheatgrass occurrence and prevalence regardless of variation in climate, topography, or community composition (Williamson et al., 2019). The Rim Country 4FRI Draft EIS, U.S. Forest Service R-3, states:

> Cheatgrass invasion of ponderosa pine systems after restoration-based treatments is a burgeoning issue of significant concern (Keeley and McGinnis 2007, McGlone et al. 2009a and b). **Widespread invasion of cheatgrass often shifts invaded ecosystems into irreversible alternate stable states where cheatgrass-mediated fire intervals exclude native understory plants** (Brandt and Rickard 1994, D'Antonio and Vitousek 1992, Brooks et al. 2004).

(Emphasis added.) Microbiotic crusts are key protective components of soil surfaces, in not only arid systems but also in forest understories, acting to stabilize soil surfaces, slow runoff, prevent soil erosion and rilling, exclude weeds and fix nitrogen. Trampling by livestock destroys these vital and protective crusts, exposes soils to erosion and accelerates desertification processes. Anderson et al. 1981, Johansen 1993, Beymer and Klopatek 1992, Belnap 1995. Growing recognition of the importance of cryptobiotic crusts to ecosystem processes has led to more concerns about the impacts of nonnative grazers. Cryptobiotic crusts are delicate symbioses of cyanobacteria, lichens, and mosses that form on the soil's surface. These crusts provide important ecological functions, including increasing organic matter and available phosphorus, increased soil stability, and increased water infiltration. Fleischner 1994. On most semiarid lands, a single footprint will virtually stop nitrogen fixation by cryptobiotic crusts and increase wind and water erosion. Fleischner 1994, Davidson et al. 1996, Donahue 1999.

Livestock further harm water resources in a myriad of ways through their negative effects on water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife. Belsky et al., 1999. The most immediate progress in healing damaged riparian areas is made under rest from livestock grazing. Platts 1991. Studies of larger-sized livestock exclosures confirm that exclusion promotes more rapid recovery of damaged riparian areas. Duff 1977, Belsky et al. 1999.

Moreover, the FEIS does not quantify or estimate the damage and other affects attributable to grazing with respect to soil, riparian habitat, upland vegetation, fire behavior, and forest composition. Neither does the FEIS analyze or disclose the expected annual management or infrastructure maintenance and installation costs paid by taxpayers in order to facilitate the destruction that livestock grazing inflicts on the NPCNF.

Livestock also contribute to climate change and produce a social carbon cost far out of proportion to the fees charged to graze public lands. Kauffman et al. 2022 establish that "domestic livestock . . . influence climate change in three profound ways: (1) they are significant sources of greenhouse gases through enteric fermentation and manure deposition; (2) they defoliate native plants, trample vegetation and soils, and accelerate the spread of exotic species resulting in a shift in landscape function from carbon sinks to sources of greenhouse gases; and (3) they exacerbate the effects of climate change on ecosystems by creating warmer and drier conditions." In a subsequent study, Kauffman et al. 2023 reaffirm that the social costs of carbon—"an estimate of the monetized damages associated with incremental increases in greenhouse gas emissions"—"greatly exceed the economic value of allowing cattle to graze on public lands."

Yet, even in the face of such extensively documented impacts from livestock grazing, the FEIS neglects to consider changes to the level or extent of grazing in the NPCNF. Considering such modifications to the livestock grazing regime in the NPCNF is reasonable, viable, and necessary to a serious evaluation of multiple-use considerations on these public lands. However, the FEIS does not even weigh a change as simple and straightforward as closing vacant allotments in response to this ecological harm. The FEIS does recognize the clear disease threat to native bighorn sheep still posed by domestic sheep that might graze on the vacant Allison-Berg Allotment (which has not been grazed since 2007) and indicates that Musselshell Allotment will be administrative closed in May 2024 to accommodate historical and cultural concerns. FEIS 749, 1567, 1608. But the draft ROD still asserts confusingly that "there is an expectation that grazing will continue in the Allison-Berg allotment" even as the FEIS declares at the same time that "the permit would be terminated." (Draft ROD App. II-102, FEIS 1602.) Regardless, there is no expectation that the "incompatibility" between domestic sheep grazing and native bighorn sheep that the FEIS notes will ever be resolved. FEIS 38. Bighorn sheep disperse widely, and this incompatibility will not go away as long as bighorn persist as a species.

At a minimum, closing the vacant allotments for wildlife use would have zero impact on the contributions of the NPCNF to the local rural area emphasized in the draft ROD. (*See* draft ROD at 2.) As discussed below, grazing is a trivial contribution of the NPCNF to the local economy, and the NPCNF offers only a small fragment of the grazing land available in the broader area. In addition to closing the Allison-Berg and Musselshell Allotments, closing the Mallard Creek, Kirks Fork, East Fork, Elk-Lick Creek, Newsome, Hamby, Blacktail, Florence, and Elk Creek Allotments (as well as Cedar Allotment in May 2024) would at least begin to limit the extent of harm inflicted by livestock grazing on the NPCNF without affecting the minimal economic value of this use.

Overall, given the significant and widespread damage livestock grazing causes in the allotments, firm direction for closing vacant allotments should be a feature of all alternatives. The suitability

of livestock grazing on the Forest requires serious re-evaluation. Ecological sustainability can be facilitated or accomplished by the reduction or removal of livestock grazing. Yet the FEIS does not consider closing vacant allotments or reducing AUMS across the NPCNF, let alone evaluate the benefits of ending grazing on the NPCNF altogether. The failure to consider reasonable and feasible livestock grazing alternatives makes the analysis offered by the FEIS flawed and grossly insufficient for the task it attempts to undertake.

The Grazing Management Regime Set Out in the draft ROD and LMP Rely Upon Assumptions from the FEIS that Are Unsupported by Evidence or Analysis

The FEIS's failure to consider the full, documented impacts of livestock grazing alone invalidates the grazing management regime that the draft ROD and LMP set forth. This infirmity further derives from the unwarranted assumptions upon which the FEIS relies. The FEIS offers "assumptions . . . to determine the degree of impacts of livestock grazing . . . based on previous assessments, professional judgment, and Forest Service rangeland management and planning directives." FEIS 1560. These assumptions cover on-the-ground facts, future actions that will be undertaken by the managers of the NPCNF and permittees, and agency policies. Pivotally, these assumptions lack any basis in the data the FEIS offers or any reference to specific supporting authorities. Rather, these assumptions serve only to provide a veneer of respectability for a decision that merely sanctions status quo management of livestock grazing.

For instance, the FEIS assumes "[c]urrent active and vacant allotments are suitable for livestock grazing," sidestepping entirely the question of whether this use of the land is appropriate ecologically or as part of a larger multiple-use approach to management of the NPCNF. Though the FEIS then asserts that the NPCNF will perform project-level and site-specific analysis on individual grazing allotments, it contradictorily assumes at the same time that "[t]he grazing system in each allotment would remain the same as it is currently." FEIS 1560. Thus the FEIS relies upon the assumption that livestock grazing in the future will continue in the same manner as the present even as the FEIS elsewhere concedes that this system brings with it a host of negative consequences and is damaging the NPCNF in the present, as noted above.

Still, the FEIS then assumes that "[s]ome areas of past resource degradation may be evident because of past grazing practices," excluding the ongoing contributions to that deteriorated state. A further assumption is that future grazing permittees, who may or may not be the same as the current permittees, will engage in the "[a]dditional effort" that "may be necessary to ensure land management plan standards and guidelines are implemented." FEIS 1560. This faith in the future actions of permittees is unwarranted as it is the actions of current permittees under the supervision of the managers of the NPCNF that have caused the overwhelming majority of allotments to come up short of meeting even the current standards.

Overall, rather than setting clear management standards for livestock grazing, these assumptions reflect the larger approach of the FEIS, draft ROD, and LMP of turning future management decisions over to those who should be managed. It also displays that, rather than standardizing management practices across the forest, these "planning" documents instead defer actual planning to ad hoc future actions that increase the likelihood of scattershot, inconsistent land use decisions and management practices that will degrade the land.

The FEIS Exaggerates the Economic Importance of Grazing in the NPCNF to the Local Economy

The FEIS falsely suggests that livestock grazing in the NPCNF is important to the local economy. As section 6.8.3 of the 2014 Assessment acknowledged: "In general, the Forests do not have large grazing programs." 2014 Assessment 6-108. As of that Assessment, livestock grazing accounted for only 90 related jobs and a labor income of 1.383 million dollars and all wildlands grazing (a category not limited to the NPCNF) accounted for no more than 0.3 percent of the total county labor income in any the counties covered by the NPCNF, with even that minor contribution already in decline. 2014 Assessment, 6-76 to 6-77, Table 6-23, 6-112, Table 6-40. By 2023, as reported in the FEIS, the related jobs had declined by more than a third to 56 in any of the alternatives the FEIS actually considered. Labor income had also fallen in absolute terms to 1.197 million in 2016 dollars even without considering any monetary inflation that may have occurred during the intervening years. These totals are mere fractions of the entire employment and labor income attributable to the NPCNF—less than 0.25 percent under any of the scenarios considered—as the FEIS recognizes. FEIS 1766-67, Tables 458 and 459. Indeed, this inconsequential economic activity makes sense as the NPCNF offer only a small part of the total forage base of the local counties—approximately 4 to 6 percent. FEIS 1562. By any measure set forth in the FEIS, livestock grazing in the NPCNF does not make a significant contribution to the local economy.

Yet the FEIS paradoxically maintains that "[l]ivestock grazing, especially for cattle, would continue to be a major component of local economies within the plan area for the foreseeable future." FEIS 1595. Even if that were true for the surrounding area more generally, the FEIS does not and—as the 2014 Assessment indicates—cannot establish that grazing in the NPCNF themselves is a significant economic activity. While the FEIS contends that "[d]emand for grazing on National Forest System lands is expected to remain high," that demand stems from the cheaper grazing fees on the NPCNF ($1.35 per AUM in 2023) versus private lands in Idaho ($19.00 per AUM in 2023) or Idaho State endowment lands ($7.28 per AUM in 2023).[10] Nothing in the FEIS establishes livestock grazing in the NPCNF as a "major" economic activity and certainly not as an activity that offers returns that even begin to justify its negative ecological, cultural, and recreational impacts. Quite simply, livestock grazing in the NPCNF continues because the FS permits it to continue, not due to any meaningful economic need and certainly not in proportion to the nearly 15 percent of the NPCNF that this use presently occupies through active grazing allotments. FEIS 1256.

On the NPCNF and more broadly, the costs of public lands grazing far surpass the revenue brought in by the trivial grazing fees collected by the federal government. Vincent 2019. Glaser et al. 2015 find the cost to U.S. taxpayers of public lands grazing was more than $1 billion from 2005 through 2015. Appropriations for BLM and Forest Service grazing programs have

[10] For the 2023 private rate in Idaho, see United States Department of Agriculture, National Agricultural Statistics Service, "Grazing Fees: Animal Unit Fee, 17 States," available at https://www.nass.usda.gov/Charts_and_Maps/Grazing_Fees/gf_am.php. For the 2023 Idaho Department of Lands (IDL) rate, see Idaho Department of Lands, "2023 Grazing Rate Memo General," https://www.idl.idaho.gov/wp-content/uploads/sites/2/2022/05/2023-Grazing-Rate-Memo-General.pdf.

exceeded grazing receipts by at least $120 million annually since 2002, according to the study. This federal subsidy goes well beyond the direct costs and fees related to grazing programs. There are vast indirect costs of grazing on public lands, including government killing of native carnivores and other wildlife. The FEIS does not analyze or disclose the costs and impacts of the destruction of wildlife species by Wildlife Services at the behest of grazing interests, let alone weigh these costs and impacts, or the others noted above, against the economic benefits of livestock grazing. Simply because something harmful to our public lands has been done in the past or some segment of the population may benefit financially from that harm in the present is not an appropriate reason to perpetuate that harm in the future.

The FEIS Lacks Sufficient Information Regarding the Non-Forested Vegetation Left for Wildlife

The FEIS is unclear about how much, if any, non-forested vegetation is available for use by wildlife without interference by livestock grazing. Non-forested vegetation covers approximately 5 percent of the NPCNF, but the FEIS notes that "[s]pecific information regarding the condition of the non-forest vegetation within the planning area or livestock grazing allotments is limited." FEIS 1571. As grazing uses nearly 15 percent of the forest, and forage includes "grassland vegetation, riparian and meadow vegetation, palatable grass and herbaceous vegetation produced under a timber canopy, and, to a lesser extent, shrub foliage," it is unclear to what extent there might be any non-forested vegetation undisturbed by domestic livestock and its associated human activity that is left for use by wildlife. FEIS 1256, 1571. This lack of clarity, and the dominance of non-forested vegetation by livestock grazing, runs counter to the requirement that "[l]and management plans must provide for multiple use . . . and include coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness." FEIS 1. As written, the FEIS suggests that the LMP will continue to allow livestock grazing to dominate and crowd out other users of this vital component of the NPCNF.

The FEIS Fails to Recognize the Historically Impoverished Ecological State of Even the Grazing Areas It Deems to Be Functioning Properly

The FEIS recognizes the historical damage that livestock grazing has inflicted on the NPCNF but fails to acknowledge that grazing continues to harm even the present diminished state of the grassland and shrubland ecosystems that visitors to the NPCNF witness. The FEIS rightly, even if hesitantly, acknowledges that: "Natural grasslands and persistent shrublands were exploited heavily after European settlement by unregulated livestock grazing. These uses could have affected species' composition and the condition that may persist today. Intensive sheep grazing probably reduced the amount of shrub dominated habitats, which may take decades to recover." FEIS 729. The discussion in the FEIS thus offers an example of shifting baseline syndrome, the "gradual change in the accepted norms for the condition of the natural environment due to lack of past information or lack of experience of past conditions." Soga and Gaston 2018. The NPCNF must recognize that what managers may today see as "good" condition is a diminished environment that has been impoverished by both historical and ongoing grazing. This degraded baseline calls for far greater caution by managers and a lighter touch in terms of permitted use even if grazing intensity has declined from the even more destructive levels of the past.

Livestock Grazing Conclusion

In the final assessment, livestock grazing on the NPCNF offers very little benefit within a multiple-use management approach and profits only a select few individuals and entities. At the same time, livestock grazing prejudices the usage and enjoyment of the NPCNF by other users, visitors, and wildlife far out of proportion to those meager benefits. The analysis in the FEIS fails to recognize this basic fact as it engages in an outcome-determinative review that seeks only to justify the LMP's approval of continued livestock grazing in the future along with the additional harm that use will inflict on the NPCNF. The objections raised here reiterate the issues raised in our prior comments during the planning process and, despite blanket assertions that the NPCNF considered and incorporated public comments, little, if anything, of the substance of the FEIS has changed with respect to livestock grazing from its draft form. *See* FEIS 1557, FEIS App. M 183-91. The review of livestock grazing here specifically builds upon and incorporates the prior comments submitted on this topic on the Draft Environmental Impact Statement (DEIS) and previously, and the FS should consult those comments for additional discussion and authorities supporting the objections made here.

WOLVERINE

Objectors' comments discuss this Threatened species much detail. See, for example, the FOC et al. comments on the draft LMP/EIS in a section beginning on p. 189. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why commenters' interpretations of the scientific information is so incorrect that it was subsequently largely ignored, failed to explain why the authors of those sources made wrong conclusions, failed to explain why the cited science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

We also incorporate the January 22, 2024 comments on the Proposed 4(D) Rule of the Endangered Species Act for the North American Wolverine by Native Ecosystems Council, Alliance for the Wild Rockies and Council on Wildlife and Fish. It is being submitted as Objection Appendix B.

Our comments explained that the draft plan components were insufficient to provide the ecological conditions necessary to conserve wolverine or to maintain a viable population within the plan area for the species. In addition, the supporting analysis failed to adequately demonstrate how the ecosystem plan components in the draft plan actually provide the ecological conditions necessary to conserve wolverine, which was a candidate species at the time of the agency's analysis. Our comments explained that wolverines were proposed for listing under the Endangered Species Act, and on November 30, 2023 the U.S. Fish and Wildlife Service officially added the species as threatened "for the distinct population segment (DPS) of the North American wolverine (Gulo gulo luscus) occurring in the contiguous United States. This rule adds the contiguous U.S. DPS of the North American wolverine to the Federal List of Endangered and Threatened Wildlife." 88 FR 83726. Our comments explained the FS must provide sufficient analysis to demonstrate how the revised plan will conserve the species, accounting for

cumulative effects, which the agency failed to accomplish. With the official listing of wolverine as a threatened species, the FS must revise its analysis to demonstrate how the LMP contributes to the recovery of threatened wolverine. 36 CFR 219.9(b)(1).

Further, our comments explained the agency must provide a science-based plan or strategy to ensure wolverine viability within a geographic area that is large enough to maintain at least the minimum number of reproductive individuals, which the draft plan failed to do. And we explained that the draft plan failed to include sufficient components to identify, protect, maintain, and restore the linkages across national forest boundaries so wolverines and other wide-ranging species found on the NPCNF can function as a part of a viable population.

In response the FS makes a number of assertions:

- "There are numerous plan components in the wildlife and aquatic ecosystems sections of the Land Management Plan that promote the maintenance or restoration of ecological integrity of habitats for fish and wildlife species." FEIS Appendix M at 106;
- "In addition to resource specific examples, the revised plan in its entirety is designed to promote restoration of natural landscapes and natural processes, and plan components that address these issues will cultivate population resilience." *Id.*;
- "Appendix G provides further information on climate change adaptation strategies and identifies plan components from the Land Management Plan that support them." *Id.* at 106-07;
- "The FEIS, Chapter 3.2.9. - Wildlife, provides in-depth analysis of the wildlife resource on the Nez Perce-Clearwater and wildlife relationships to their habitats and ecological conditions on the Forest." *Id.* at 234;
    - "The FEIS used the best available science and cited several studies on impacts to wolverine from winter recreation and motorized and nonmotorized recreation. Figure 89 shows a detailed snowmobile user selection that could impact wolverine habitat." *Id.* at 340
- "The plan includes numerous species-specific components in addition to components that apply to wildlife in general,..." *Id.* at 325;
- "The plan contains several plan components to provide connectivity to meet the requirements of the 2012 planning rule. These include land allocations in the preferred alternative, suitability plan components, coarse filter ecosystem components, and fine filter, species specific plan components." *Id.* at 331;

As we detail below, all of these responses fail to address our comments. Because the NPCNF 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 and recovery. It is critical, therefore, that the FS issue a revised forest plan and supporting analysis that: (a) carefully analyzes and considers how its plan components directly, indirect, and cumulatively impact wolverine on the forest in both the short and long term; and (b) takes 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 LMP proposed under the draft ROD falls short. So too does the agency's analysis of impacts to wolverine.

Therefore we submit the following objection points on the NPCNF Draft ROD 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.

The revised forest plan fails to provide ecological conditions necessary to "contribute to the recovery" of wolverine

The 2012 Planning Rule tasks the Nez Perce-Clearwater National Forests 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 wolverine. 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*. Further, "[i]f the responsible official determines that the plan components required in paragraph (a) are insufficient to provide such ecological conditions, then additional, species-specific plan components, including standards or guidelines, must be included in the plan to provide such ecological conditions in the plan area." *Id.*

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

The FS explains that "[t]he plan includes numerous species-specific components in addition to components that apply to wildlife in general, including:" FW-DC-WL-01, 02 and 03. FEIS Appendix M at 325. The LMP provides no specific wolverine plan components. FEIS at 967. And in analyzing the effects of the various alternatives, the agency explains "a key indicator is the amount of wolverine habitat contained within the various management areas, recommended wilderness areas, roadless rule areas, and areas within the various recreation opportunity spectrum settings that govern the scope of potential disturbance." *Id.* In other words, the Forest Service relies on management area direction to provide the ecological conditions necessary to conserve wolverine, which begs the question of whether or not the management area direction provides sufficient habitat conditions to contribute to their recovery.

To answer the question, it is important to look at how wolverines have fared under the current management direction. Here, the agency discloses that under the existing condition "[t]he majority of the modeled wolverine habitat occurs in designated wilderness areas or in Idaho Roadless Rule areas (Table 231)." *Id.* at 968. Since wolverine have now been designated as a threatened species, it is reasonable to conclude that the existing condition is not sufficient to conserve wolverine or contribute to their recovery. It is also reasonable to expect that the Forest Service would, in the absence of species-specific plan components, expand the amount of wolverine habitat protections to effectively address threats to the species. The Forest Service listed those threats and the corresponding plan components meant to address them, including the following: FW-DC-REC-01, FW-SUIT-ROS-01, MA1-DC-WILD-02, MA1-STD-WILD-01, MA1-SUIT-WILD-10, MA2-SUIT-RWILD-11, MA2-SUIT-IRA-10. (FEIS Appendix C at 79.) The FS explained that "[t]he intended effect of plan components is to reduce the scope or

severity of threats." FEIS at 626. And "[t]he severity of the effects is influenced by the extent to which these disturbances reduce the population or the extent to which it would reduce wolverine habitat." *Id.* at 967. Given wolverines are now a threatened species, we expect the severity of those threats would be not only influenced, but measured, by the extent they resulted in a take of the species as defined by the Endangered Species Act. The FEIS fails to provide such a measure. In fact, the agency discloses that it has no threshold defining the amount of maternal and primary habitat necessary to limit factors that would lead to a take of the species: "Maternal and natal denning habitat with relatively low levels of human development are important, although the thresholds are unknown." In the absence of such thresholds, the Forest Service must maximize habitat protections to the greatest extent possible to comply with the Endangered Species Act and to contribute to the recovery of wolverine as required under the 2012 Planning Rule. However, under its preferred alternative the Forest Service decreased habitat protections and effectively reduced the ecological conditions necessary to contribute to wolverine recovery. For example, the FS discloses that under the No Action Alternative there are 108,243 acres of maternal wolverine habitat in recommended wilderness status, and that under the preferred alternative that number decreases to 83,401 acres representing a 23% reduction. FEIS at 972, Table 233. Similarly, for primary wolverine habitat under the No Action Alternative there are 162,310 acres within recommended wilderness, which is reduced to 140,761 acres under the preferred alternative representing a 13% reduction. Part of the reductions is a result of the arbitrary and capricious recommended wilderness suitability determinations across the forest, and specifically for the Hoodoo roadless area:

> The Preferred Alternative's boundary change included some additions and some subtractions in the Hoodoo. The change resulted in approximately 13,747 acres less primary wolverine habitat and 12,131 fewer acres of maternal habitat within the Hoodoo recommended wilderness area compared to the No Action Alternative.

FEIS at 971. In making this decision, the FS provides the following:

> I have concluded that two areas in particular could be managed for over-snow motorized use while meeting all regulatory obligations for maintaining the diversity of plant and animal communities and the persistence of native species in the plan area. Thus, I have decided to find suitable for winter motorized use a portion of the Hoodoo Roadless Area in the south of Williams Peak near Goat Lake, Williams Lake and Williams Creek and exclude that area from the portion I'm recommending for wilderness designation. Similarly, the area North of the Fish Lake trail was excluded for the same rationale.

Draft ROD at 32. The arbitrary and capricious decision is further exacerbated by the fact that the analysis failed to disclose the amount of habitat protections wolverines would actually need to recover and, as we stated, the existing condition was insufficient to conserve wolverine as they are now listed as a threatened species. As a result of the agency's decisions, the "[f]ormer Hoodoo Recommended wilderness areas would be within Semi-Primitive Motorized settings and would be suitable for winter motorized uses." *Id.* at 973. This despite the fact that "[t]he analysis recognized that the Hoodoo roadless area contributes the most acres of female wolverine habitat – a critical feature to wolverine success. Concluding that the severity of impacts to wolverine are influenced by winter disturbance in portions of the Hoodoo area." FEIS Appendix M: Response to Comments at 235.

Overall, the FS arbitrarily determined that 42% of maternal wolverine habitat would be suitable for winter motorized use, as would 39% of primary wolverine habitat under the preferred alternative. *Id.* at 978, Tables 240 & 241. It is important to note the Forest Service did not provide the amount of acres in each Recreation Opportunity Spectrum (ROS) class for the No Action Alternative so we were unable to compare it with the other alternatives, but Alternative W would have provided the most protection for wolverine habitat at 83% of maternal and primary habitats in a non-motorized ROS setting, though it is still unclear if even this level of protection would be sufficient to effectively contribute to wolverine recovery.

The FS asserts that the plan components provide sufficient ecological integrity necessary to conserve wolverine populations throughout the planning area, which by definition, includes ecosystem composition, structure, function and connectivity. FEIS at 611. Yet, given the reductions in recommended wilderness, the analysis fails to demonstrate how the plan components provide the necessary ecological integrity to conserve wolverines throughout the planning area, let alone how those components contribute to the recovery of the species.

Looking at specific plan components, the FS failed to respond to our comments that desired conditions alone were insufficient to conserve wolverines, and that the revised plan must include clear guidelines and standards to actually achieve those desired conditions. This is particularly true in regards to providing for wolverine connectivity. Our comments explained that the draft plan lacked sufficient plan elements to identify, protect, maintain, and restore the linkages across national forest boundaries so wolverines and other wide-ranging species found on the NPCNF can function as a part of a viable population. The FS response was that the "[t]he FEIS considered maternal, primary, and female dispersal habitat as broken out in Table 230." FEIS Appendix M at 338. Yet, Table 230 of the FEIS displays primary wolverine habitat under the existing condition that falls under MA 1, 2 and 3. The analysis does include a map displaying dispersal habitat throughout the region, but fails to identify any specific linkage areas or provide specific standards and guidelines that would maintain or restore habitat conditions necessary for wolverine connectivity. Rather, the FS explains:

> The LMP contains many plan components emphasizing habitat connectivity for all wildlife including wolverine: FW-DC-WL-09. Wide-ranging species are free to move across and between habitats, allowing for dispersal, migration, genetic interaction, and species recruitment.
>
> MA2-GDL-WL-05. To maintain large areas of unfragmented habitat for wide-ranging species, such as elk and grizzly bear, new motorized trails open to the public should not be authorized in Idaho Roadless Areas unless there are adjacent areas of 5,000 acres without open motorized system routes. This guideline does not apply to:
>
> · Community Protection Zones (CPZs) as defined by the Idaho Roadless Rule.
> · Areas with existing motorized access that are currently less than 5,000 acres.
> · Existing trails that are relocated or reconstructed to mitigate negative impacts to ecological resources.

> FW-GL-TE-01. The Nez Perce-Clearwater works with federal, state, tribal, and private land managers towards an all-lands approach through management and cooperation, including efforts to mitigate threats.

The analysis failed to explain how these guidelines will actually meet the desired condition and provide for wolverine connectivity, especially since the agency states that "the primary threat to wolverines is climate change as a primary threat and trapping as a secondary threat." BA at 405. While the FS has limited ability to address declines in snowpack due to the climate crisis, the agency must account for such declines in its analysis, which it failed to do. Had it done so, then the Forest Service may have been able to identify specific linkage areas to protect, the importance of which is shown in the following explanation:

> New studies in southwestern Canada and the western U.S. have found that wolverine distribution and density are negatively related to road density. In southwestern Canada, consistency of spring snow and road density are the two most important variables correlated with wolverine density (Clevenger 2019, p. 52; Mowat et al. 2020, p. 220). Wolverine population estimates derived from models based on snow and road density predicted that wolverine abundance would be 44% higher without the depressing effect of the road covariate (Clevenger 2019, p. 52; Mowat et al. 2020, p. 220).
> --
> … in southeastern British Columbia, the density of forestry roads that extended into high-elevation wolverine habitat was a strong negative predictor of wolverine distribution in winter, especially for females (Kortello et al. 2019, p. 10). The most likely explanation for this negative relationship is the use of these high-elevation forestry roads by snowmobilers, rather than predator avoidance or trapping pressure (Kortello et al. 2019, p. 10). Other possible explanations are increased trapping access or less abundant food resources near roads (Mowat et al. 2020, p. 224).

Wolverine SSA Addendum, 2023 (2023 SSA) at 31. While the preferred alternative does increase the amount of female wolverine dispersal habitat within winter non-motorized settings, such increases do not automatically equate to providing sufficient conditions for the purposes of connectivity. In other words, the agency fails to explain how areas with winter motorized settings will affect wolverine connectivity, especially as use becomes concentrated due to the anticipated declines in snowpack. Further, even though Idaho does not allow wolverine trapping, and incidental trapping mortalities may be low, it is still important for the LMP to include standards that prohibit trapping wolverine habitat, especially in important linkage areas given the agency's ability to only address non-climate stressors: "These statewide numbers suggest that incidental trapping of wolverine is rare in Idaho. The effects from incidental trapping are largely outside of FS control, except in regard to how access decisions inadvertently facilitate or impede trapping activities." FEIS at 965. Finally, the two guidelines the agency points to in response to our comments fail to actually address our concerns about connectivity, specifically as it relates to road density or rather open motorized route density. Given the exemptions in MA2-GDL-WL-05, the FS should have disclosed where CPZs overlap with wolverine linkage areas, and areas with existing motorized access that are currently less than 5,000 acres. In regards to FW-GL-TE-01, this is so broad and lacks any specific management direction as to be meaningless.

Remedy: The final LMP must declare all maternal and primary wolverine habitat as unsuitable for winter motorized use, and allocate all these areas as ROS primitive or semi-primitive non-motorized, and restore recommended wilderness status to the entirety of the Hoodoo roadless area. Further, the final LMP must identify wolverine linkage areas that the agency must maintain or restore in order to provide for wolverine connectivity, and include plan components, including standards providing for habitat security within these linkages. Finally, the LMP must prohibit trapping within all wolverine habitats.

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

The FEIS 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. In addition to the analysis deficiencies cited above, the following provides further examples, but are by no means exhaustive.

Trapping

As we note, the FS dismisses direct mortality from trapping as being "rare" and outside the agency's control. FEIS at 965. As such the analysis fails to properly account for this threat, a deficiency the agency must address by revising its analysis. Attached herein we provide our comments prepared by the Western Environmental Law Center on the FWS's interim 4(d) rule for wolverine (Docket No. FWS-R6-ES-2023-0216) that expands on the threat trapping poses to wolverine recovery. *See* Exhibit B. Included with these comments is the entire administrative record to which we cite in the letter. S*ee* Exhibit C. Notably, these comments explain there are a number of recent studies on the impacts of wolverine trapping on population viability in Canada (where targeted trapping is allowed and where incidental trapping occurs). These studies demonstrate that the current rate of wolverine trapping in southern Canada is unsustainable and that trapping disproportionately impacts younger wolverines that are most likely to constitute the dispersers that the FWS relies upon to ensure connectivity with the lower-48 population. *See* FWS-0048770–83 (Mowat (2019)); *see also* FWS-0033542–49 (Kukka (2017)). Although the ultimate cause of the lack of connectivity between wolverines in the contiguous United States and wolverines in Canada is not known with certainty, the USFWS previously determined that it may be related to "harvest management in southern Canada." 75 Fed. Reg. at 78,053. These recent findings demonstrate that unsustainable exploitation of wolverines in Canada threatens wolverines in the lower-48 by impeding dispersal of Canadian wolverines across the international border. *Id*. The same is true in the lower 48 States where trapping can undermine wolverine movement and effective migration which is something needed for the long-term viability of the species. An additional concern related to snowmobile use is that motorized access leads to increased trapping pressure (direct or indirect capture) for some furbearers that prefer more mesic habitat conditions generally found at higher elevations or in riparian habitats, such as marten, fisher, lynx, and wolverine. Trapping season for these species is limited to the winter months, and most trappers prefer the relatively easy access to suitable habitat provided by snowmobiles. Wolverine populations in small, isolated mountain ranges can be very susceptible to trapping pressure. Trapping pressure for these species is dramatically reduced if there is less

snowmobile access. The LMP and FEIS fail to properly acknowledge, analyze or address the threats trapping pose.

Climate Crisis Effects

The FS failed to fully account for the serious threat posed by the climate crisis, especially within the context of winter motorized recreation, and its effects on wolverine recovery. The USFWS provides more context and clarification regarding these threats:

> We expect climate change to exacerbate effects from multi-lane roads, backcountry winter recreation, and human development, all of which could then impact genetic diversity and small population dynamics. 88 FR 83749
> --
> In the 2023 wolverine SSA report addendum, we provide an updated assessment of the effects of winter recreation based on new studies. Research indicates winter recreation is negatively associated with North American wolverine habitat use, and that winter recreation is likely to increase and become more concentrated in the future as snow-covered areas decline due to climate change (Heinemeyer et al. 2019, p. 1). A large multi-State analysis of winter recreation impacts in the Northern Rocky Mountains was published in 2019, indicating greater concern for impacts to wolverines than we found in 2018 and showing a negative functional response to the level of recreation exposure within their home ranges (Heinemeyer et al. 2019a, pp. 13–14, 17–18). Additionally, new research found an incremental loss of wolverines in portions of central Idaho where winter recreation impacts are increasing (Mack and Hagan 2022, p. 13). Furthermore, forest roads used by snowmobilers in the Canadian Rockies were found to have a strong negative correlation with wolverine distribution (Kortello et al. 2019, p. 10). Wolverine detection probability in protected and nonprotected habitat of southwestern Canada was found to be strongly and negatively correlated with nonmotorized recreation in summer and winter (Barrueto et al. 2022, p. 5).

88 FR 83729. In comparing the updated wolverine species status assessment with the preferred alternative, it is apparent that the FS understands the importance of the issue explaining:

> While the agency has no authority over climate change, climate change can interact with Forest Service activities to exasperate effects of climate change on wolverines. For example, climate change could interact with winter recreation potentially concentrating winter recreation activities into a smaller intensified areas that would be increasingly important to wolverines in the future.

FEIS at 966-7. Moreso, the FS acknowledges the USFWS's findings in the 2023 SSA by noting:

> Core wolverine habitats are projected to become smaller and more fragmented in the future as the result of climate change and human disturbance because climate change is projected to shrink wolverine habitat, increased backcountry winter recreation is likely in shrinking core habitats and human developments could reduce connectivity.

FEIS at 950. Yet, the analysis does not account for shrinking wolverine habitat or concentration of uses or adjust the habitat models to include the scarcity of snowpack over the life of the LMP. Specifically, the agency explains that its analysis utilized models "based on a resource selection function developed with wolverine telemetry locations from 2001 to 2010 in the Greater Yellowstone Ecosystem of Montana, Idaho, and Wyoming (Inman et al. 2012b). Inman (2013) models are used in this analysis." Certainly, the model provides important information about the likely wolverine habitats at the time of the study, but it does not account for current or projected declines in snowpack due to the climate crisis, and as such, the Forest Service must adjust the model results or provide an alternative method to account for such declines. The FS need not go far to find an alternative method as the FWS provided snowpack and snow cover projections in its 2023 SSA, explaining:

> Snow projections were performed over five modeling domains in the U.S. Rocky Mountain and Cascades ranges by researchers at the University of Colorado, University of Maryland, and NASA Goddard Space Flight Center (collectively) at the request of the USFWS. These modeling domains were selected to overlap with occupied and potential wolverine habitat in the contiguous U.S. across latitudinal, longitudinal, and elevation gradients.

2023 SSA at 49. The FS must integrate these model results with its analysis on available wolverine habitat in order to better understand how the LMP will affect wolverine recovery, the importance of which the USFWS explains:

> Wolverine habitat in the contiguous U.S. is projected to decrease in areas that were modeled and become more fragmented because of climate changes that result in increasing temperatures, earlier spring snowmelt, and loss of deep, persistent spring snowpack, primarily at lower elevations (see Climate Change Effects section above). Winter recreation, which has been shown to negatively influence wolverine behavior, in these diminished habitats may increase as human populations increase (U.S. Forest Service 2016, pp. 12–13, 12–14). In addition, snow-dependent recreation that was formerly distributed over a wider elevation gradient will be constrained to that part of the gradient that contains quality snow into the future.

(2023 SSA at 64.)

Habitat Loss

The FS correctly recognized that "Heinemeyer et al. (2019) suggested stronger negative responses to winter recreation than previous publications suggested," and acknowledged that "Female wolverines exhibited a stronger avoidance of off-road motorized recreation and experienced higher indirect habitat loss than male wolverines." FEIS at 961. Yet, the analysis fails to account for how these harmful effects will be exacerbated by concentrated over-snow vehicle use resulting from anticipated decreased snow depths as we explained above. Areas illustrated in the analysis showing where snowmobile use is likely to occur will undoubtedly shift over the life of the plan, a factor the FS did not sufficiently account for in its analysis, even though the agency states "Potential for backcountry winter recreation to affect wolverines may increase under climate change if the reduced snowpack concentrates winter recreationists and

wolverines in the remaining areas of persistent snow cover." *Id.* Rather than further explore this likely harmful effect, the FS instead downplays the actual impacts from OSV use stating that "Actual use by winter recreation or winter motorized users is likely less than where it is allowed because of vegetation characteristics, slope, terrain, and access from passable roads in the winter." *Id.* at 962. However, the FS provides no evidence or analysis that demonstrates these features in fact limit OSV use, a glaring omission given the capabilities of current OSVs, including snow bikes that can traverse dense vegetation. Rather, the FS explains that it created a model based on one developed for snowmobile use in Colorado per Olson et al. 2017: "the Rocky Mountain Research Station modeled the probability of use on the Nez Perce-Clearwater, using similar methods used by Olson et al. (2017)." *Id.* at 962. However, "these models were developed for snowmobiles and backcountry skiing but do not predict winter motorized use on machines like snow bikes." *Id.* at 964. In addition, "[t]he model does not predict use intensity or actual use in the plan area. It only predicts where people might want to go based on the model parameters." *Id.* And finally, that FS states the following:

> It should be noted that, in Colorado, the model was validated statistically with GPS snow tracks of actual use. The validation of Nez Perce-Clearwater models used expert opinion and polygons provided by the user groups that were delineated onto maps and then transferred to an electronic format.

(Id.) In other words, the model used by the FS in the FEIS was not statistically valid, and it may be skewed to favor the preferences of the snowmobile community and expert opinion, thus inserting a high degree of arbitrariness. Fortunately, the agency explained it used other sources of information to evaluate the potential effects of the plan and alternatives, but clearly the flawed model greatly informed the agency's analysis. Further, the model does not account for increased OSV use: "[i]n areas open to motorized over-snow vehicle use, the amount of use has likely increased over the last few decades due to technical advances in motorized over-snow vehicles and human population growth though this has not been quantified nor have the effects to wolverine." *Id.* In other words, the FS has not sufficiently analyzed the loss of winter wolverine habitat from current or projected OSV use, or the potential impacts to wolverine food availability or cover. This omission becomes particularly problematic in the transition zones where a model utilized in Aubry et al. 2023 found that "wolverines are restricted primarily to the transitional zone between treeline, below which environmental conditions become too warm, and upper elevations of permanent ice and snow where there is insufficient food and cover to support wolverines (Aubry et al. 2023, pp. 13–14)." 2023 SSA at 18. Further, "[t]here is growing evidence that wolverines rely on subnivean space (the environment between snow and terrain) for thermoregulation, to escape predation risk, and/or to cache food (van der Veen et al. 2020, pp. 8–10; Fisher et al. 2022, p. 10)." 88 FR 83748. The FS did not account for the loss or shifting of transition zones or subnivean spaces in its analysis, nor did it account for OSV use within these areas. In fact, essential sources of wolverine prey reside within the subnivean space. Small mammals that remain active during the winter depend on the insulated space between the snowpack and the ground – the subnivean zone – for winter survival. When snow compaction from snowmobiles occurs, subnivean temperatures decrease, which can lead to increased metabolic rates in these small mammal species, such as voles, shrews, and mice. For example, if the subnivean air space is cooled by as little as 3 degrees Celsius, the metabolic demands of small mammals living in the space would increase by about 25 calories per hour. Through controlled experiments, researchers have demonstrated that compaction due to snowmobile use

reduced rodent and shrew use of subnivean habitats to near zero – a decline attributed to direct mortality, not outmigration. Elsewhere, scientists have documented a decline in small mammals following snowmobile activity that compressed the subnivean zone. Because small mammals make up the majority of prey for many species, from raptors to mesocarnivores, habitat changes that affect subnivean populations could cascade through the food chain. The Forest Service failed to address this important issue in its analysis.

Use of Best Available Science

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

Even if the FS analyses were enough to satisfy NEPA's hard look mandate (which it is not), the agency still must now account for any take of wolverine as defined in the ESA. Factors affecting the wolverine's continued existence include projected decrease and fragmentation of wolverine habitat and range due to climate change, lack of secure habitat allowing for connectivity, trapping, lack of regulatory mechanisms to address the threats to wolverine habitat from climate change, and loss of genetic diversity due to small population size. A recent study expands on these threats explaining:

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

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

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

As noted, researchers have reported that female wolverines may be sensitive to human disturbance in the vicinity of natal and maternal dens, and disturbance from foot and snowmobile traffic has been purported to cause maternal females to abandon or move dens. One study found that females tended to avoid areas with heli-skiing and backcountry skiing areas. Another study found that motorized recreation occurred at higher intensity across a larger footprint than non-motorized recreation in most wolverine home ranges. Female wolverines exhibited stronger avoidance of off-road motorized recreation and experienced higher indirect habitat loss than male wolverines. High-cirque snowmobile use, especially cross-country use and "high marking," may present a substantial threat to wolverines and their habitat.

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

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

Cumulative Effects

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 Forest Service "must do more than just catalog relevant past projects in the area." *Id.* It must give a "sufficiently detailed catalog 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 cursory overviews of potential cumulative effects to wolverine as the agency did here. FEIS at 989-91.

Indeed, nowhere in the FEIS does the FS actually provide sufficient analysis of the combined or cumulative effects to wolverine. The FS also incorrectly assumes that the impacts are minimal because areas of mapped wolverine habitat on the forest are already in wilderness areas, IRAs, or in a non-motorized status. Notably, as wolverines lose habitat to the effects of climate change, wolverine and motorized winter recreationists will be forced to share smaller and smaller habitat patches. Heinemeyer (2019). Decreasing areas with sufficient snow will amplify the effect of motorized winter recreation on wolverine due to the fact that motorized winter recreation will be concentrated in smaller areas on the NPCNF. Protected areas in the proposed action may not necessarily provide for all of the wolverine's life history requirements.

Remedy: Re-write the EIS to a hard look at the direct, indirect, and cumulative effects of winter recreation, climate crisis effects, trapping, concentrated uses, and loss of habitat on wolverine habitats.

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

Pursuant to the Service's 2012 planning rule, the FS 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 NPCNF 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).

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

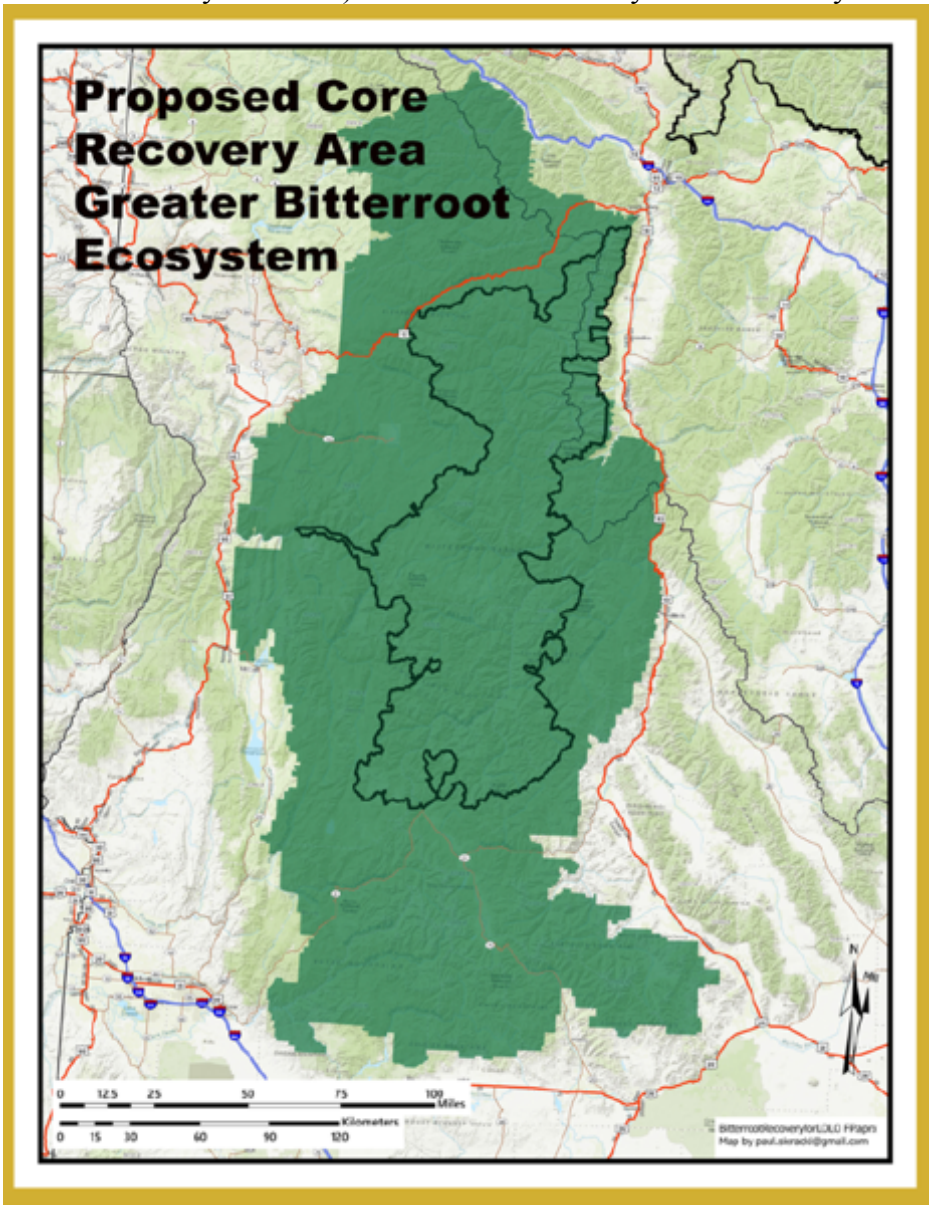
GRIZZLY BEAR

We raised issues pertinent to the threatened grizzly bear in previous comments. (E.g., pp. 193 - 209 of FOC et al. draft Forest Plan/DEIS comments; pp. 1 - 4 of Flathead-Lolo-Bitterroot Citizen Task Force draft Forest Plan/DEIS comments; March 11, 2021 FOC et al. letter to the Forest Supervisor with new information regarding recent observations of grizzly bears in the NPCNF and/or adjacent areas.) We incorporate those comments within our objection, and provide the following additional discussion.

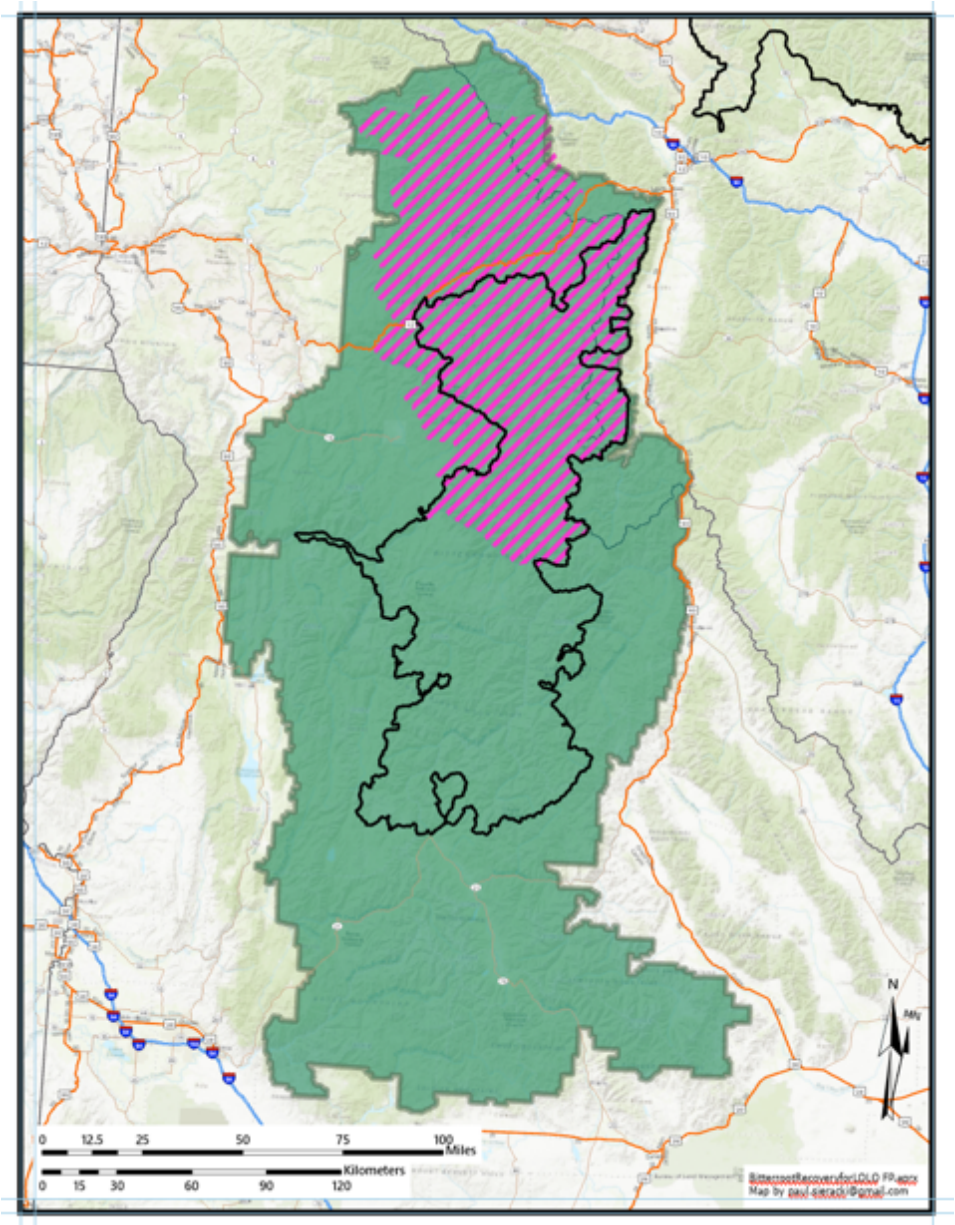
Grizzly bears once ranged throughout most of western North America, from the high Arctic to the Sierra Madre Occidental of Mexico, and from the coast of California across most of the Great Plains. Prior to European settlement, scientists believed that approximately 50,000 grizzly bears occupied the western United States between Canada and Mexico. With European settlement of the American West and a federally funded bounty program aimed at eradication, grizzly bears were shot, trapped, and poisoned, reducing the population to just 2 percent of their historic range. As a result of its precipitous decline, The U.S. Fish and Wildlife Service (USFWS) listed the grizzly bear as a "Threatened" species in the lower 48 states under the Endangered Species Act in 1975. Today scientists estimate there are approximately 2,000 grizzly bears left in the lower 48 states, occupying five isolated populations.

We note the confusion and ambiguity surrounding the terms "Recovery Zone", "Bitterroot Recovery Area" and "Bitterroot Ecosystem" as used by the FS in the LMP, FEIS, the LMP Biological Assessment, and by other agencies in other analyses and studies relevant to the great bear and it's habitat range that includes the NPCNF. The LMP, FEIS and Biological Assessment refer to the "Bitterroot Recovery Zone" or "Recovery Zone" (RZ) which "consists of the entirety of the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas plus limited areas outside of wilderness like the Magruder Road…" (FEIS). The FEIS also refers to a "greater area identified in the recovery plan …referred to in this document as the Bitterroot Ecosystem" which it says was delineated in the 2000 Recovery Plan. Yet it also acknowledges "The Bitterroot Ecosystem was never delineated explicitly." In this Objection we advocate for a larger Bitterroot Ecosystem, to include biophysically suitable grizzly bear habitats beyond the

Recovery Zone to be more scientifically consistent with the ecology of grizzly bears as a better conceptualization of the "Bitterroot Ecosystem" (BE). Example BE boundaries include as suggested by Bader and Sieracki, 2024 (see below, which is identical to that in Alternative 4 in the 2000 Grizzly Bear EIS). The LMP's Recovery Zone boundary is shown in black:



Next we show the same boundaries with the boundaries from FEIS Alternative 2 (Natural Recovery) from the 2000 Recovery Plan displayed in diagonal. That FEIS Alternative 2 area was identical to the Recovery Area in the 1993 Grizzly Bear Recovery Plan.



Next we show the map of "Recovery Zone and Linkage Corridor for Alternative 4 - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the SA and Habitat Restoration" from the 2000 Recovery Plan:

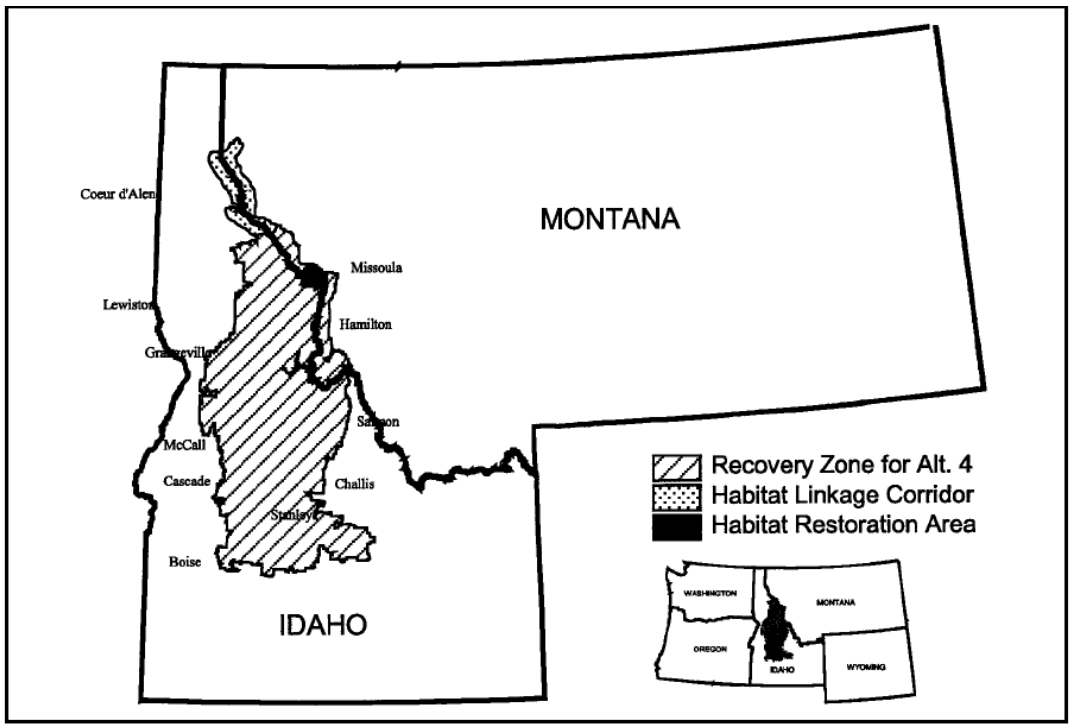


Figure S-5. Bitterroot Grizzly Bear Recovery Zone and Linkage Corridor for Alternative 4 - *Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration.*

Sells et al. (2023) is another example of BE delineation uncertainty, conceptualizing the boundaries: "The BE recovery zone boundary was a combination of the recovery zone boundaries identified in alternatives 1 (reintroduction) and 2 (natural recolonization) of the reintroduction plan for the BE (USFWS, 2000)." Below is a partial snip of their Figure 1:

Scientists have long recognized reoccupation of the BE is required for long-term recovery of grizzly bears in the Northern Rockies. Its importance for the recovery of the grizzly bear was recognized at least as far back as the 1982 Draft Recovery Plan, which expressed a vision for expanding the overall range of the grizzly because their seeming to be doing well in two populated areas then wasn't considered true ecological recovery. It emphasized the need to determine the space and habitat necessary to support a viable population of grizzly bears in the Bitterroot Ecosystem among other proposed recovery areas. Similarly, while the USFWS's 2022 Species Status Assessment (SSA) for the Grizzly Bear in the Lower-48 States finds that the grizzly bear population in the lower 48 states is likely to become in danger of extinction within the foreseeable future throughout all of its range, it also notes that "viability for the grizzly bear in the lower-48 States as a whole only increases under …future scenarios, which rely on increases in conservation efforts such that the [BE] and North Cascades support resilient populations." In other words, true recovery of the Threatened grizzly population won't happen without recovery of a robust population in the BE.

Since the LMP does not include "species-specific plan components, including standards or guidelines" for the grizzly bear [Planning Rule at § 219.9(b)(1)] then we must assume the Responsible Official has "determine(d) … the plan components required by paragraph (a) of this section provide the ecological conditions necessary to: contribute to the recovery of" the grizzly bear (Id.) Yet this is arbitrary and capricious because, as the LMP Biological Assessment (BA) concludes, implementing the LMP "is **Likely to Adversely Affect** grizzly bear." Given this "Likely to Adversely Affect" situation the 2012 Planning Rule requires the FS to include in the LMP "species-specific plan components, including standards or guidelines" for the grizzly bear.

Lacking species-specific habitat protection standards and guidelines for the grizzly bear, the LMP does not conform to the 2012 Planning Rule.

Instead, the FEIS "analysis … primarily rests on whether the plan will provide the ecological conditions to **contribute to** recovery of grizzly bears within the recovery zone, (and) evaluates how the Nez Perce-Clearwater provides the ecological conditions **to support** connectivity to the recovery zone including the potential for the establishment of resident grizzly bears outside the recovery zone" (emphases added). The FEIS then takes great pains to distract from the central "Likely to Adversely Affect" situation that LMP implementation would create. In violation of NEPA it fails to analyze an alternative with proven, scientifically-based habitat management standards establishing core habitats and road density standards, implemented to maintain more robust grizzly bear populations than the BE in other recovery areas. Instead of acknowledging that the human-caused adverse conditions comprising the Environmental Baseline in the NPCNF and BE are doing the opposite of "**contribut(ing) to recovery** of grizzly bears within the recovery zone" and the opposite of "**provid(ing) the ecological conditions to support connectivity** to the recovery zone" the FS arbitrarily and capriciously treats the scarcity of grizzly bears in the BE as a rationale for doing nothing to meaningfully improve habitat conditions. The FS takes the position that improved habitat protections are only warranted if grizzly bears somehow succeed in coming decades[11] to finally inhabit and reproduce in the NPCNF and BE to conform to arbitrary agency "occupied" criteria[12] despite some rather formidable impediments to doing so. The FS places the cart squarely before the horse, making it extremely difficult for the latter to move forward.

The LMP is also inconsistent with the 2012 Planning Rule at § 219.8(a)(1) (Ecosystem Integrity):

> The plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity, taking into account: (ii) Contributions of the plan area to ecological conditions within the broader landscape influenced by the plan area. (iii) Conditions in the broader landscape that may influence the sustainability of resources and ecosystems within the plan area.

The LMP fails to provide standards and guidelines that restore the ecological structure, function, and composition represented by a robust population of the grizzly bears. It fails to take into account contributions of the NPCNF to the broader BE and conditions in the BE that influence the sustainability of grizzly bears within the plan area.

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[11] "It is unlikely that female grizzly bears would enter the forest within the life of the plan due to their reluctance to cross major roadways that exist between the plan area and the other recovery zones." (Biological Assessment)

[12] "The U.S. Fish and Wildlife Service considers the Bitterroot Ecosystem to be unoccupied (U.S. Department of the Interior 2021c)." (Biological Assessment) That cite is the 2021 Species Status Assessment, which states, "we view the BE as currently unoccupied as per the definition of a population (two or more reproductive females or one female reproducing during two separate years) of grizzly bears in the Bitterroot Environmental Impact Statement (EIS) (Service 2000, pp. 3-14–3-15)." This ignores the fact that in *Alliance for the Wild Rockies v. Cooley,* the District Court invalidated that EIS.

The FEIS states, “The criteria for a population of grizzly bears were defined in 50 C.F.R. § 17.84(l)…” The FEIS is referring to the Rule establishing the experimental, nonessential population as per the USFWS’s 2000 plan, “Grizzly Bear Recovery in the Bitterroot Ecosystem.” However in *Alliance for the Wild Rockies v. Cooley*, the court cast doubt on the legality of an experimental, nonessential population concept for the BE. The FEIS’s population criteria are arbitrary and capricious.

A major factor obstructing overall grizzly bear recovery is the lack of connectivity between recovery zones due to degraded habitat conditions caused by a variety of human caused factors. The 1982 Draft Recovery Plan recognized that habitat connectivity between populated areas is important: "The necessity of developing or maintaining corridors for inter-isolate dispersal between populations may prove to be very important. ‘...individuals dispersing from adjacent or contiguous habitat can shore up a faltering population’ (Wilcox 1980).” Roads are a factor decreasing connectivity; they increase risk of mortality, change bear behavior, resulting in habitat loss, habitat alteration, habitat displacement, habitat fragmentation, and population fragmentation. (Proctor, et al. 2019; MacHutchon & Proctor 2015.) Roads change wildlife habitat in more extreme and permanent ways than other anthropogenic causes of fragmentation. (Forman & Alexander 1998; Spellerberg 1998.) Roads not only cause striking changes to physical landscapes but also alter the ecosystem’s general function and the patterns of wildlife use within these landscapes. (Reed et al. 1996; Transportation Research Board 1997; Shirvani et al. 2020.) Traffic on roads can create barriers or filters to animal movement and in some cases the leading cause of animal mortality. (Chruszcz et al. 2003; Clevenger & Wierzchowski 2006; Northrup et al. 2012.) Increased human use on new roads, including legal use during project implementation and illegal public use during and after project implementation, increases the potential for mortality including poaching. For these reasons, roads and human activity can negatively impact grizzly bear recovery. (Lamb et al. 2018.) Therefore, Proctor, et al. 2019 conclude:

> Motorized access management would be most beneficial in threatened populations, in areas where roads occur in the highest quality habitats, within and adjacent to identified linkage areas between population units, and in areas that are expected to exceed motorized route thresholds as a result of resource extraction activities.

Management direction under the LMP would further reduce grizzly bear connectivity and thus impede population recovery in the BE. The LMP fails to provide grizzly bear habitat security and areas for demographic connectivity, such as discussed in Bader and Sieracki, (2022). Such an analysis requires discrete geographic parameters in which to measure habitat security, and motorized route densities. Yet, specific bear management units have yet to be identified in the NPCNF by any federal or state wildlife agency.

Bader and Sieracki (2022) “predicted 21,091 km^2 of suitable denning habitats” in the BE and connection areas, noting:

> Terrain features, distance to roads, and land cover best explained suitable denning habitats in northern Idaho and western Montana. The results support the demographic model for

> population connectivity, and independent of other factors there is suitable denning habitat for hundreds of Grizzly Bears in the Bitterroot analysis area. We suggest additions to the Bitterroot Grizzly Bear Recovery Area, and that more effective motorized-access management be applied to demographic connectivity areas.

We note that agencies (FS and USFWS) have written a critique to support their arbitrary determination that Bader and Sieracki 2022 should not be considered best available scientific information. Rebuttal to the agencies' critique is submitted as part of this Objection as Exhibit A.

Sieracki & Bader (2022) propose Bear Management Units (BMUs) on the Lolo and Bitterroot National Forests in areas having high value for connectivity which would facilitate natural immigration into the BE. And in a report investigating grizzly bear recovery in the BE and NPCNF, Mattson (2021) discusses road densities and core security in proposed BMUs for the NPCNF, which he maps as follows:

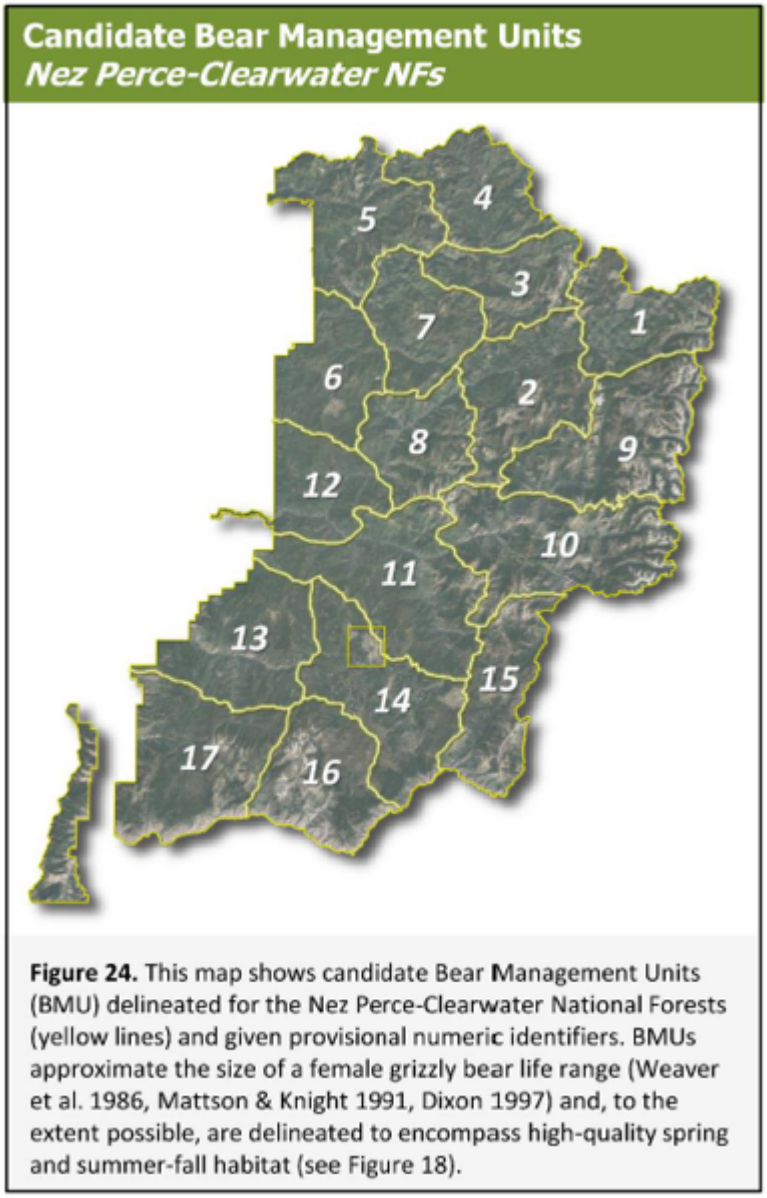


Figure 24. This map shows candidate Bear Management Units (BMU) delineated for the Nez Perce-Clearwater National Forests (yellow lines) and given provisional numeric identifiers. BMUs approximate the size of a female grizzly bear life range (Weaver et al. 1986, Mattson & Knight 1991, Dixon 1997) and, to the extent possible, are delineated to encompass high-quality spring and summer-fall habitat (see Figure 18).

Mattson (2021) is a report investigating grizzly bear recovery in the BE and NPCNF. At pp. 56 - 59 (7.c. Habitat Security on the Nez Perce-Clearwater National Forests) Mattson discusses road densities and core security in proposed BMUs for the NPCNF. The LMP BA attacks this recommended management scheme as nonscientific, in the absence of LMP delineation of grizzly bear security cores and road density standards the best available science identifies as necessary for grizzly bear recovery.

As Mattson (2021) explains, grizzly bear habitat quality in the BE is potentially outstanding, but strong steps must be quickly implemented to remove the human impediments to natural recovery. Recovery of the overall grizzly bear population in the lower 48 states requires its population to grow and its range expand, especially in anticipation of the impending risk of climate change.

Merrill et al. (1999), Mattson (2021), Sieracki and Bader (2022), Bader and Sieracki (2022), Sells et al. (2023) and Bader and Sieracki (2024) provide the foundation for the kind of robust grizzly bear analysis of the BE and for considering cumulative effects on demographic connectivity, which are lacking in the FEIS/LMP. The LMP arbitrarily and capriciously omits incorporation of demographic connectivity areas (DCAs) and likewise omits implementation of the BORZ concept (bears outside of the recovery zone) between the RZ/BE and other recovery areas, precluding standards and guidelines restraining management actions that would better foster natural recovery in the BE.

The use of the RZ in the LMP, FEIS, and BA is inconsistent with best available science for numerous reasons. This boundary was delineated out of political expediency as part of an agreement between timber production interests and representatives of two national environmental groups. The RZ is too small to support anything but a precariously small population of grizzlies. Boundaries of the RZ were arbitrarily drawn in the absence of any modeled suitable habitat for bears on the ground. The RZ excludes critical spring habitat. The RZ excludes large areas of biophysically suitable habitat (Merrill et al., 1999) that could, together with the current RZ, support a more robust population of grizzlies in a genuine ecologically-based BE.

The FS has a duty to minimize harm to grizzlies wherever they occur. In failing that duty, the BA arbitrarily and capriciously declares that grizzly bears occurring in the NPCNF outside the RZ are "socially unacceptable." The Northern Continental Divide Ecosystem (NCDE), Greater Yellowstone Ecosystem (GYE), Cabinet-Yaak Ecosystem (CYE), and Selkirk Ecosystem (SE) include large swaths of land outside wilderness and roadless areas. Managing in the context of human cultures and institutions is indeed challenging, however the FS fails to explain what it is about the NPCNF that justifies its deference to certain perspectives by calling grizzly bears "socially unacceptable" in much of the NPCNF planning area. The FS is derelict in its duties to promote true ecological recovery as required under the 2012 Planning Rule.

The 2012 Planning Rule requires the Forest Service to maintain well-distributed populations of species across the planning area. The planning area in this case is the NPCNF. Arbitrarily limiting grizzly bear distribution to a politically defined area violates the Planning Rule.

In contrast to the LMP, habitat for bears in other recovery areas is delineated by forest plans into Bear Management Units (BMUs) where total and open road densities are limited in order to reduce human caused bear mortality and increase habitat security. [See USDA Forest Service, 1995c (Flathead National Forest Amendment 19); also see USDA Forest Service, 2009d (Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones).]

So instead of providing meaningful, ecologically-based protection for grizzly bears, the LMP is written to bring grizzly bears into conflict with humans in large portions of the NPCNF. There is no direction limiting road densities or requiring minimum amounts of large areas secure from road impacts. Forest Plans in the NCDE, GYE, CYE, and SE Selkirk Ecosystem include such standards. FOC et al. comments on the draft Forest Plan discuss these in detail. Omission of such direction in this LMP is arbitrary, capricious, and inconsistent with well-established and codified

management direction. Recovery of BE grizzlies will require management of access to ensure habitat security outside wilderness and roadless areas, where a recovered population of grizzly bears finds crucial habitat.

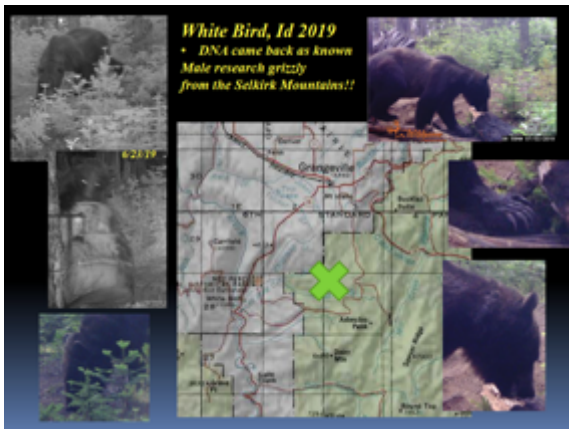
Merrill, et al., 1999 identify seasonal productive grizzly bear habitats in Idaho. The authors state that grizzly bears have good chances of surviving and reproducing in the BE "if bears in central Idaho are accorded protection from direct mortality comparable to that provided bears in other recovery areas."

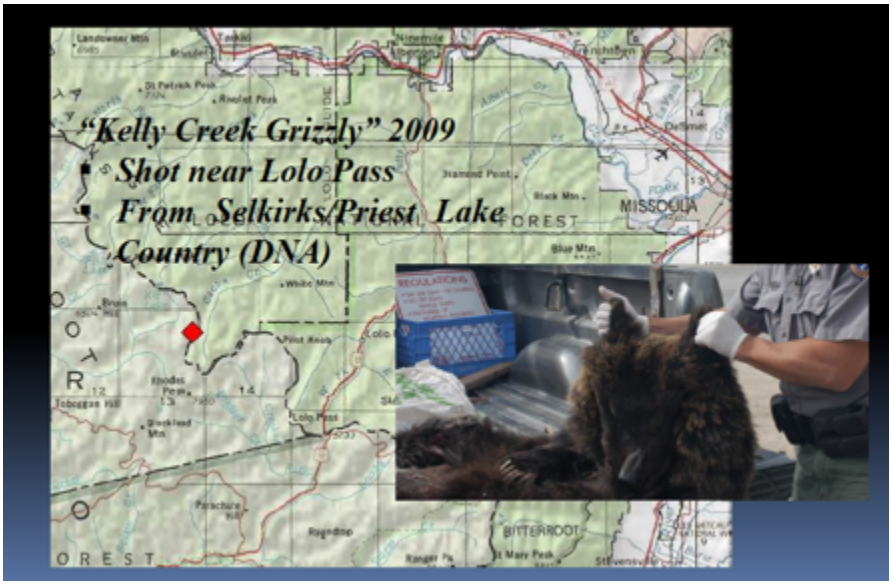
There is no direction in the LMP mandating sanitation or secure food storage to keep bears out of trouble. It's all discretionary. Habitat protections for grizzly bears in every other ecosystem entails enforceable food storage orders, including for backcountry and Wilderness areas. Such rules have had demonstrable benefits for protecting grizzlies from human impacts (e.g., Yellowstone National Park). Secure storage of foods and big game carcasses is especially important in backcountry areas during hunting season.

Grizzlies have already reached the BE, including a verified den site, verified photographs and tracks. Because of such occurrences, the court in *Alliance for the Wild Rockies v. Cooley* found the U.S. Fish & Wildlife Service's 2000 Record of Decision designating an "experimental, non-essential population" in the BE may be no longer valid. Natural immigration is already happening. The bears just need habitat security, and they'll do the rest.

The BA includes the statement: "The closest verified sighting of a known female was approximately 37 miles (60 km) to the east, south of I-90." Neither the FEIS nor BA provide further details, which the FS apparently wants to ignore. It is likely that the BA is referring to one of two subadult grizzly bear siblings who were trapped in October 2022 near Florence, MT inside the various RZ/BE boundaries, including **the zone established in 2000 by the USFWS planning decision establishing the experimental, non-essential population in the BE**. The FEIS and BE maintain that other aspects of the 2000 USFWS decision remain legitimate, despite the outcome of *Alliance for the Wild Rockies v. Cooley* case. It is also notable that during oral arguments for that case, the judge observed that following their trapping, the release of those subadult grizzly bears to a location outside the BE was illegal. We include documentation of that incident as part of this Objection. Moreover, the map below shows that an adult reproductive age female did spend time on the NPCNF.

Additional documented sightings on the NPCNF include at least one and possibly a second grizzly bear with Grizzly 927; a grizzly bear south of Grangeville; a grizzly near Elk City; another grizzly south of Grangeville, Kelly Creek (see below from Jonkel, Montana Fish, Wildlife & parks Region 2 Bear Report 2022).

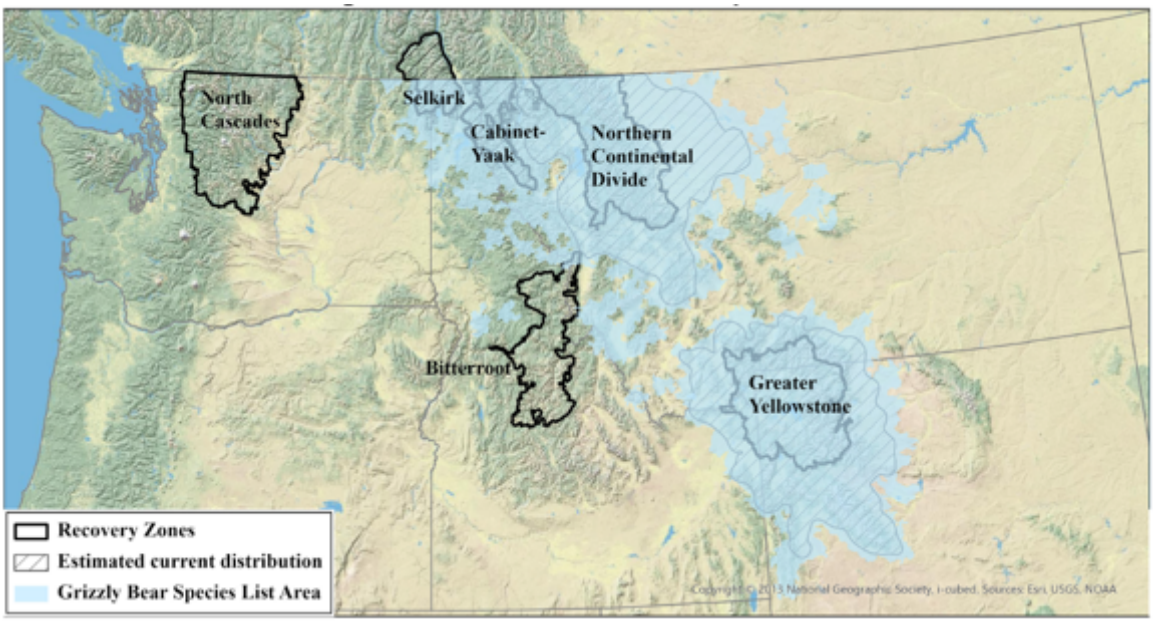




FOC submitted a July 17, 2020 request to the FS under the Freedom of Information Act (FOIA), seeking documents relating to all known grizzly bear sightings or grizzly presence on the Nez Perce-Clearwater National Forests (NPCNF) subsequent to October 30, 2013. We incorporate into this Objection all the documents we received in response to that FOIA.

Temporary roads are intended to be decommissioned within a few years of the completion of logging operations, yet grizzly bear habitat security and connectivity are decreased when temporary roads and constructed and used. Habitat security and connectivity is not restored until temporary roads are successfully decommissioned. And the science shows that it takes years for resident grizzly bears to realize such benefits. In other recovery areas and connectivity areas where there are limitations on motorized access to promote grizzly bear recovery, the amount of temporary roads that the FS can construct and use at any given time are limited.

In July 2022 the USFWS updated the species list area map of where grizzly bears "may be present":



The map shows areas in light blue of known recent documentation of grizzly bears. We believe the USFWS only grudgingly included those isolated areas to the west of the Bitterroot RZ because there were recent well-documented occurrences. Oddly, the USFWS refuses to acknowledge the likelihood of grizzly bears occurring in areas outside those two small blue splotches, which is biologically unrealistic given the well-known tendency of grizzly bears to move great distances, and the possibility of grizzly bears—known to avoid areas of human activity—existing there but remaining undetected. Documented occurrences of grizzlies demonstrates the areas are de facto "suitable."

FEIS Figure 93 demonstrates the FS' arbitrary delineation of "Estimated current distribution" in showing "Verified observations of grizzly bears" but excluding the areas of multiple "Verified outliers" because they " …made atypical movements outside the known estimated current distribution." The description of those occurrences as "atypical" is nonsense and is contrary to best scientific information. Hertel et al. (2019) discovered that explorer bears are important to connectivity and persistence of the species: "Bolder individuals seem to be more tolerant towards human encroachment and move more easily through human-modified landscapes…" which has implications for dispersal and population connectivity. Grizzly bears that are roaming into areas not densely occupied, or thought to be otherwise unoccupied, are highly important and should be recognized as resident. Yet, as the LMP, the BA and FEIS indicate, the FS continues to treat grizzlies that show up on the NPCNF in recent years as unwelcome "transients" instead of the genetic expression of population expansion and recovery they represent.

On March 15, 2023 in *Alliance for the Wild Rockies v. Cooley* a U.S. District court in Montana ordered the USFWS to re-analyze the recovery of grizzly bears in the BE. The Court recognized non-discretionary legally binding commitments made in the 2000 Record of Decision and Final Rule, plus the USFWS's failure to manage accordingly. The Judge recognized that "as recently as October 2022, grizzly bears have been seen in the Bitterroot Ecosystem." The Judge's order requires the USFWS to supplement its 2000 Final EIS and come up with a new decision.

To be consistent with best available science, the FS should be identifying key habitat components for grizzly bears for prioritizing road density reductions (Proctor, et al., 2019) in the LMP, so the BE population can recover.

Schwartz et al. (2010) noted that management for grizzly bears requires provisions for security areas and limiting road densities between security areas. Otherwise, grizzly bear mortality risks will be high as bears attempt to move across highly roaded landscapes to other security areas. The LMP lacks direction regarding road densities located outside of and between security areas.

The FS is aware of the best programmatic agency direction it has adopted to date, that established in Flathead Forest Plan Amendment 19. It established Open Motorized Route Density (OMRD)/Total Motorized Route Density (TMRD)/Security Core indices. These are based upon the scientific information concerning security from roads and road density requirements for grizzly bears as found in Mace and Manley, 1993 and Mace et al., 1996.

Sells et al. (2023) sought to "identify important movement routes and habitat linkage areas between grizzly bear ecosystems" i.e., "to identify potential dispersal pathways among ecosystems." Results of their modeling yielded linking zones as identified in maps. For example, their Figure 3 for predicted female grizzly dispersal from the NCDE into the BE is displayed next:

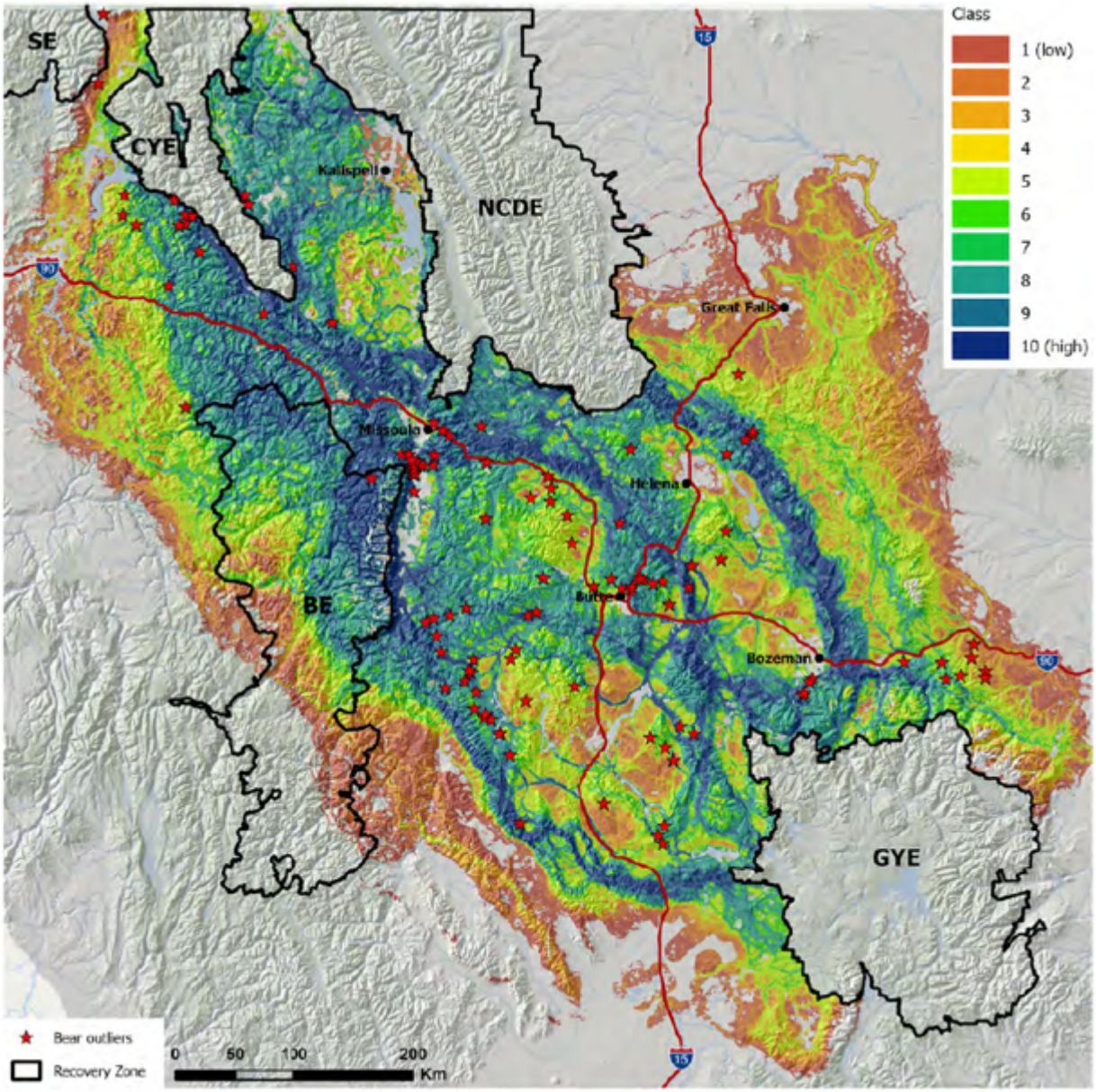


Fig. 3. Prediction of female grizzly bear connectivity pathways in western Montana, summarized from 5 sets of directed (randomized shortest path) movement simulations using start and end nodes associated with routes of NCDE-CYE, NCDE-BE, NCDE-GYE, CYE-BE, and GYE-BE (Fig. 1). Class 1 = lowest relative predicted use, whereas class 10 = highest relative predicted use. Simulations were based on 46 individual iSSFs for NCDE females. These simulations employed the lowest θ value of 0.0001, which resulted in the highest correlation with independent grizzly bear outlier observations (Table 1). Results from other θ values shown in the Appendix.

The LMP includes no meaningful direction emphasizing the importance of fostering and protecting such connectivity habitat, and does not consider it in the FEIS.

Bader and Sieracki (2024) apply recently published research on female grizzly bear habitat connectivity and potential routes to the BE to estimate the likelihood of female grizzly bears reaching the BE within the next decade. The report estimates the contiguous Northern Continental Divide Ecosystem (NCDE) population range could expand six miles into the BE within 5 years, and after 15 years move 18-25 miles. This begins to biologically invalidate federal agencies' current geographical separation of the NCDE and the BE.

The USFWS 2011 Grizzly Bear 5-Year Review includes an "Overview of the DPS Policy Relative to Lower-48 Listing." The relevant criteria it used is, "a vertebrate taxon may be considered discrete if it …is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors (quantitative measures of genetic or morphological discontinuity may provide evidence of this separation)…" This argues that the unit of grizzly bear recovery is now the entire lower 48 states DPS.

There exists a false narrative in regards to overall lower 48 states grizzly bear populations, a set of propaganda pushing as "fact" that grizzly bear populations are, and have been, growing substantially in recent years. Mattson (2017a) and Mattson (2017b) discuss fallacies of reasoning and political agendas that dispute this notion of a significantly expanding grizzly bear population.

Also, Mattson (2019) provides plausible explanations for grizzly bear movements that are not, as the FEIS claims "atypical" nor support the notion that grizzly bear populations are growing. Rather, factors such as climate change, berry crop/food failures over the period of years, and other habitat change factors might explain why grizzly bears have been seen in areas they've not been documented in decades or longer. Those factors—not improvements in habitat connectivity or population increases—may easily be why documented occurrence of grizzly bears has increased in and around the BE in recent years. The above mentioned Mattson Declaration also discusses "Increases in distribution cannot be explained solely by increases in bear numbers." In sum, changes in conditions within longer-established grizzly bear populations may be leading to fewer bears in those areas because some are forced to find more favorable conditions by migrating out.

The FS is fully aware that the USFWS is considering de-listing the Northern Continental Divide Ecosystem (NCDE) and Greater Yellowstone Ecosystem (GYE) grizzly bear subpopulation from Endangered Species Act (ESA) protections. Conservation Strategies were amended into Forest Plans to address potential delisting.

Delisting the grizzly bear invokes huge risks, yet the LMP falls far short of being robust, scientifically sound mechanisms for assuring the BE and other U.S. subpopulations of grizzly bears won't take a sharp downward turn following delisting.

The FEIS and BA do not consider the Idaho Gray Wolf Management Plan 2023-2028 (Idaho Department of Fish and Game, 2023) which reveals the intent of the state of Idaho to reduce wolf population numbers in the state: "During 2019-2021, Idaho's wolf population has fluctuated around 1,270 animals. ...The Plan identifies goals and strategies to reduce wolf numbers and to manage Idaho's wolf population to fluctuate around 500 animals." We incorporate our December 15th, 2023 comments on the Draft Gray Wolf Conservation and Management Plan and Draft Environmental Impact Statement (Wolf Comments), which identify foreseeable "take" of grizzly bears on the NPCNF not considered in the BA.

The FEIS and BA also do not consider the keystone role the gray wolf plays in providing nutritional resources for grizzly bears. Well-documented observations in Yellowstone National

Park reveal the frequency of grizzly bears displacing wolves from the latter's kill of large ungulates. (*See* Yellowstone Grizzly Bears vs. Wolves.) Also see Mattson Declaration 2020a.

Our Wolf Comments at p. 8 discuss the positive role wolves play in ungulate/prey species populations. And starting on p. 18 is a section about wolves' importance to the ecosystem.

The FEIS and BA do not adequately consider the indirect effects of climate change on grizzly bears. See, e.g., Mattson Declaration 2020a.

The 2012 Planning Rule defines Species of Conservation Concern (SCC): "a species of conservation concern is a species, other than federally recognized threatened, endangered, proposed, or candidate 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." Although it is now listed under the ESA, under the proposed de-listing the grizzly would surely meet the SCC criteria: "the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area." Yet it is clear under the 2012 Planning Rule that the Regional Forester is free to arbitrarily refuse to add the grizzly bear to the SCC list. There's no guarantee the Regional Forester would add the grizzly bear to the list of NPCNF SCC upon delisting.

Reducing roads and their impacts would benefit not only grizzly bears, but most other natural aspects of the ecosystem, as the Access Amendments[13] Draft SEIS states:

- Alternative D Modified would convert the most roads and consequently would provide the highest degree of habitat security and a lower mortality risk to the **Canada lynx**. (P. 70.)
- Alternative D Modified would provide a higher degree of habitat security (for **gray wolves**) than Alternative E Updated… (P. 74.)
- Alternative D Modified … could contribute to a cumulative increase in habitat security for **black-backed woodpeckers** (and **pileated woodpeckers**) because timber sales or other ground disturbing or vegetation management activities would be less likely to occur in Core Areas. Newly dead trees that support wood boring beetle populations would be less likely to be removed during vegetation management activities or by woodcutters. Alternative D Modified could provide slightly more secure habitat than Alternative E Updated. (P. 84, 112.)
- Alternative D Modified … could contribute to a cumulative increase in habitat security because timber sales or other ground disturbing or vegetation management activities would be less likely to occur in Core Areas. Snags would be less likely to be removed during vegetation management activities or by woodcutters. Alternative D Modified could provide slightly more secure habitat (for **Townsend's big-eared bats, flammulated owls, fringed myotis bats**) than Alternative E Updated. (Pp. 85, 86, 95.)

[13] Not selected, but Alternative D would have restricted road densities the most and protected the most Core of all alternatives analyzed. (Amended forest plans for the Kootenai, Idaho Panhandle, and Lolo National Forests concerning Selkirk and Cabinet-Yaak Ecosystems Grizzly Bear subpopulation.)

- Alternative D Modified and Alternative E Updated provide different levels of habitat security (for **peregrine falcon, fisher, wolverine**) based on the relative amount of wheeled motorized vehicle access. (Pp. 87, 89, 91.)
- Alternative D Modified, which closes the most miles of road in suitable habitat, would be the preferred alternative for the western toad. (P. 101.)
- Alternative D Modified closes the most miles of road in suitable habitat and would provide the greatest benefits for the **goshawk**. (P. 103.)
- Alternative D Modified, which closes the most miles of road in suitable habitat, would be the best Alternative for **elk**. (P. 104.)
- Alternative E Updated would provide some security and reduced vulnerability (for **moose**), but not as much as Alternative D Modified. (P. 104.)
- Although Alternative D Modified and Alternative E Updated would benefit **mountain goats**, Alternative D Modified would improve security and reduce the risk of displacement more than Alternative E Updated. (P. 109.)
- Alternative D Modified would improve security (for **pine marten**) more than Alternative E Updated. (P. 110.)

This demonstrates how habitat protections for the grizzly bear can act to conserve habitat for other species. The original (1986) Flathead Forest Plan (updated by Amendment 19) was not a perfect conservation strategy for the grizzly bear. However the FS's intent to significantly weaken protections for grizzly bears it in the context of possible USFWS delisting reveals the FS's overall callousness towards wildlife on the NPCNF.

By de facto choosing the "No Action Alternative" in 2001 while not officially adopting it with a ROD, the USFWS revealed that it had no intent to implement proactive recovery actions that alternative required:

Upon documentation of grizzly bear(s) in the [Bitterroot Ecosystem], the [Service] would conduct an extensive and objective public education and information program to inform the public about grizzly bears and their management under the ESA.

The [Service] would continue to evaluate reported sightings of grizzly bears in the [Bitterroot Ecosystem] to determine their presence. The [Service] would also coordinate a monitoring program within the recovery zone to determine the status of recolonization.

The national forests within the recovery zone would continue to manage habitat to meet or exceed their existing Forest Plan standards for big game habitat management. ESA Section 7(a)(2) would apply upon documentation of grizzly bear presence in the [Bitterroot Ecosystem], and all federal actions within the recovery zone would be subject to Section 7 consultation with the [the Service].

Upon documentation of grizzly bear(s) in the [Bitterroot Ecosystem], the [Service] would evaluate the adequacy of land-use restrictions to protect suitable grizzly bear habitat within the Bitterroot recovery zone and within potential linkage zones to other occupied recovery zones. The [Service] would use the existing evaluation of adjacent wilderness areas to consider them as

additions to the recovery zone (to include the portion of the Frank Church-River of No Return Wilderness south of the Salmon River).

Land-use restrictions could be implemented when necessary if illegal killing threatens grizzly bear recovery.

Under No Action Alternative that 2000 FEIS further states:

> Upon documentation of the presence of grizzly bears, this no action alternative could alter existing and ongoing land-use activities (including timber harvest and minerals extraction activities) solely for grizzly bears. If the [Service] determines that current habitat management is not adequate to maintain suitable grizzly bear habitat, or that linkage zone restrictions are necessary to promote grizzly bear recolonization of the recovery zone, then recommendations could be made to alter land-use activities within these areas.

Furthermore, the Interagency Grizzly Bear Committee, and especially its Bitterroot Ecosystem Subcommittee, has also not encouraged or taken actions consistent with those requirements of the No Action Alternative. Therefore, it falls upon other agencies such as the FS to take measures to recover the grizzly bear in the BE. But as the LMP and its BA and FEIS indicate, the FS shirks from its duty.

In *Alliance for the Wild Rockies v. Cooley* (CV-21-136-M-DWM) the Statement of Undisputed Facts In Support of Plaintiff's Motion For Summary Judgment states:

> The Service admits the following in its Answer to Plaintiffs' Complaint: "in the last five years, there have been verified sightings of grizzly bears in the headwaters of the east fork of the Bitterroot River; in the Miller Creek area to the south of Missoula; in the Trail Creek area east of Lost Trail ski area; at the Stevensville Golf Course; along Lolo Cr/Hwy 12 just west of Lolo, Montana; and near the Lochsa River in Idaho southeast of Lolo Hot Springs. In addition, there have been multiple verified sightings in the Big Hole area and Flint Creek Range in Montana." Doc. 6 ¶62.
>
> The Service also admits the following in its Answer to Plaintiffs' Complaint: "the Service had verified sightings of grizzly bears in the Fish Creek and Whitebird areas south of Grangville [sic], Idaho and in the Newsome Creek area, east of Leadore, Idaho. FWS verified that scat collected on Blackdome Peak in 2017 was from grizzly bear." Doc. 6 ¶63.
>
> In the Grizzly Bear Recovery Program 2020 Annual Report, the Service states: "grizzly bears have increasingly been confirmed nearby and within the [Bitterroot Ecosystem] . . . ." FWS010493.
>
> The agency further states that in addition to known, verified grizzly bears, "[i]t is possible that additional undetected individuals are currently in the area." FWS010493.
>
> The Service further states: "Reintroduction has not occurred and there are currently no plans to do so." FWS010494.

In internal meeting notes, the Service states: "[the Service] has not implemented their 2000 decision" and "because we never implemented it and because natural movements are occurring, lawyers are telling us we are in a different place with this dated decision." FWS001458.

In internal meeting notes, the Service also states: "EIS has a Recovery Zone outlined, but has not been implemented, and is questionable whether that zone is still valid." FWS001465.

In internal meeting notes, the Forest Service Region One Director of Renewable Resources states: "[the Service] needs to see what is the validity of the FEIS. If the boundary were to change, would it be supported? Forest Plan components are non-existent right now. Need to chart a path forward for putting standards and guidelines in the Forest Plans for the Recovery Zone." FWS001465.

In internal meeting notes, the Nez Perce - Clearwater National Forest Supervisor states: "right now the EIS with a decision has a Recovery Zone, but the alternative that wasn't selected seems to be the default. Without a subsequent decision, don't see how we can consider anything besides what was in the selected alternative for the [Recovery Zone]." FWS001465.

In internal meeting notes, the Lolo National Forest Supervisor states: "please clarify—designation of Recovery Zone is the responsibility of the [the Service]? Recovery Zones only need to be designated in the Recovery Plans, do not have to do an EIS to change the Recovery Zone—but because we have an EIS, we may need to do that." FWS001465.

CANADA LYNX

Objectors' comments discuss this Threatened species much detail. See, for example, the FOC et al. comments on the draft LMP/EIS in a section beginning on p. 209. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why commenters' interpretations of the scientific information is so incorrect that it was subsequently largely ignored, failed to explain why the authors of those sources made wrong conclusions, failed to explain why the cited science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA. Also, we incorporate into this Objection the October 2, 2022 comments from Alliance for the Wild Rockies and Friends of the Clearwater on the U.S. Fish and Wildlife Service (USFWS) lynx species status assessment.

The LMP adopts a previous forest plan amendment, the Northern Rockies Lynx Management Direction (NRLMD): "Habitat direction from the Northern Rockies Lynx Management Direction is retained in this plan through standard **FW-STD-WL-01**" and "is included as Appendix 5 in

the Land Management Plan." AWR participated during the public process as NRLMD was developed, and this is incorporated into this Objection in a folder entitled "NRLMD Participation." We believe the NRLMD (and as adopted into the LMP) does not consider the best available science nor assure viability of Canada lynx populations.

A major problem with the LMP is that it allows with few limitations the same level of industrial forest management activities in lynx habitat that occurred prior to Canada lynx ESA listing.

During dozens of timber sale analyses over the range of forests covered by the NRLMD, the FS stated that upon field review stands initially mapped (using its databases) as lynx multistory habitat were described to be not in a structural condition that provides snowshoe hare foraging habitat (i.e., stem exclusion), and logging—usually clearcutting—was proposed in those stands. Since it turns out there's less lynx suitable habitat than the NRLMD previously assumed, the FS and USFWS need to step back and consider that range-wide Canada lynx suitable habitat was overestimated.

Page 181 of the LMP Biological Assessment (BA) states:

> New lynx analysis unit boundaries were developed in 2014 as part of the Forest Plan Revision Process, and in consultation with the Regional Office (NRLMD Standard LAU S1) to better align with the updated habitat model. The proposal would reduce the number of lynx analysis units from 106 currently to 79 (37 in occupied habitat, 39 in unoccupied habitat, and 3 which overlap occupied/unoccupied habitat). Under previous lynx analysis unit boundaries, one lynx analysis unit exceeded 30 percent currently/temporarily unsuitable habitat and an additional nine lynx analysis units were above 20 percent while several did not contain any lynx habitat. Under the new lynx analysis unit boundaries two of the lynx analysis units are above 30 percent temporarily unsuitable and potential lynx habitat is at or above 20 percent temporarily unsuitable. The majority of these lynx analysis units are either partially or wholly within MA1 or MA2 with minimal overlap into MA3. Also, under the new lynx analysis unit boundaries there are no **"**empty" lynx analysis units.

Removing lynx analysis units (LAUs) without soliciting public comment is a violation of NEPA, NFMA and the APA.

Remedy - Withdraw the draft ROD and inform the public why the LAUs were dropped and where they are.

The LMP incorporates the Northern Rockies Lynx Management Direction (NRLMD). The 2017 SSA notes repeatedly that the effectiveness of the NRLMD has never been officially evaluated, including references that effectiveness is "uncertain," or that effectiveness is "likely" or "assumed" or "most certainly" benefiting lynx conservation (e.g., 2017 SSA at 3, 21, 22, 36, 37, 57, 137, 155, 158). The SSA at 219 concludes that the NRLMD "is likely" to continue to support conservation and restoration of lynx, while at 231 notes that "uncertainty" remains as to it effectiveness. While the 2023 SSA Addendum claims that the NRLMD has been demonstrated to be effective in conserving lynx, the scientific basis of this determination was not cited.

In addition, the population trend of lynx within Unit 3 has not been effectively monitored (e.g., 2017 SSA at 3, 18, 21, 36, 107, 140, 143). The Draft Recovery Plan at Table 2, page 14, identifies the "estimated" lynx population size in Unit 3 as between 200 - 300 animals, based on expert opinion or published estimates of carrying capacity. In 2009, Dr. John Squires provided a lynx population estimate in Unit 3 in a recorded interview as approximately 300 animals (McMillion 2009). This same maximum number estimated today, 15 years later. So since the NRLMD was adopted in 2007, no increase in lynx populations in Unit 3 is "estimated".

Measuring the effectiveness of the LMP on local lynx population trends is essentially impossible as the NRLMD has no measurable habitat standards in violation of NEPA, NFMA, the APA and the ESA.

The NRLMD has only 2 habitat standards for lynx. One is Standard VEG S1, which requires that within Lynx Analysis Units (LAUs), only 30% of "mapped lynx habitat" can be in a clearcut condition (updated to "early stand initiation stage" instead of "stand initiation stage") that has not regenerated and developed into winter snowshoe hare habitat (usually trees extending above the winter snows)(NRLMD ROD at Attachment 3), a period that is estimated to take 20 - 40 years. This 30% restriction does not include any forest habitat within a LAU that is not mapped as lynx habitat. This 30% restriction does not include any natural openings within a LAU. This percentage of non-lynx habitat can be considerable within LAUs. In effect, the total amount of openings allowed in a LAU is greater than 30%, as it will include clearcuts in forests identified as non-lynx habitat, plus all natural openings. Since there is no actual limit on openings within a lynx home range as per the NRLMD, the effect of the 30% standard cannot be measured because this would not include all openings within a LAU.

The NRLMD has one other habitat standard, which is Standard ALL S1 requiring vegetation management actions to "maintain" habitat connectivity across an entire LAU, including all non-lynx habitat. There are no actual definitions included in this standard in the FEIS, LMP or in the NRLMD FEIS/ROD as to what constitutes maintaining connectivity. To date, we have not observed any actual definitions or measurements as to how vegetation projects affect connectivity within occupied lynx habitat within USFS Regions 1 and 4, or as applied by the USFWS in consultations on vegetation treatments in lynx habitat. Standard ALL S1 is always claimed in Regions 1 and 4 to be maintained in spite of planned and existing vegetation treatments, due to the lack of any definitions of what connectivity entails. There is an actual scientific definition of "maintained" lynx habitat connectivity within lynx habitat. Connectivity would consist of roughly 70% of a home range, by adding the 50% mature forest habitat and 20% advanced regeneration forests reported for lynx breeding habitat in Unit 3 (Holbrook et al. 2019; Kosterman et al. 2018). Both habitats, as measured in these research publications would provide travel cover for lynx due to densities of forest structure. This 70% habitat connectivity for lynx based on the current best science is surprisingly close to the habitat connectivity recommendations provided by Brittell et al. (1989 at Table 2), or 35 years ago; this document recommended 30% foraging habitat, 30% travel habitat, and 6% denning habitat, which would provide 68% connectivity within a lynx home range.

With a lack of monitoring of the effectiveness of the NRLMD to conserve and restore lynx in Unit 3, the current best science clearly demonstrates this management direction will not conserve and restore lynx populations in violation of NEPA, NFMA, the APA and the ESA.

The 2007 NRLMD was based on the Lynx Conservation and Assessment (LCAS 2000), which was in a small part, based on Brittell et al. (1989). The reference to use of Brittell et al. (1989) "in part" is because only the 30% opening standard in mapped lynx habitat of the NRLMD was based on Brittell et al. (1989). This was noted in the NRLMD ROD at 9 and 16, and in the NRLMD FEIS at page 72. We could not find anywhere in the LCAS (2000) where the 30% clearcut standard was attributed to Brittell et al. (1989); the basis for this recommendation in the LCAS was never clear as to how it was based on the current best science.

While the Brittell et al. (1989) guidelines for lynx habitat management included a host of recommendations, only the 30% openings was incorporated into the LCAS (2000) and 2007 NRLMD. These other conservation recommendations never used from Brittell et al. (1989) include management of lynx habitat within every 640 acres (page 99), including natural openings within a 30% opening threshold (page 33), maintaining lodgepole pine stands instead of converting to other more commercially valuable stands (page 92, 101), keeping openings under 600-1200 feet wide, with optimum opening width of 300 feet (page 102), keeping roads to a minimum (page 33), limiting clearcuts to 20 - 40 acres (page 101), managing forest stands as 40-acre units (page 99), emphasizing lodgepole pine (75% of landscape) as a key lynx habitat characteristic (page 97), and developing monitoring procedures to address the impact of forest activities and these habitat recommendations on lynx conservation (page 95). As noted by Brittell et al. (1989) they were providing recommendations for lynx conservation that required monitoring to ensure validity. The current best science clearly indicates that the 30% clearcut standard in the NRLMD is invalid and has likely allowed vast habitat losses within occupied lynx habitat.

The following are the most notable flaws of the 2007 NRLMD in regards to conservation and recovery of the threatened Canada lynx.

1. The allowance of 30% young clearcuts within an LAU is up to 6 times more openings than has been found in breeding lynx habitat. Kosterman et al. (2018) and Holbrook et al. (2019) reported that in lynx breeding habitat, openings in both core and the overall home range averaged 4 - 5%. The allowed percentage of openings in the NRLMD, as was previously noted, is actually higher than 30%, as natural openings and clearcuts in forests defined as non-lynx habitat are not counted. The actual amount of openings in LAUs allowed by the NRLMD is thus even greater than 6 times recommended by the best available science.

2. The NRLMD and therefore the LMP have no standard for any level of mature forest habitat within a LAU. The current best science identifies breeding lynx habitat as having from 50 - 60% mature forest habitat within a home range (Kosterman et al. 2018; Holbrook et al. 2019; also reported in Olson et al. 2023). Although the NRMLD has a requirement outside of the Wildland Urban Interface (WUI) to maintain multi-storied older forest habitat within mapped lynx habitat, any current level of these

multi-storied older stands outside the WUI and within mapped lynx habitat is acceptable, even if below 50%.

3. The NRLMD and therefore the LMP do not define the categories of lynx/hare habitat by the current best science, so habitat conditions within lynx habitat defined by the NRLMD and the current best science cannot be compared. The current best science defines lynx habitat in 4 categories: sparse forest, stand-initiation forest, advanced regeneration forest, and mature forest (Holbrook et al. 2017a). Each of these 4 types of lynx habitat are specifically defined so that they can be generally identified across the lynx home range. Id.

   Because the NRLMD does not identify lynx habitat categories based on the new science of documented lynx habitat categories, measures of lynx habitat via the NRLMD/LMP do not actually define the quality of current or planned levels of lynx habitat within an LAU. The habitat categories do not define lynx habitat by the current best science, so the measurements of these NRLMD habitat categories have no meaning as per lynx habitat quality in violation of NEPA, NFMA, the APA and the ESA.

   The NRLMD ROD glossary identifies 8 categories for lynx habitat: denning habitat, mid-seral or later forests, multi-story mature or late successional forest, stand initiation structural stage, stem exclusion structural stage, understory re-initiation structural stage, and winter snowshoe hare habitat. There are only general descriptions of these lynx habitats in the NRLMD. More recently, the FS has "tweaked" lynx habitat definitions of the NRLMD in various project analyses (without any additional NEPA) by changing categories to early stand initiation, stand initiation, stem exclusion, mature multi-story and other/intermediate (e.g., lynx habitat defined in the Sawmill-Petty Project on the Lolo National Forest, pages 85-80 in the project EA available on the agency web site). The other structural stages identified in the NRLMD glossary have apparently been dropped without any Forest Plan amendments.

   Except for stand initiation structural stage, there can be no comparison between habitat categories defined in the NRLMD and the current best science, since both definitions call for essentially no trees older than seedlings. And in order to actually compare the level of openings in lynx habitat as per the NRLMD and the current best science, the agencies would have to identify all existing openings within a LAU, not just openings in lynx habitat. If this information is provided, lynx habitat levels of openings as per the current best science could be derived from agency analysis of LAUs as per the NRLMD.

   Although the level of **advanced regenerating forests** (one of the 4 categories of lynx habitat as per the current best science) would appear to be identified by the upgraded LAU habitat definition "stand initiation structural stage," the NRLMD simply uses the age of clearcuts, rather than actual tree density, as the criteria for this structural stage. As advanced regeneration habitat requires large amounts of dense seedling/sapling trees that extend above winter snows (Holbrook et al. 2017a; Holbrook et al. 2019;

Kosterman et al. 2018), simply counting all older clearcuts as winter snowshoe hare habitat could lead to significant overestimates of this habitat within a LAU. Even if older clearcuts actually develop high levels of seedlings and saplings required for winter snowshoe hare habitat, these areas may already have been precommercially thinned with a loss of winter snowshoe hare habitat. Since a minimum/average density of older saplings and younger trees are not required as per the NRLMD in stand initiation structural stages, this habitat category does not generally define lynx habitat as per the current best science for advanced regeneration, which has been found to average about 20% per lynx home range (Holbrook et al. 2019; Kosterman et al. 2018).

4. The NRLMD and therefore the LMP do not restrict openings sizes in lynx habitat in violation of NEPA, NFMA, the APA, and the ESA. The current best science indicates that large openings are difficult for lynx to cross, with an average crossing distance of less than 400 feet (Squires et al. 2010). The basis for the 30% clearcut limit in the NRLMD, or Brittell et al. (1989), recommended clearcuts no larger than 20 - 40 acres, with optimal crossing distance for lynx being 300 feet. The failure of the NRMLD and the LMP to limit the size of openings in lynx habitat will allow the creation of lynx habitat with vast acres of openings.

5. The NRLMD and therefore the LMP do not have a category of lynx habitat that is consistent with the current best science for "mature forest" in violation of NEPA, NFMA, the APA, and the ESA. The current best science notes generally comprises 50 - 60% of breeding lynx home ranges (Holbrook et al. 2019; Kosterman et al. 2018). Holbrook et al. (2017a), defines mature forest habitat as mid-seral stands at least 40 years in age with a multi-storied structure with a mixed species composition, with spruce/fir forests tending to be more dominant in composition; mature stands have an average tree dbh of 10 inches, with a range of size classes; these stands have a median canopy cover of 56%, a median tree height of 65 feet, and a median basal area of 140 square feet per acre; tree density of trees over 5 inches dbh is 217 trees/acre, and median density of trees under 5 inches dbh is 1500 trees/acre. Thus one cannot determine if the NRLMD measures of lynx habitat within an LAU reflect the current best science for an important habitat feature for lynx, or mature forest.

6. The NRLMD and the NPCNF LMP allow areas of both mapped lynx habitat and non-lynx habitat to be identified as habitat lacking snowshoe hares without any actual documentation. An example is stem exclusion stands. Since various structural stages can be identified as lacking snowshoe hares, these structural stages that are logged are not considered a loss of snowshoe hares to the lynx. Claiming the absence of hares, and thus no required management, across significant acres of a LAU without any verification results in many hare habitats being destroyed or degraded with vegetation treatments. The assumption in the NRLMD that hares are either present or absent from a given structural stage is contradicted by the current best science. Holbrook et al. (2017) surveyed snowshoe hare densities across various forest habitats (over a 40% canopy cover) and reported pellet densities ranged from 0.28, 0.81, 1.48 to 4.21 per ha, and that pellets were present on 67% of all plots.

7. The NRLMD and therefore the LMP do not have a requirement for size of LAUs, just a recommendation that these approximate a lynx home range, which is defined as from 25 to 50 square miles, which would range from 16,000 to 32,000 acres in violation of NEPA, NFMA, the APA and the ESA. The current best science defines lynx home ranges as from 33 - 69 square km, which is 8,128-16,960 acres (Olson et al. 2023). The median lynx home range has been defined as 55 km square, which equates to 13,500 acres (Holbrook et al. 2017a). Thus the LAUs as per the NRLMD can include much larger management units than are identified by the current best science, which could create significant habitat losses within a given lynx home range. For example, if the average lynx home range within a project area is roughly 8,000 acres, and the LAU is defined as even 32,000 acres, this allows clearcutting of a potential 9,600 acres (30% of 32,000 acres), although this would likely be less given LAUs as per the NRLMD do not include areas claimed to be non-lynx habitat. Still, a large portion of a lynx home range could be clearcut as per the NLMD while supposedly conserving lynx.

8. The NRLMD fails to measure the displacement impact that vegetation treatments have on lynx habitat use. Holbrook et al. (2018) evaluated cumulative (summer and winter) lynx avoidance of 3 types of vegetation treatments: regeneration (clearcuts), selection (group selection and liberation cuts) and thinnings (improvement cuts and precommercial thinning). All 3 types of treatments were avoided for 10 years. Afterwards, recovery to half of pre-treatment lynx use took 34 - 40 years for clearcuts and selection treatments, and 20 years for thinnings. Hence, all vegetation treatments within a lynx home range will have significant impacts with lynx avoiding those areas for many years. This is a crucial impact of lynx habitat management, and any management criteria for lynx habitat must be based on the avoidance impacts of vegetation treatments.

9. The NRLMD does not limit the fragmentation of lynx/hare habitat. Although the NRLMD Standard ALL S1 states that habitat connectivity within a LAU has to be maintained, there are no actual criteria as to what constitutes maintaining connectivity. We have never seen any determinations in FS NEPA documents, or consultation recommendations by the USFWS, that fragmentation of lynx/hare habitat by vegetation treatments will significantly and adversely impact these species. There are no habitat restrictions on management of areas within a LAU that are claimed to be non-lynx habitat. These areas may consist of a significant portion of the total landscape within a LAU. The NRLMD definition of lynx and non-lynx habitat is not consistent with the current best science. The current best science defines lynx habitat as 100% of the landscape within a home range, while the NRLMD defines lynx habitat as “pieces” of habitat within a landscape. The NFLMD definition of lynx habitat as “pieces” of the landscape ensures that this landscape can be severely fragmented with forest thinning, both commercial activities and fuels management. Fragmentation of forests with vegetation treatments, from clearcutting to forest thinning to understory removal, will not only remove/reduce snowshoe hares, a key prey species for lynx, but will reduce the use of these treated areas for many decades (Holbrook et al. 2018). The barrier impacts of forest thinning on lynx were identified as early as Brittell et al. (1989) and also in Squires et al. (2010). The barrier impacts of vegetation treatments on snowshoe

hares has also been documented by published science (Lewis et al. 2011). The failure of the NRLMD to prevent extensive fragmentation of lynx/hare habitat means it lacks any valid conservation value for these 2 species.

10. The NRLMD does not restrict active motorized route densities in lynx habitat in violation of NEPA, NFMA, the APA and the ESA. Squires et al. (2010) noted that roads with low vehicle use (8 vehicle trips per day) did not cause lynx avoidance. The impact of higher levels of motorized activity on lynx is unknown. Roads also create snowmobile routes, and thus increase winter disturbances for lynx.

11. The NRLMD does not address the importance of lodgepole pine stands to both lynx and hares. This importance was noted by Brittell et al. (1989) many years ago, as previously noted. This importance has been substantiated by current science as well. Holbrook et al. (2017a) identified the importance of lodgepole pine forests in selection by lynx; this association was noted to be based upon the high nutritional value of seedling/sapling lodgepole pine to snowshoe hares, as compared to other conifer species. We have noted many vegetation treatment proposals within Region 1 as designed to replace lodgepole pine forests with more commercially important conifers, including within critical lynx habitat. This management selection against lodgepole pine forests will have long term adverse impacts on both snowshoe hares and lynx, but is allowed by the NRLMD.

H. The LMP does not adequately demonstrate that logging and fuels reductions projects are essential in lynx habitat to conserve lynx in violation of NEPA, NFMA, the APA and the ESA.

It seems clear that the LMP is going to combine limited efforts to actually conserve and promote the recovery of the lynx with an expansive logging program. Logging is the basic process in fuels reduction programs, whereby commercially-suitable trees are thinned, followed by complete removal of the forest subcanopy. Fuels projects without commercial logging are still essentially logging programs, it's just that the trees removed with chainsaws are not commercial products. With both commercial and noncommercial logging projects claimed as fuels management programs, habitat for both snowshoe hares and lynx are removed for an untold number of years. Recovery of mature forests will likely require many decades, in addition to the initial avoidance timeline of 20 up to 34 - 43 years by lynx of fuels treatments (Holbrook et al. 2018).

Remedy - Withdraw the draft ROD and re-write a draft LMP and submit it to the public for comments.

It is a common claim by proponents of logging that forest fires can be prevented or reduced in severity with logging. These claims do not qualify as "science," as science refers to the "body of evidence." Claims that logging can stop and/or reduce fires is controversial, and is not appropriate for implementation as a FWS management program for lynx. Also is the issue of how much of lynx habitat needs to be degraded and/or removed for up to 40 or more years in order to save the remaining lynx habitat from fire? In other words, what percentage of suitable

lynx habitat needs fuels treatments in order to protect the remaining suitable habitat? What are the probabilities that fuels treatments will preserve remaining suitable lynx habitat? Do these probabilities, based on science, justify directly removing/degrading lynx habitat with the possibility of saving remaining habitat? If fuels treatments do not actually save existing lynx habitat, what is the potential cumulative loss of lynx habitat due to both fire and fuels management? How can this cumulative loss be estimated and implemented as a valid management strategy for lynx?

We take strong exception to the inferences that lynx habitat is currently a high fire risk due to forest density, which has supposedly increased due to forest succession above what would have occurred historically. The "too dense" claim as per forests is simply rhetoric to justify logging, and should not be used by the USFWS in a lynx recovery plan. Forest density does not increase endlessly over time, but is controlled by site specific conditions defined for each habitat type. Habitat types are a common management tool used by the FS, but this science is not conducive to promotion of fire management and logging, so it is not used in addressing forest density relationships to fire. Also, claims that fire suppression has markedly reduced fires after pre-settlement times are also bogus. It is well documented that fires are driven by weather conditions, not fuels.

One factor that we have never seen addressed in the LMP alleged need for aggressive logging programs to stop fires (e.g., Lyons et al. 2022), is that all logging programs require roads. Recent fuels management (logging) proposals in Region 1 have included massive increases in roads. Although many of these roads, but not all, are claimed to be "temporary," there is no such thing as a temporary road. The road prisms are maintained for future use in most cases. Roads allow public access, either motorized or otherwise. This public access is the major contributor to fires. Little (2023) recently reported that in California, from 2000 – 2022 95% of all fires were caused by humans ("The Fire Species: data reveal how California's wildfires start"). It is a huge contradiction for management of fires when agencies create vast new networks of roads for fuels reduction projects, which will provide access for decades if not in perpetuity.

It will be impossible to control either fires or climate change impacts on lynx habitat. The only means of having any effective, "controllable" conservation actions is to stop the loss of lynx habitat from logging and fuels projects. This loss, which has not been measured by the FS nor USFWS, is clearly quite massive since the NRLMD was implemented, and is accelerating at this time. Prospects for lynx recovery are clearly poor, given not just past logging activities on public lands, but more so with the wildfire "crisis" being promoted by government agencies. One would think that for every several thousand acres of fuels reduction (logging) activities, a certain number of human mortalities are going to be prevented. The actual data for this is never provided.

Conclusion for Canada lynx

The job of the FS is to protect wildlife, not just government logging programs. This responsibility is clearly absent in the NPCNF LMP. It is basically a proposal to allow the continuation, and likely expansion, of logging programs in Unit 3, the Northern Rockies. The USFWS's Draft Recovery Plan appears to be a concealed version of the previous delisting

proposal from 2017, whereby habitat protections on lynx would be removed, be what they are (extremely limited). The editors of Scientific American recently included an article in the November 2023 issue titled "Protect Habitats to Preserve Species" which noted that of more than 1,600 animals and plants that have been listed as threatened or endangered, only 60 have subsequently been removed due to recovery. As was noted by Kunzig (2023), this represents a recovery rate of only 6%. Also of note was the analysis of 88,290 consultations completed by the USFWS for listed species from 2008 to 2015; zero projects were stopped (Id.). This article concluded that federal agencies only rarely take the active measures to recover a species that Section 7 of the ESA requires. The Draft Recovery Plan recently released for public review for the lynx, particularly in Unit 3 or the Northern Rockies, is a clear example of agency failures to protect listed species and their habitats. A Recovery Plan that actually protects existing lynx habitat to promote conservation and recovery needs to be developed, as this current Draft Recovery Plan is a complete failure for lynx conservation.

The LMP provisions for Canada lynx do not assure that Canada lynx and their habitats will be protected on the NPCNF. The FS has not utilized best available science to assure habitat protections and population recovery

The 2007 Biological Opinion included a "Monitoring and Reporting Requirement." It begins:

> The Forest Service Northern Region (Region 1) Office in Missoula, shall provide a written annual report to the Service each year this biological opinion is in effect. The report will include a summary of the reporting requirements listed below. The report shall be submitted to the Service by April 1 of each year, or other date through mutual agreement.

The BO then states, "The report shall document the following information related to fuel treatment and vegetation management projects occurring in occupied lynx habitat." It then lists five items of information to be provided in annual reports. As part of our requested remedies we ask what FOC et al DEIS comments requested: "a link to every annual report prepared by the Regional Office to date."

FISHER

Objectors' comments discuss this Species of Conservation Concern (SCC) in great detail. See, for example, the FOC et al comments on the draft LMP/EIS with discussion starting on p. 158 and extensive, detailed commentary in a section beginning on p. 227. Also, we incorporate the previous comments of Harry Jagemon, as well as his Objection to the LMP. Objectors also cited numerous scientific sources in comments. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why commenters' interpretations of the scientific information is so incorrect that it was subsequently largely ignored, failed to explain why the authors of those sources made wrong conclusions, failed to explain why the cited science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

The FS expresses the importance of the NPCNF as a vital area for supporting fisher viability:

> The Nez Perce-Clearwater National Forests and southern Idaho Panhandle National Forests are **the primary areas that support fisher in the U.S. Forest Service Northern Region** (Raley, Lofroth, Truex, Yaeger, & Higley, 2012) (personal communication Sauder 2013, personal communication Schwartz 2013). … Fishers are associated with areas of high cover and structural complexity in large tracts of mature and old-growth forests (Powell & Zielinski, 1994; Sauder & Rachlow, 2014; Schwartz, DeCesare, Jimenez, Copeland, & Melquist, 2013).

(LMP DEIS, emphasis added.) It also states:

> Fishers are a low-density predator found in mature to late-successional forests with high canopy closure and both live and dead large tree structure. They appear to select areas with higher amounts of coarse woody debris and den in large diameter trees or snags with cavities ((Heinemeyer, 1993; Jeffrey L. Jones, 1991; J. L. Jones & E. O. Garton, 1994; Weir & Harestad, 2003; Weir, Lofroth, & Phinney, 2011). Female fishers use large diameter snags with cavities for denning and have been reported to use a wide variety of tree species.

It also promotes a "coarse filter approach to providing ecological conditions that provide for the diversity and abundance of wildlife and **viable populations of Species of Conservation Concern** (which) is reflected in the vegetation desired conditions in plan components and alternatives for the revised Forest Plan" but admits "The coarse filter concept has not been subject to rigorous scientific testing." (Emphasis added.) It also states:

> The companion approach to the course filter of ecosystem diversity is the "fine filter" approach in which conservation strategies are used for individual species or groups of species to contribute to species diversity. The fine filter approach narrows the focus to those species that require ecological conditions that may not be provided through coarse filter plan components. This fine filter approach is reflected in the species-specific plan components for wildlife found in the draft Forest Plan.
>
> …The development of management recommendations to maintain or restore ecological conditions was based on the historic range of variability and desired future conditions influenced by climate change. Movement toward the desired conditions for vegetation under the revised Forest Plan would provide for an array of ecological communities of sufficient size, structure, and distribution that is expected to maintain habitats for the vast majority of native species that occur on the Nez Perce-Clearwater.

That document describes what the FS identifies as the best tools to achieve the "fine filter" conditions that would maintain viable populations of wildlife such as fisher:

> By allowing natural disturbance to function nearer to historic conditions, the approximate quantity, quality, and pattern of wildlife habitat across the Nez Perce-Clearwater would be nearer to what the native species evolved with in this part of their range. By moving towards the conditions, they evolved with, ecological conditions to provide species viability would be maintained. Active restoration through mechanical treatments can help

in moving towards the desired conditions. However, given the predicted budgets, this tool would have limited success in trending habitat towards the desired conditions. The tool that has the best chance of success is fire and natural disturbance, both active and passive restoration. Natural disturbance has greater influence over the rate at which the Nez Perce-Clearwater trends towards the desired conditions.

So the FS has recognized as part of its forest plan revision process that maintaining viable populations of fisher and other old-growth associated species depends upon the availability of something reasonably resembling the amount and distribution of habitat that such species evolved with, which would be the "desired conditions" that resemble the "historic range of variability." Yet as this Objection and our previous commentary concerning old growth and the Hungry Ridge project point out, the FS has no idea what the historic levels of old growth were on this Forest, existing prior to the onslaught of cumulative management impacts. It would be reasonable to expect however, given the cumulative level of intense clearcutting and other logging on the NPCNF, old growth is well below the historic range of variability and therefore viability for fisher and other old-growth associated species is highly uncertain.

Yet instead of "allowing natural disturbance to function nearer to historic conditions" (Id.) as the wise Precautionary Principle approach, the LMP proceeds down the path of widespread artificial disturbances including destruction of mature and old-growth forests. The FS's doubtful viability problem is compounded by the fact that the agency has no valid, statistically sound estimates for population trends of its 1987 forest plans' old-growth Management Indicator Species (MIS), because it has failed to conduct even close to the level of monitoring as directed by the forest plans, e.g. NPNF Forest Plan Wildlife and Fish Standard #3: "Monitor population levels of all Management Indicator Species on the Forest… ."

Also, the Kootenai National Forest (2004) discusses science concerning fisher:

- Jones, 1991: "…fishers did not use non-forested habitats." "It is crucial that preferred resting habitat patches be linked together by closed-canopy forest travel corridors."
- Ruggiero et al. 1994: "...**physical structure of the forest and prey associated with forest structures** are the **critical features** that explain fisher habitat use, **not specific forest types.**
- Thomas, 1995: "**Most habitats preferred by fishers have been described as structurally complex, with multiple canopy layers and abundant ground-level structure (in the form of logs, other downed wood, under-story shrubs, etc**.). Powell and Zielinski (1994) listed three **functions of structural complexity**, which may be important for fishers: high diversity of prey populations, high vulnerability of prey items, and increased availability of dens and rest sites. **Structure also substantially influences snow accumulation and density**, which have been shown to be important variables in fisher habitat use (Raine 1983, Leonard 1980, Powell and Zielinski 1994)."

(Emphases added.) Jageman (2022) is an unpublished draft analysis of fisher habitat on the NPCNF. It uses "existing watersheds as identified by the two Forests (Hydrologic Unit Code Six) to identify analysis units or theoretical home ranges" for fisher, "…as close as possible to 12,200-acres in size….". He reports:

> In the remaining 1,958,937-acres where fisher habitat use is likely and most timber harvest is anticipated, I was able to designate 154-potential home ranges ranging in size from 10,049-acres to 17,568-acres. The average size of these units was 12,720-acres (Table 1). Using Vmap data, only thirty-three analysis areas meet Sauder's recommendation of <=5% open area and 50% mature forest. Forty additional units have between >5% and <=10% open area and more than 50% mature forest. Twenty-two additional units have between >5 and <=10% open area and between 40% and 50% mature forest. Fifty-nine of the 154-theoretical home ranges do not meet any of these criteria.

This represents the kind of technical analysis that the FS, with its heavy emphasis in the FEIS/LMP being the coarse filter/fine filter approach, has not even attempted. Jageman's preliminary results strongly suggest that the cumulative impacts of logging and other management have already fragmented and depleted fisher habitat across much of the NPCNF, raising serious concerns about long-term fisher viability. And the Jageman (2022) report doesn't even take into account the degree of vulnerability and amount of trapping mortality of fisher due to motorized road access, as mentioned in FOC et al. draft LMP comments.

Peculiarly, LMP direction and FEIS analyses use the term "Tall Forests" as a habitat condition indicator for fisher: "Fisher habitat is composed of large patches of **tall forest** (trees ≥ _25 m tall, see glossary) arranged in complex, highly connected patterns at landscape scale (20–40 sq mi). Patches of **tall forest** cover an extent of approximately 50 percent across warm moist potential vegetation type group forestwide (consistent with desired conditions in warm moist potential vegetation type section, Table 68)" (emphasis added). Unsurprisingly, this disregards existing or potential logging impacts.

Of particular note and worth repeating is that Kootenai National Forest (2004) cites Ruggiero et al. 1994 in recommending against the coarse filter/fine filter approach as implemented in the NPCNF LMP/FEIS: "...physical structure of the forest and prey associated with forest structures are the critical features that explain fisher habitat use, **not specific forest types**." Forest types are the LMP/FEIS focus, as indicated in the above cites in regards to "tall forests."

In arbitrarily conflating its logged, thinned, manipulated and prescribed burned "tall forest" with "mature to late-successional forests with high canopy closure and both live and dead large tree structure" (LMP DEIS) that scientists more accurately characterize as fisher habitats, the FEIS downplays and misrepresents science and impacts of management on fisher habitat and therefore its prospects for viability under the LMP. This violates NEPA and NFMA.

MONITORING

Objectors' comments discuss forest plan monitoring and include detailed critique of plan monitoring elements proposed for the LMP. See, for example, the FOC et al comments on the draft LMP/EIS starting on page 27. In response, the FEIS failed to explain how we made incorrect conclusions or assumptions regarding monitoring. This violates NEPA.

The FEIS fails to disclose that most monitoring and evaluation as required by the current (1987) forest plans has not been conducted. As a result, the Assessment and entire revision process were biased and inadequately informed. The failure to monitor leads to inadequate empirical basis for professional judgment and for conclusions made in the FEIS and Assessment. This also frustrates a major purpose of forest plan revision, and is also not in compliance with Executive Order 11514, which provides that Agencies shall develop programs and measures to protect and enhance environmental quality and shall assess progress in meeting the specific objectives of such activities. For the FS to simply scrap the previous forest plans without adequately identifying and explaining the "Need For Change" violates the 2012 Planning Rule. Determination of the need for change must be based on what was learned from implementing (or failing to implement) the previous strategy/forest plan. The FS has failed to do so.

Remedy – Install a Standard requiring project development include a write-up of the relevant facts and history of the analysis area for public comments. The documented history must include all past management and other relevant (to forest management) human activities in the analysis area. It would include a baseline, pre-management description of all the natural resources and values and the human connections to those resources and acknowledge values as they have evolved. It might include historic and recent photographs. It would cite all inventory (as per NFMA and regulations) information, and might include maps reflecting changing status through the years. Presence of fish and wildlife species and abundance, old growth forests, other special or rare botanical features, the varieties of forest cover, etc. would be topics of discussion. The sequential history of road construction, significant maintenance and relocation, storage, and decommissioning would be discussed. Such a history would explore the objectives from past management decisions and the success of achieving them. The information should be made available in an easily accessed library such as maintained in permanent websites with links to all the aforementioned documentation.

DESIGNATED WILDERNESS

Our previous comments went into detail on Wilderness issues (e.g., FOC et al. comments on the DEIS/DFP staring at p. 262). Page 119 of Appendix M in the FEIS does not respond the concerns in the FOC et al. DEIS/DFP comments. Rather, it refers to concerns as general. We raised very specific concerns in the FOC et al. DEIS/DFP comments, as we demonstrate below.

Agency Trammeling of Wilderness

The FOC et al. DEIS/DFP comments addressed this issue in detail. We gave an overview of how the agency has used a monitoring protocol in ways it was never really intended:

> The DEIS begins the section entitled "Designated Wilderness" with a brief description of the Act and some attributes of Wilderness. It continues:
>
> > The existing wilderness areas are managed in order to preserve wilderness character. Five qualities help describe wilderness character (Landres et al., 2015).
> > **Untrammeled**. Wilderness is essentially unhindered and free from modern human control or manipulation.

> **Naturalness.** Wilderness ecological systems are substantially free from the effects of modern civilization.
>
> **Undeveloped.** Wilderness is essentially without permanent improvements or modern human occupation.
>
> **Outstanding opportunities for solitude or a primitive and unconfined type of recreation**. Wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge.
>
> **Other features of value**. Wilderness may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

DEIS at 3.6.1-1, emphasis in original. The reference in the DEIS to Landres et al., 2015, is "Keeping it Wild 2: An updated interagency strategy to monitor trends in wilderness character across the National Wilderness Preservation System," also known by its acronym, KIW2. The listing of five qualities misses the holistic element and treats the Wilderness Act more as a procedural rather than a substantive law. A critique of this approach comes from other Wilderness professionals. Cole et al., 2015 notes:

> ... to give practical meaning to wilderness character, KIW2 states that wilderness character should be defined as five separate qualities: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and other features of scientific, educational, scenic, or historical value. These five qualities include all the attributes mentioned in the Sec. 2(c) definition of wilderness in the Wilderness Act. They are considered to be equal in importance and often in conflict with each other (Landres et al. 2008, in press), making the concept of wilderness character internally contradictory rather than a single coherent stewardship goal.
>
> We disagree. The purpose of the mandate to protect wilderness character above all else is to focus the attention of wilderness stewards on preserving the "essence" of wilderness— those qualities that are most unique and distinctive about wilderness and make it "a contrast with those areas where man and his own works dominate the landscape". It is about differentiating the most important things to protect from the many other things that ideally might be protected in wilderness. For this purpose, wilderness character must be defined as a coherent whole, in a manner that is not internally contradictory. It cannot be broken down into separate qualities.

Cole et al. at 3. It should be noted that Cole, the lead author, is a retired Forest Service wilderness research scientist. This is relevant in that by relegating untrammeled wilderness (sometimes referred to as wildness, though there are arguably differences) to one of five qualities, it can be de-emphasized, even though, in the words of the Act's author, Howard Zahniser, "the essential quality of wilderness is its wildness." This

> speaks directly to the concern in first bulleted point in this section. The agency seems to want to meddle in Wilderness and that desire seems to be increasing. Ecological manipulation, regardless of how well-intended, is not in keeping with untrammeled wilderness.
>
> Projects whose purposes are to restore (or redirect) natural processes through the exercise of human agency, are precisely the intrusions of human culture that the Wilderness Act meant to exclude from these special places." (See Kammer 2013). Wilderness designation brings a special protection for Wildernesses and requires the federal land management agencies like the Forest Service to not manipulate or dominate the wilderness. Rather, the Forest Service is required to protect the area's wildness. This mandate is reflected in the epigram written by Howard Zahniser*, "With regard to areas of wilderness, we should be guardians not gardeners."*
>
> This fundamental tenet of wilderness stewardship was reiterated in a program review initiated by the four federal agencies and conducted by the Pinchot Institute for Conservation in 2001. The purpose of the study was to examine the critical management issues facing Wilderness. One of the eight "fundamental principles" for stewardship emphasized the need to preserve the wildness in Wilderness. As the Pinchot report stated, "Protection of the natural wild, where nature is not controlled, is critical in ensuring that a place is wilderness....Since wild is a fundamental characteristic of wilderness that is not attainable elsewhere, if there is a choice between emphasizing naturalness and wildness, stewards should err on the side of wildness." (see Brown et al., 2001).

(FOC et al. DEIS/DFP comments at 261 to 263.) We provided suggestions for plan components. The draft plan component **MA1-DC-WILD-02** (now split into **MA1-DC-WILD-01** and **MA1-DC-WILD-02** on page 91 of the LMP**)**. The draft plan states:

> Natural ecological processes and disturbances (e.g., succession, wildfire, avalanches, insects, and disease) are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide opportunities for visitors to experience natural ecological processes and disturbances with a limited amount of human influence.

DFP at 97. We suggested a wording change to better address what is a failure to prioritize the essence of Wilderness. We also suggested that change to clearly define that natural conditions are the result of natural processes and are, by default, the desired condition in Wilderness. We suggested that earlier component be altered to read:

> Ecological processes and disturbances (e.g., succession, wildfire, avalanches, insects, and disease) rather than human actions are the forces affecting the composition, structure, and pattern of vegetation. Wilderness is untrammeled. Wilderness areas provide opportunities for visitors to experience these ecological processes and disturbances.

(FOC et al. DEIS/DFP comments at 264.) Reasons for that proposal were also given:

> However, the use of the word *primary* along with the omission of *untrammeled* or even

> wild (see Scott 2001-02, Proescholdt 2008, Nickas and Macfarlane 2001, and Brown et al. 2001) conflates what could be termed an administrative definition that places a requirement on the agency post- designation (untrammeled), with the general appearance of Wilderness (primarily). Thus, it inadvertently downplays this key attribute of Wilderness and seems to open the door to additional human influence, rather than allowing Wilderness to be truly wild. The use of the word and *natural* may also suggest a tension between natural and untrammeled.

(Ibid.) What is highly problematic is none of the plan components recognize the essential nature of untrammeled Wilderness even though other attributes of Wilderness are recognized (see LMP page 91, **MA1-DC-WILD-02)**. We further gave examples, focusing mainly on so-called prescribed fire (agency ignited, see LMP page 37):

> Even though the older existing wilderness plans don't promote agency trammeling of Wilderness and didn't anticipate such actions (heavy-handed use of herbicides, for example), specific decisions made well after the plans do provide trammel Wilderness. And, Table 28 provides for prescribed fire in every Wilderness. DFP at 98. *Section* 4(d)(1) of the Wilderness Act, while allowing measures to control fire, does not allow for manager-ignited prescribed fires. The Forest Service's ongoing attempts to resist natural processes and change through active manipulation of the wilderness are at odds with the Wilderness Act and the Forest Service's own management guidance. Vegetation changes, fire interval and intensity, and wildlife disbursement attributable to a changing climate cannot logically represent degradation of wilderness character. *See* 36 C.F.R. § 293.2(a) (dictating that, in wilderness, "[n]atural ecological succession will be allowed to operate freely to the extent feasible"). The Forest Service manual directs the Forest Service to "[m]aintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces" FSM at 2320.2. For example, the Forest Service could encourage practices on private land that reduce structure flammability. Wilderness is "in contrast" to areas where our actions and decisions dominate the landscape. Nature should roll the dice in Wilderness, not managers.
>
> What is ironic is that the Forest Service has rarely, if ever, used agency prescribed fire in any of the three Wildernesses on the Nez Perce and Clearwater National Forests. Rather, the agency has boasted, and rightly so, of the natural fire program in the Selway-Bitterroot, Frank Church-River of No Return and Gospel-Hump Wildernesses. Thus, Table 28 should be changed to note that natural fires are more than adequate in the three Wildernesses by the agency's own admission.

(FOC et al. DEIS/DFP comments at 264 and 265.) While the forest planning process has desired conditions, in the case of Wilderness, natural conditions, by stature, rule. As such, desired conditions can't be anything but the result of natural processes. The conflation of the desired conditions (managers' preferences) with natural processes via the equivocation in the plan components section is a violation of the Wilderness Act. The Wilderness Act sought to remove agency bias and influence from the equation. Put another way:

> In contrast to other public land management statutes, which typically authorize agencies to

> consider and weigh diverse values through exercise of their scientific and policy expertise, the Wilderness Act required certain areas to be managed predominantly for one use: wilderness preservation....
>
> Unlike all other land-management statutes, the Wilderness Act's basic purpose was not to delegate authority to expert agencies, but rather, to exclude certain lands from the application of the agencies' specialized expertise, to restrain agency flexibility, and to protect (with limited, narrow exceptions) certain lands from the impact of the sort of policy choices land managers typically make.

Sean Kammer, *Coming to Terms with Wilderness: The Wilderness Act and the Problem of Wildlife Restoration*, 43 ENVTL. L. 83, 100-101 (2013).

That Wildernesses have been affected by intentional human manipulation in the past (e.g. vegetative manipulation, development, fire suppression, etc.) or are affected by unintentional human influence now and will continue to be in the future (e.g. climate change) does not change how they are to be administered once designated as Wilderness. The drafters of the Wilderness Act understood:

> [I]t would be impractical and unwise to require that lands be completely untrammeled prior to being designated, but [the drafters] fully expected wilderness areas, once designated, to be untrammeled into the future.

(*Id*. at 106-107.) The statute, when read as a coherent whole, supports this position. The canons of statutory construction dictate that the term "natural conditions" be read in harmony with the term "untrammeled." *See United States v. Powell*, 6 F.3d 611, 614 (9th Cir. 1993) ("It is a basic rule of statutory construction that one provision should not be interpreted in a way which is internally contradictory or that renders other provisions of the same statute inconsistent or meaningless"); *see also Wilderness Society*, 353 F.3d at 60 ("a fundamental canon that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme"); *Kmart Corp. v. Cartier, Inc*., 486 U.S. 281, 291 (1988) ("In ascertaining the plain meaning of [a] statute, the court must look to the particular statutory language at issue, as well as the language and design of the statute as a whole."); *United States v. Lewis*, 67 F.3d 225, 228-29 (9th Cir. 1995) ("Particular phrases must be construed in light of the overall purpose and structure of the whole statutory scheme."). In other words, a statute should be construed "as a symmetrical and coherent regulatory scheme," *Gustafson v. Alloyd Co*., 513 U.S. 561, 569 (1995), and a "harmonious whole," *Fed. Trade Comm'n v. Mandel Brothers, Inc*., 359 U.S. 385, 389 (1959).

The Wilderness Act, read as an internally consistent document as required by law, does not pit the terms "untrammeled" and "natural" against one another. "A wilderness, in contrast with those areas where man and his own works dominate the landscape," is statutorily defined as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" and an area "retaining its primeval character and influence, ... which is protected and managed so as to preserve its natural conditions...." 16 U.S.C. § 1131(c). Thus, what is natural for the area necessarily flows from what is untrammeled. Indeed, this is the

common meaning of the term "natural." *See* Black's Law Dictionary 1026 (6th ed. 1990) (natural means wild, formed by nature, and not artificially made or cultivated); *see also* Webster's New International Dictionary of the English Language (1960) (defining "natural" as 1) "Of, from, or by, birth; natural-born;" 5) "In accordance with, or determined by, nature;" and 9) "Not artificial"). It is the result of a process, not a static end point. Otherwise, the default position will always be to trammel Wilderness to comport with a land manager's notion of what is natural or desired, even though various complicated factors—many of which we do not fully understand and cannot control—are always necessarily at play in shifting natural conditions.

Section 4(d)(1) of the Wilderness Act was written to address this issue of fire suppression. While allowing measures to control fire, Section 4(d)(1) does not address the issue of pre-suppression activities like prescribed fire. The control of fire was narrowly written to apply to fire suppression and detection. One can't control something that doesn't (yet) exist. Indeed, when Congress felt pre-suppression actions were warranted, it approved those activities in specific legislation, which does not apply to the Wildernesses on the Nez Perce-Clearwater National Forests.

In sum, the direction in the LMP needs to be changed to meet the statutory requirements of the Wilderness Act.

Remedies: Change **MA1-DC-WILD-01** to read "Natural ecological processes and disturbances (for example, succession, wildfire, avalanches, insects, and disease) are the forces affecting the composition, structure, and pattern of vegetation." Change **MA1-DC-WILD-02** to read "Wilderness areas are untrammeled and provide opportunities for visitors to experience solitude and unconfined and primitive recreation with a limited amount of human influence. Alter Table 27 page 92 of the LMP which states prescribed fire is suitable to prescribed fire is **not** suitable in Wilderness.

Response to Specific Questions and Information

The FOC et al. DEIS/DFP comments on pages 265 to 267 raised numerous questions and information requests regarding monitoring, success of the existing wilderness plans, and visitor use numbers. Rather than respond, the agency was silent on these concerns. The fact this information was not included in the FEIS is a violation of NEPA.

This information is vital. For example, we know of at least one case where it appears the agency is not following the Wilderness Act. While that case involves allowing wheeled motorized use to a campsite in the Frank Church—River of No Return Wilderness. While the agency previously thought the site is out of the Wilderness, the maps and official boundary show otherwise. This was brought to the attention of the Forest Service during the EIS process on the Nez Perce National Forest Travel Plan. No final decision has been issued. (See attached Nez Perce Travel Plan Objection piece).

Remedy - Include the requested wilderness information in a revised DEIS and propose, if warranted, new plan components.

Improper Analysis of Alternatives

The FOC et al. DEIS/DFP comments on page 268 raised two major differences in various alternatives, which were not analyzed in the FEIS. One is the ROS classification, both in the Wilderness and on contiguous lands. The second is the probability of logging next to any of the Wildernesses. Both would affect the Wilderness itself.

In the case of the ROS, allowing motorized use in currently nonmotorized areas contiguous to the Wilderness, would increase the opportunity of illegal motorized use in the Wilderness. The LMP would allow areas, previously proposed for Wilderness by the agency and which are contiguous to the Selway-Bitterroot Wilderness, to be opened up to motorized use via the ROS classification.[14] For example, areas that are currently closed to winter motorized use in and around Elk Summit will be opened to winter snowmobile use via the winter ROS classification (see also draft ROD at 30) and that will lead to an increase in illegal use in the Wilderness.

Further, the summer ROS classification inside the Wilderness in the other action alternatives (not the preferred) includes motorized enclaves. This could lead to direction to loosen current management of landing meadows in the Selway-Bitterroot Wilderness. As such, the FEIS improperly analyzes the impacts to Wilderness from those alternatives. One of the questions/requests made in the FOC et al. DEIS/DFP comments on pages 265 to 267 deals with the monitoring of landing meadow use in order to determine whether thresholds are exceeded.[15]

Given the various alternatives for logging, logging up to the boundary of the Wildernesses could take place under some alternatives including the preferred. The FOC et al. DEIS/DFP comments on page 268 stated, "For example, increased logging, especially at or near wilderness boundaries, could easily affect the extent to which the Forest Service allows natural fire in Wilderness and the extent to which agency-ignited fires occurs in Wilderness." This was not addressed.

Remedy: Release a revised DEIS for public comment that includes an analysis of the impacts from the various alternatives on Wilderness, because they do differ. Issue plan components, if warranted, to address requirements of the Wilderness Act.

Cattle Grazing In Wilderness

The FOC et al. DEIS/DFP comments state:

> Regarding the Frank Church-River of No Return Wilderness, the DEIS states, "There is one grazing allotment that partially lies within the wilderness." In this "Mallard Creek allotment" ... . [t]his use is allowed and is expected to continue in the future." The problem with that statement is this allotment has been vacant for over a decade, according to Forest Service data (see Nez Perce National Forest Monitoring Reports and Nez Perce–Clearwater National Forests Forest Plan Assessment 7.0 Multiple Use and

14 The ROS maps in the LMP and FEIS don't accurately reflect the current condition either. That problem is addressed in the Roadless section of this objection.

15 Oddly, the Wilson Bar landing meadow in the Frank Church-River of No Return Wilderness is not buffered by a motorized enclave in the various alternatives.

> Ecosystem Services at 7-10). It isn't a continuation of a use. Rather, it is an allotment that hasn't been used for many, many years and should be closed.
>
> There is a similar statement about the Gospel-Hump Wilderness. … However, the Florence Allotment is vacant and has been for years. The attached spreadsheet is taken from a Forest Service reply to a letter from Friends of Clearwater and shows that allotments in and around the Gospel-Hump Wilderness have serious problems.

(FOC et al. DEIS/DFP comments at 270.)

Remedy: Provide for a plan component to close vacant allotments in Wilderness. Provide for a plan component to revoke permits on wilderness allotments where objectives are not being met.

Wildlife in Wilderness

FOC et al. DEIS/DFP comments stated at p. 268 (footnotes omitted):

> The DFP plan components also affect Wilderness in various ways. Like the DEIS, the DFP is not clear and that lack of clarity raises important problems. Two examples illustrate this problem. The goals include:
>
> > **MA1-GL-WILD-03. [**Nez] Perce-Clearwater cooperates with Idaho Department of Fish and Game and U.S. Fish and Wildlife Service to manage fish and wildlife resources within designated wilderness while protecting the wilderness character as required by the Wilderness Act and each wilderness area's enabling legislation.
>
> DFP at 97. What this misses is two things. First, Nie et al., 2017 clearly note that federal agencies have primacy over wildlife on public lands and this also applies in Wilderness, especially of activities may affect Wilderness.50 Second, the wording of this goal suggests that the primary relationship is cooperating with the Idaho Department of Fish and Game while the secondary is protecting wilderness character. The Idaho Fish and Game today (unlike the past) is decidedly anti-wilderness and the Forest Service has allowed illegal activity in the Frank Church-River of No Return Wilderness as evidenced by the ruling in *Wilderness Watch et al. v. Vilsack* Case No. 4:16-cv-12-BLW. This inversion of Forest Service legal requirements (the second clause) with a way of operating with other agencies (the first clause) is a serious problem. Some of the wording in the Forest Service Manual better expresses the primacy of Wilderness in wildlife issues. Specifically, "Provide an environment where the forces of natural selection and survival rather than human actions determine which and what numbers of wildlife species will exist." FSM at 2323.31 1. Also policy point 2 is very clear, "Wildlife and fish management programs shall be consistent with wilderness values." FSM at 2323.32 2.

Remedy: Change **MA1-GL-WILD-03** to read "The Forest Service ensures protection of the wilderness and wilderness character as required by the Wilderness Act as it oversees and cooperates with Idaho Department of Fish and Game and U.S. Fish and Wildlife Service to manage fish and wildlife resources within designated wilderness."

THE FOREST PLAN AND FEIS VIOLATE NEPA AND FOREST SERVICE POLICY REGARDING ROADLESS AREAS [16]

The FOC et al. DEIS/DFP comments, including the Roadless Areas/Recommended Wilderness Specific Comments Appendix and numerous attachments, and previous comments from Friends of the Clearwater, went into great detail on these issues and provided a far better evaluations, analysis, and recommendations than anything in the FEIS. The FEIS and response to comments evade and ignore rather than address the salient facts we have raised. The points below demonstrate how the FEIS and LMP seriously fail to comply with NEPA, policy, and case law. Attached as part of this objection is our Site Specific Roadless Analysis[17] of real roadless areas, which is included in the Site Specific Roadless folder.

We offered to meet with the FS to look over topographic maps as Friends of the Clearwater had done extensive filed work on the roadless areas. We were never taken up on our offer. See for example, FOC letter of September 7, 2015 at page 28.

One other topic deserves and introduction. Because of a lawsuit settlement agreement in 1993 against the 1987 Clearwater National Forest Plan, additional lands are to be managed as Recommended Wilderness until the plan is revised. This is the real existing situation, a fact purposely ignored by the FS in order to mislead the public about how much land is currently administered as Recommended Wilderness. That acreage is somewhere around 540,000 acres, more than double what the agency now recommends.

Failure to Do an Inventory and Examine All Roadless Areas Including those Uninventoried Areas with Roadless/Wilderness Characteristics Omitted in the Idaho Roadless Rule (IRR)[18]

Our comments stated on page 280, "The Forest Service failed to follow its own directives in considering roadless areas to recommend as wilderness as required by the planning rule and FSH 1909.12 Chapter 70. The first step, inventory, was not done. Rather, the agency adopted the Idaho Roadless Rule (IRR) areas without doing an inventory." We raised these issues in letters throughout the process, first trying to get clarification on what iteration of the FS handbook was to be used in determining what areas were roadless and then when the inventory step would take place.

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16 The FS, perhaps unintentionally, obfuscates what areas are really roadless by bifurcating the terminology when describing roadless areas. Only those areas identified in the various Roadless Rules, mainly based on RARE II or the first iteration of forest plans are included as roadless. We use the term roadless area in its original sense, areas that meet the definition in the Wilderness Act, which encompasses inventoried roadless areas (minus those areas developed after the inventory) and *de facto* roadless areas (including unroaded as per Region I direction) that were not part of earlier inventories, in some cases intentionally omitted for illegitimate reasons. See also our roadless report and agency updates included in our comments and this objection.

17 We use analysis here in the general sense, not the specific sense used in the FSH at 1909.12 Chap. 70.

18 See also the first footnote in this Roadless section.

The response to comments (page 212 and 213) is misleading:

> It is clear from this direction that the planning process is grounded in an assessment of existing information to identify and evaluate suitable lands to recommend for wilderness designation. And, given that the Nez Perce-Clearwater Forest Plan revision process began in July 2014, nearly one year prior to issuance of the amended directives at FSH 1909.12, it is also clear that neither the Planning Rule nor the Forest Service Manual direction require the Forest Service to complete a new inventory (re-inventory) as part of the plan revision process.

FEIS Appendix M at 212 and 213. What the FS is saying is that it can make up an excuse not to follow the Handbook by pointing out the less explicit Manual and even the less explicit Rule don't have more explicit direction, so the FS can ignore its own Handbook. That begs the question of why have the Handbook if it is as meaningless as claimed in the response to comments. Further, 36 CFR 219.7(c)(2)(v) does require the agency to "Identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands for wilderness designation." We also addressed this sophistry in FOC's October 31, 2017 letter:

> One major concern is the process that will conclude with wilderness recommendations (and therefore Management Area designations) in the final revised forest plan. Attached is a document from the Orogrande Community Protection Project record, which is an October 7, 2016 memo by Recreation Planner Norma Staaf of your revision team, memorializing the conversation she had with me on that day.
>
> The Staaf memo states that the Nez Perce–Clearwater National Forests (NPCNF) will be following the most recent (2015) version of the Chapter 70 Wilderness Evaluation policy directive. We concur there's a need "to make the process by which lands are recommended during land management planning for inclusion in the National Wilderness Preservation System or as a Wilderness Study Area **transparent and consistent across the National Forest System**" (Chapter 70 Wilderness Evaluation policy directive at 70.6, emphasis added). Unfortunately, an older document currently residing on the NPCNF website conflicts with Staaf's statement to me as memorialized in her memo. Specifically, the 6/3/2015 "FPR NPCLW: Chapter 70 Wilderness Inventory and Evaluation Process" states, "The Forest is using the 2007 Chapter 70 Wilderness Evaluation direction..." As the 10/7/2016 Staaf memo indicates, she told me the aforementioned document "is not accurate and...(t)he website information will be replaced." Seeing this document on the current Forest website is inconsistent with the Staaf memo, and such conflicting information obstructs transparency and fosters confusion and mistrust.
>
> The 2015 Chapter 70 directive states: "The wilderness recommendation process has a sequence of steps: inventory, evaluation, analysis, and recommendation." The Staaf memo states that you have "decided that the Idaho Roadless Rule areas would serve as the inventory, since that is the latest information that the forest has." This means that you believe Step 1, the inventory step, has been completed—an issue we take up later in this

letter. But first we focus on inconsistencies in Forest Service statements about Steps 2-4 (evaluation, analysis and recommendation).

The updated February 2017 version of your forest plan revision document "15.0 Designated Areas" states: "The process of wilderness recommendation will be completed as part of the publication of the proposed action and the draft and final EIS and associated record of decision (ROD)." Since the 2014 Proposed Action document for the NPCNF revision does not reflect the evaluation, analysis, and recommendation steps, what this updated (2017) Assessment is saying is that the revision draft Environmental Impact Statement (EIS) will reflect the results of these final three (evaluation, analysis, and recommendation) steps. This is inconsistent with the 2015 Chapter 70 directive, which states, "Each step requires public participation." This is also inconsistent with the 2007 Chapter 70 directive, which requires inventory to be informed by "local knowledge" and public process in the evaluation and recommendation processes. A draft EIS that reflects evaluation, analysis, and recommendations is very problematic is because it strongly implies the alternatives included in your draft EIS will not be informed by the public involvement required of the evaluation, analysis, and recommendation steps, and therefore the draft EIS range of alternatives will not reflect the wide range of opinions, local knowledge, and input members of the public hold about such an important and controversial topic.

Given your agency's historic tendency to recommend a small percentage of roadless areas for wilderness protection in forest plans, we are alarmed at the prospect of an EIS that would fail to disclose all the benefits to wildlife, water, fish, soil, recreation, climate stability, and local communities attributable to an alternative with a robust acreage of land recommended for Wilderness protection.

Next, we discuss problems with the current roadless inventory for these two Forests, as well as the roadless inventory process on the NPCNF. A major flaw in the inventory process to date is that the agency refuses to look much beyond the stale, out-of-date roadless inventories in the 1987 Forest Plans. This was characteristic of the IRR, which admitted the original forest plans' inventories remained essentially unchanged: "These roadless areas are based on the most current inventory, found either in existing forest plans, proposed forest plans, or the 2001 Roadless Rule. **In most cases, the boundaries from the three sources are the same**." (IRR FEIS at 68, emphasis added.) Our November 14, 2014 comments on the revision Proposed Action asked, "will the suggestion in the assessment that the 2006 effort and (2008) roadless rule were the inventory hold sway?" FOC knows of specific examples of unroaded areas that meet inventory criteria as outlined in either the 2007 or 2015 Chapter 70, and FOC knows of at least one example of a specific, smaller area within currently inventoried roadless area that does not meet the basic inventory criteria. In any case, your inventory on these two forests is at *least* a decade out of date, and at most *thirty years* out of date.[19]

19 Here we referred to the Orogrande Project, which was a timber sale affecting about 200 acres on an edge of the West Fork Crooked River Roadless Area, a potential addition to the Gospel-Hump Wilderness. As noted in the FOC et al. DEIS/DFP comment section, page 13, entitled "Roadless Areas/Recommended Wilderness Specific Comments Appendix" only a portion

The Forest Service unfortunately takes the position is that these essentially identical inventories are adequate for conducting the revision process. This is reflected in the 2016 Staaf memo ("the Idaho Roadless Rule areas would serve as the inventory..."), the updated 2017 15.0 Assessment document ("Essentially, the areas evaluated in the 2006 revision effort and the areas established in the 2008 IRR are geographically the same"), and the problematic 2015 "FPR NPCLW: Chapter 70 Wilderness Inventory and Evaluation Process" document now found on your website ("it was determined that the Idaho Roadless Rule Areas would be the Inventory for wilderness Evaluation").

The position of the Forest Service on the NPCNF conflicts with both the 2015 Chapter 70 directive and the 2007 version of that directive. The 2015 version clearly recognizes criteria (at 71.1) for including areas in the revision roadless inventory which may not necessarily be within past or current roadless inventories, for possibly being recommended for wilderness at the conclusion of the forest plan revision process. As the 2015 directive states at section 71, "The inventory is intended to be reasonably broad and inclusive, based on the inventory criteria set out in this section and additional information provided to the Responsible Official through the required opportunities for public and government participation (sec. 70.61 of this Handbook)." The 2007 version in section 71 requires the agency to:

> [I]dentify and inventory *all* areas within National Forest System (NFS) lands that satisfy the definition of wilderness found in section 2(c) of the 1964 Wilderness Act...It is completed with the express purpose of identifying all lands that meet the criteria for being evaluated for wilderness suitability and possible recommendation to Congress for wilderness study or designation."

Our concerns regarding the roadless inventory are not new, and have been repeatedly expressed to the Forest Service. For example our September 7, 2015 letter to Forest Planner Zach Peterson raised this very same issue:

> Uninventoried roadless areas were those lands not included or overlooked in RARE I and II. Courts have used the term "roadless expanse" to refer to IRAs and

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of IRR area clearly doesn't have roadless characteristics on an edge of it, the 200 or so acres. Yet, the agency substantially relies on that logged edge to say none of the entire acreage should be further considered and it was not included in any alternative in the DEIS. But, this logging unit was at the edge of a roadless area, it didn't fragment that roadless area. So, a proper wilderness inventory would have considered what was roadless only up to that logging unit and cut out those approximately 200 acres out at the inventory stage, leaving the vast bulk of the area as the real roadless area. The agency is duplicitous in alleging: the project would not substantially alter the roadless/wilderness characteristics of that specific logged area in the EA and associated documents for the project, attached to the FOC et al. DEIS/DFP comments; and then throwing out the whole area in the revision EIS process based on that logging. This is well documented in comments, attachments, and previous letters from FOC. See also our Site Specific Roadless Analysis in this objection.

> contiguous uninventoried roadless areas in combination. Smith v. U.S. Forest Serv., 33 F.3d (9th Circ. 1994) at 1073; Lands Council v. Martin, 529 F.3d (9th Cir. 2008) at 1222 (referring to an IRA and a contiguous uninventoried roadless area as a "contiguous roadless expanse").
>
> Longstanding case law from the Ninth Circuit Court of Appeals also directs the Forest Service to analyze the wilderness characteristics of uninventoried roadless lands. As stated above we discussed this "roadless expanse" issue in our September 7, 2015 letter to Forest Planner Zach Peterson (p. 25). Even the Regional Office agrees, directly addressing this issue in "Our Approach to Roadless Area Analysis And Analysis of Unroaded Lands Contiguous to Roadless Areas" (Draft 12/2/10). Although that R-1 document discusses the "roadless expanse" in the context of project level analysis, it begs the question—why does the Supervisor of the NPCNF want to avoid this issue during the forest plan revision process, in conflict with the 2007 and the 2015 Chapter 70 directives?
>
> So far the agency has not responded to these questions and issues, repeatedly raised by FOC's written input into the forest plan revision process. At this point, the Forest Service's failure to clear up its inconsistent statements and conflicting positions and its continuing refusal to answer our questions obstructs our ability to participate in the revision process. Right now the agency's process is anything but transparent.

FOC October 31, 2017 letter at 1 to 4. See also FOC et al. DEIS/DFP comments at 275. FOC et al. DEIS/DFP comments also state:

> The substitution of the IRR with the required inventory process is at the heart of this problem. The IRR is a point in time identification over a decade old that recognized most, but not all, roadless areas in the state. It intentionally, erroneously, and inconsistently refused to recognize most (but not all) of the contiguous roadless land to the Gospel-Hump Wilderness. Other areas, in whole or part, discussed elsewhere, were also omitted. The inventory is supposed to take a fresh look, under the criteria in Chapter 70. The DEIS underestimates the impact to real roadless areas because the IRR does not include all of the roadless areas and because the DEIS assumes the IRR protects roadless attributes.
>
> What the agency could have done was take the opportunity to update the Idaho Roadless Rule and/or make the DEIS consistent with Chapter 70 by following the Chapter 70 process, starting with an inventory, and then making changes to the Idaho Roadless rule based upon various alternatives that were analyzed when the final decision was made. Instead, the Forest Service chose the worst path, maintaining a fiction that the IRR areas and the Chapter 70 inventory process were one and the same.

The above paragraphs document how the FS has violated its own policy in the wilderness inventory and review process for this revision and, in so doing, created an illogical policy quagmire. If the direction in the Handbook is meaningless, then why have it? Further, the failings of the wilderness analysis detailed in this objection point are also NEPA violations.

The FS is well aware its own documents include better and more accurate information on a roadless inventory than was used in the IRR. The FS itself identified roadless areas (unroaded) in the South Fork Assessment and in the Clean Slate, Little Slate, Hungry Ridge, and Lolo Insects and Disease EISs, among others. Yet it refused to comply with its own policy and do an inventory, either under the 2007 or 2015 iteration of the Handbook. See also our Site Specific Roadless Analysis section that addresses errors in the FEIS and DROD, including but not limited to the Gospel-Hump Wilderness Additions expansion, the expansion of Meadow Creek, expansion of Rackcliff-Gedney, expansion of Eldorado Creek, and a discussion on the legislation dealing with potential additions to the Gospel-Hump Wilderness.

The 2008 IRR can't be used as the inventory for forest plan revision for a couple of reason: a) the age of and the inaccuracies in the IRR that even the agency recognizes; and b) it was never a stated purpose of the IRR to be the inventory for the purpose of forest plan revision. Indeed, the IRR allows activities that would render portions of roadless areas no longer roadless and no longer meeting the definition of Wilderness in the Wilderness Act, as FOC pointed out in our letter of on forest plan alternative development for the plan, dated February 18, 2018 on pages 9 and 10. Also, the IRR used criteria similar to the earlier direction, which is different than the 2015 iterations (see chart below). In sum, the IRR inventory is the not the best information and the FS knows it.

1909.12 Chapter 70 (2007) (Wilderness evaluation)	**1909.12 Chapter 70 (2015)**
71.11 – Criteria for including improvements. "Areas may qualify for the inventory of potential wilderness even though they include the following types of areas or features..."	71.22b – Other improvements. "Include such lands in the inventory where the other improvements or evidence of past human activities are not substantially noticeable in the area **as a whole**, including when the area contains the following, also recognizing the potential need to provide for passive or active restoration of wilderness character in previously modified areas, **consistent with the intent of the Eastern Wilderness Act...**"
71.11 – Criteria for including improvements. (8) "Timber harvest areas where logging and prior road construction are not evident, except as provided in Section 71.12 for areas east of the 100th meridian. Examples include those areas containing early logging activities related to historic settlement of the vicinity, areas where **stumps and skid trails or roads are substantially unrecognizable**, or areas where clearcuts have regenerated to the degree that canopy closure is similar to surrounding uncut areas."	71.22b – Other improvements. (2) "Vegetation treatments that are not substantially noticeable." (3) "Timber harvest areas where logging and prior road construction are not substantially noticeable." (no examples)

Further, we pointed out in the quote above from our letter of October 31, 2017 how combining the evaluation, analysis, and recommendation phases in the EIS process[20] evades the requirements of the Handbook. Each individual step is to involve the public. Far from having

20 The only comment period on the evaluation phase was about the protocol, not what the evaluation recommended for the IRR areas.

"robust public involvement" as the Forest Planning website claims, the agency has sought ways to shortchange the wilderness review by eliminating the inventory stage and conflating the evaluation, analysis, and recommendation phases. This process has not been transparent or logical.

Lastly, we suggested the IRR be amended because there are logged areas within roadless boundaries, and there are wild areas with wilderness and roadless characteristics left out of the IRR." We said in our February 28, 2018 letter on page 6, "The Idaho Roadless Rule has a process to add areas and increase protection. **Will you consider doing this for areas that might be recommended as Wilderness?** The forest plan revision seems the logical place to do this." (Emphasis in the original). We received no answer to this request. (see also page 20 of the same letter).

Remedy: Withdraw the draft Record of Decision and FEIS, start over with a new inventory process that includes areas missed in the IRR and excludes those portions or areas that have been developed. See also the Site Specific Roadless Analysis for area specific violations in more detail.

Failure to Analyze a Reasonable Range of Alternatives for Wilderness Recommendation

Our DEIS comments stated on page 281 and 282 (footnotes omitted):

> The range of alternatives itself is therefore seriously flawed and inadequate to meet NEPA requirements. The most generous wilderness option only recommends 58% the potential. The average for the action alternatives is only 29.5%, hardly an adequate range. One would expect 50% to be the average under an adequate range of alternatives. Both the Flathead and Custer Gallatin had alternatives that recommended all roadless areas or almost all of them as Wilderness. Both also did real inventories that expanded upon the inventoried roadless area base (attached). It should also be noted that the no-action alternative is misrepresented and that is discussed in the next subsection of this comment.
>
> There is no alternative that recommends all of the Idaho Roadless Rule (IRR) areas as Wilderness yet, there is an option that recommends no additional Wilderness be designated. The percentage of roadless land in the IRR that would recommend wilderness by the various alternatives is also skewed. Table 6 shows 1,481,565 acres of IRR areas. DEIS at 3.6.1-20. Table 18 lists the acreage recommended under each alternative. DEIS at 3.6.2-16. Looking at the percentage of IRR lands by alternative results in the following:
>
> - · No Action: 13%
> - · Alternative W: 58%
> - · Alternative X: 0%
> - · Alternative Y: 21%
> - · Alternative Z: 38%
>
> The range of alternatives itself is therefore seriously flawed and inadequate to meet NEPA requirements. The most generous wilderness option only recommends 58% the

> potential. The average for the action alternatives is only 29.5%, hardly an adequate range. One would expect 50% to be the average under an adequate range of alternatives. Both the Flathead and Custer Gallatin had alternatives that recommended all roadless areas or almost all of them as Wilderness. Both also did real inventories that expanded upon the inventoried roadless area base (attached). It should also be noted that the no-action alternative is misrepresented and that is discussed in the next subsection of this comment.

(FOC et al. DEIS comments at 281 and 282.) See also pages 11 and 275.

The conflation of the evaluation, analysis, and recommendation phases, the fact not all true roadless areas were inventoried, the arbitrary and capricious nature of of the wilderness analysis process in the DEIS (see FOC et al. DEIS/DFP comments at 275 – 280), and the deliberate misidentification of the no-action alternative, have led to a situation where prime areas were excluded from **every** alternative. These include but are not limited to additions to the Selway-Bitterroot Wilderness which all or portions of the area were in the Selway Primitive Area (Rackcliff Gedney and Lochsa Face). Frank Church-River of No Return Additions (Cove-Mallard), Gospel-Hump Wilderness Additions, and Weir Creek. See also the Site Specific Roadless Analysis for area specific problems in more detail.

By contrast, the 1987 FEIS for the Clearwater National Forest Plan evaluated a full range of alternatives. "Table II-2 shows, by alternatives, the areas which are recommended for wilderness. **Each roadless area was considered for wilderness in at least one alternative** and for nonwilderness in at least one alternative." 1987 Clearwater National Forest Plan FEIS Vol. 1 at II-47, emphasis added. The 1987 FEIS for the Nez Perce National Forest Plan did the same, "Table II-2 shows areas recommended for wilderness by alternative. **Each roadless area was considered for wilderness in at least one alternative and for nonwilderness in at least one alternative**." 1987 Nez Perce National Forest Plan FEIS at II-77, emphasis added.[21]

The FEIS did not correct these problems. Only 14 of the identified 34 roadless areas were considered in the alternatives. Only 58% of the acreage was considered in any one alternative. However, there is an alternative that recommends zero new acres for Wilderness yet none that recommends all areas for Wilderness. The FEIS fails NEPA, including requirements of *California v. Block*.

One other problem is lack of a good maps and a description showing the various alternatives in terms of what the agency is recommending for Wilderness. Where the agency failed in the DEIS (and also the FEIS) was in clearly describing the boundaries and mapping the areas that were to

21 The differences between previous inventories, including the IRR, and the inventory process in the latest iteration of the Handbook are worth noting. The areas identified in previous inventories, at the time they were done, had wilderness characteristics; whereas the current inventory in the Handbook uses the word "may" have wilderness characteristics to describe the inventory areas. An example of differences between the 2007 and 2015 iterations of the Handbook regarding the inventory are shown in the chart in this section. The upshot is, by failing to do a new inventory but by using the IRR as the inventory, the Forest Service has wrongly removed deserving areas from consideration for Wilderness in every alternative. This is contrary to *California v. Block* and NEPA.

be partially recommended. This is inconsistent with the Handbook direction in 1909.12 Chap. 70, 72 part 2.

FOC et al. DEIS/DFP comments provided earlier agency ROS maps that were more accurate, though not perfect. While the ROS is supposed to be an inventory, the agency is using it in this case (and did so in the two extant Forest Plans) as allocations. Further, we documented in the FOC et al. DEIS/DFP comments (how the current situation had more allocated to non-motorized use than what the agency had for the ROS inventory. Thus, the ROS current maps were wrong.

The excuse that the FS is precluded from analyzing an alternative that would designate all of the roadless areas because it does not meet the purpose and need is fallacious. The purpose and need is illegally narrow by precluding an alternative that would recommend all of the roadless areas as Wilderness. In terms of recreation, such an alternative would still leave thousands of miles of roads and trails and areas open to motorized and mechanized use at some time of the year. See *Muckleshoot Indian Tribe v. U.S. Forest SVC*, 177 F.3d 800 (9th Cir. 1999).

Lastly, FOC's letter of February 28, 2018 stated:

> **What kind of a range of alternatives are you looking at? Will there be an all-wilderness alternative that is fully analyzed?** We discussed in this recent meeting that in our previous meeting in Grangeville, we were told an alternative was going to be all roadless areas recommended as Wilderness. **We would like a response to this issue that reflects on the agency's integrity.**

(Letter of February 28, 2018 at page 5, emphasis in the original.) No response was received to this until we saw the DEIS.

Remedy: Withdraw the draft Record of Decision and FEIS and start over with the forest planning process. Alternatively, issue a new DEIS that has an adequate range from zero to 100% (minus any minor deletions in roadless areas due to development) and includes all roadless areas, not just IRR areas. See also the Site Specific Roadless Analysis for area specific problems in more detail.

Failure to Identify a Genuine No Action Alternative

FOC's letter of February 28, 2018 addresses the no-action alternative, “In terms of no-action, what are you considering as the no-action alternative? We were told the no-action alternative would be the settlement agreement for the Clearwater National Forest Plan. Attachments 21 and 22 show the settlement agreement areas.”

The FOC et al. DEIS/DFP comments go into more detail:

> The no-action alternative is improperly identified. Rather than basing it on the 1993 Lawsuit Settlement Agreement for the Clearwater National Forest Plan, it is based upon the Forest Plan prior to the agreement. That agreement states:

> The Forest Service agrees, effective immediately, not to approve any timber sale or road construction project decisions within the area covered by the proposed 'Idaho Wilderness, Sustainable Forest and Communities Act of 1993,' H.R. 1570 and that **such lands will be managed according to Forest Plan standards and guidelines for recommended wilderness (Management Area B2**). The Forest Service further agrees to apply these management prescriptions to any area(s) added by amendment to H.R. 1570, and to any area(s) included in any other Idaho wilderness proposal introduced in Congress by any member of the Idaho delegation.
>
> Emphasis added. There are no exceptions. Even the Forest Service recognizes the areas will be so managed in the BHROWS document (attached). Thus, the no-action alternative should have reflected the Clearwater National Forest Plan Lawsuit Settlement Agreement by including all the settlement agreement areas as recommended wilderness.
>
> This is not the only area where the no-action alternative is incorrectly represented. The ROS maps as do not reflect the original Forest Plan, the lawsuit settlement agreement, or the decision in *Friends of the Clearwater v. United States Forest Service* Case No. 3:13-CV-00515-EJL. In the latter case, the FS has not complied with the court's order to fix the problems in the travel plan as they relate to 100% elk habitat effectiveness and minimizing impacts. The attached documents in the roadless folder deal with these issues.

(FOC et al. DEIS/DFP comments at 284.) The settlement agreement can't be erased by the agency until this plan is finalized. It is a legally binding agreement on the FS, including what constitutes the no-action alternative.[22]

Tied to the settlement agreement is a related topic. The FS has failed to live up to the requirements of the Clearwater Forest Plan in protecting 100% elk habitat effectiveness in specific areas. The FS lost two lawsuits on the Clearwater Travel Plan on this issue, one noted in the above section. The agency has been thumbing its nose at the two federal judges through foot-dragging and a refusal to abide by the extant Forest Plan. A similar problem (See the attachments to the Roadless Appendix in the FOC et al. DEIS/DFP comments and the more recent attached comment).

Remedy: Reissue the DEIS to include the no-action alternative as per the 1993 lawsuit settlement agreement for the Clearwater National Forest portion, the 100% Elk Habitat Effective areas in the elk analysis areas for the Nez Perce National Forest as nonmotorized, and alter the ROS maps accordingly.

Arbitrary and Capricious Wilderness Review

FOC et al. DEIS/DFP comments, Roadless Areas/Recommended Wilderness Specific Comments Appendix (hereinafter FOC et al. Roadless Appendix) addressed this in detail. The DEIS has not

22 This is not just an issue dealing with recommended wilderness and roadless areas, but affects all topics covered by the settlement agreement. The FEIS has failed in its analysis of those topics as well.

done a proper wilderness review process. Aside from not separating out of the DEIS the evaluation analysis and recommendation phases and failing to do an adequate location and a summarized description of a recommended boundary for each area, especially a partial boundary, there are a few key other problems summarized below.

The FEIS falsely alleges (page 45) that only 10 of the 34 areas contain wilderness characteristics. The FOC et al. Roadless Appendix addressed these allegation in detail as does the Site Specific Roadless Analysis attached to this objection. A few examples show the agency's duplicity from this perspective:

- The FEIS for the 1987 Clearwater National Forest Plan recognizes that Lochsa Face, some 76,000 acres, has outstanding wilderness quality, "Because of Its inaccessibility, the area has been lightly impacted by past human activity. Overall it appears undisturbed and natural." 1987 Clearwater National Forest Plan FEIS Appendix at C-194. C-195 of the same document notes that visitors don't distinguish between this area and the contiguous Selway-Bitterroot Wilderness. C-196 states, "The current boundaries would lend themselves to a logical and manageable wilderness." Page C-201 states, "Six of the twelve alternatives contain portions of the Lochsa Face Area designated to wilderness. The entire area is recommended for wilderness classification in Alternatives H and I." The FS itself dispels the myth the area does not contain wilderness characteristics. It should have been studied and recommended in at least one alternative.

- The FEIS for the 1987 Nez-Perce National Forest Plan recognizes that Rackcliff-Gedney is largely natural. Even though the FS mistakenly failed to exclude cherry stem roads and the associated lookout on the Nez Perce National Forest side of this 90,000 acre area (see map, page C-36, FEIS Appendix C, Nez Perce National Forest Plan) FEIS, this area was found to be natural. Page C-38 of the same document states, "Except for the roads (boundary and excluded in the IRR) and a few trails. man's activities have had small impact on natural processes in Area 1841. Most of the trails are little used and receive little maintenance." Under no alternative in this revision was any part of this area even considered for Wilderness even though it was, in whole or part, recommended for Wilderness in four alternatives under the 1987 Forest Plan (page C-44).

- The FEIS, LMP, and draft ROD have created a catch-22 situation. Previous documents that affected roadless areas, EISs, EAs, and many CEs, concluded that the action (logging or other similar cutting of forests, prescribed fire, or a combination of the two) would not affect the character of these areas or their wilderness qualities. Now, the FS finds these areas as lacking wilderness characteristics (see FEIS page 45). FOC et al. DEIS/DFP comments in the Roadless Areas/Recommended Wilderness Specific Comments Appendix, pages 13 and 14, offer a prime example of this duplicity in one area in particular.

- While not legislation, a committee report directed the FS to end the practice of using outside sights and sounds in eliminating areas for wilderness recommendation (see Roth, Dennis M. The Wilderness Movement and the National Forests: 1964-1980 (USDA Forest Service History Series FS 391, 1984 in the Site Specific Roadless Analysis folder).

This has been applied inconsistently (again, see Site Specific Roadless Analysis in this objection).

Remedy: Withdraw and draft ROD and FEIS and go back and do an honest wilderness review process. Alternatively, recommend the identified roadless areas in the IRR and the ones brought forward by FOC in the Citizens Alternative--adjacent to the Gospel Hump, and some slight alterations to Meadow Creek, Weitas Creek, and Fish and Hungery Creeks (North Lochsa Face)--as Wilderness in the final ROD.

The FEIS, draft ROD, and LMP Fail to Fully Disclose Impacts from the Alternatives

This Forest Planning process is based upon on the IRR and its assumptions and projections of the impact to roadless areas. Errors in the assumptions that the Idaho Roadless Rule were provided in the FOC et al. DEIS/DFP comments, specifically the attachment of the report entitled *The Roadless Report: Analyzing the Impacts of Two Roadless Rules on Forested Wildlands* (Friends of the Clearwater 2020a). This report was based on agency documents. It demonstrates that more logging than was anticipated in the IRR FEIS for the years 2008 to 2023 has occurred by a large order of magnitude. The latest data from the FS, in an excel spreadsheet, shows an even greater impact (see Site Specific Roadless Analysis folder).

Further, the draft ROD leads one to believe that impacts from motorized use, presumably also in roadless areas, will be diminished. "Deliberate identification of motorized vehicle suitability to provide for habitat connectivity of wide-ranging species and species sensitive to winter motorized use, including grizzly bear, wolverine, elk, fisher and more," is alleged (draft ROD at 12, see also) while cynically calling for "additional access" presumably in roadless areas (page 16). In other words, there will be much more motorized use, affecting roadless areas and the wildlife dependent on those areas. This defies logic.

Remedy: Initiate a new EIS process for roadless areas in Idaho as the current IRR is not accurate as agency data clearly show. Withdraw the draft ROD, FEIS, and LMP and wait until the IRR is updated before resuming the plan revision process.

SITE SPECIFIC ROADLESS ANALYSIS

FOC et al. DEIS/DFP comments, Roadless Areas/Recommended Wilderness Specific Comments Appendix (hereinafter FOC et al. Roadless Appendix) introduced this topic:

> Our past comments go into considerable detail on the evaluation process and individual roadless individual areas. Those are attached as part of this folder. The area descriptions (in italics) follow closely with the information on the Friends of the Clearwater website for individual roadless areas. That information can also be accessed at https://www.friendsoftheclearwater.org/fmemailverification/undeveloped-wildlands/. Maps have already been sent but are included in this folder.
>
> We volunteered to sit down with the Forest Service with 7.5-minute topos and

discuss boundaries for roadless areas as recommended Wilderness as we have done extensive field work on every roadless area. We were never taken up on this offer.

Some concerns and questions about the evaluation and analysis process are in order.[23] First, one can only infer from Appendix E why some areas are dropped and others are not because there is considerable inconsistency between the evaluation and analysis and between areas and reasons for dropping them. The evaluations and the analysis are arbitrary. Appendix E goes far astray of the Wilderness Act definitions. A few general examples are found below.

- Naturalness: Naturalness does not appear in the Wilderness Act. Thus, the discussions about noxious weeds (they are found in Wilderness and addressed in our earlier comments) and especially ecological conditions are way off base. The Wilderness Act uses the phrase "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" in defining Wilderness. It appears the Forest Service is attempting to suggest areas that have missed a fire cycle don't qualify for Wilderness even though the Wilderness Act permits fire control.[24] It also suggests that areas that have whitebark pine habitat should be excluded (and some areas that have none it seems those areas are also excluded for that reason). If that were the case, the Selway-Bitterroot Wilderness would not qualify as Wilderness! This is no good reason to exclude areas under every alternative.

- The Recreation Opportunity Spectrum (ROS) and history of motorized use: The ROS inventory can be easily changed and decision made in the forest plan. This is also addressed elsewhere in these DEIS/DFP comments regarding the agency's failure to comply with a court's order and the executive orders. The DEIS Appendix E states, "Once motorized uses are established in an area it is difficult to change recreational access through management." The Forest Service has never declared decisions about ORVs or snowmobiling as irretrievable or irreversible commitment of resources. The FEIS on the Clearwater National Forest Travel Plan states at 3-127, "The implementation of the Travel Management Rule and the revision and combination of travel restriction seasons for winter and non-winter travel are completely reversible. These actions are also retrievable since changes in travel management decisions can be revised, changed or removed through the travel analysis process or by special order in the event of sudden, unforeseen or emergency situations." The Forest Service did end snowmobiling in the Kelly Creek/Hoodoo/Great Burn area

23 We also addressed this broad topic in past comments. Again, review those past comments.

24 We have provided extensive scientific papers that disagree with the Forest Service's concept that these forests were primarily shaped by frequent-low intensity fires. The Nez Perce and Clearwater National Forests are not the Gila National Forest.

recently in a place snowmobilers alleged they used "historically." In addition, the existing Wildernesses have roads along boundaries (for example, Magruder corridor that bounds the Selway-Bitterroot and Frank Church-River of No Return Wildernesses and the 444 road that bounds the Gospel-Hump, used by snowmobiles in the winter). This is not a reason to throw areas out.

- Special Features: One of the ironies here is that the very structures that the agency says harm naturalness also are special features. In some instances, the structures in question are outside of the roadless area boundary.

- Manageability and outside sights and sounds: While we addressed this issue in earlier comments, some additional comments are in order. The agency needs to tread lightly here. For better or worse, Congress has designated areas that would appear to be much more oddly shaped and/or smaller than any roadless area on the Nez Perce and Clearwater National Forests. Further, Congress rejected the outside sights and sounds argument as a reason not to recommend areas.[25] The agency needs to look at this reasonably and consistently.

- Firelines: For better or worse, firelines have been built inside Wilderness to fight fires (see attached). Thus, using firelines to exclude an area seems arbitrary.

  At least one of these issues apparently applies to all of the areas that were rejected for further analysis. In fact, they even apply to areas the Forest Service has recommended for further consideration, so understanding why some areas were dropped and others were not is difficult, as noted above. All roadless areas should have been considered in at least one alternative. Attached are examples from other national forest where most, if not all, roadless areas were considered for Wilderness under at least one alternative.

At least one of these issues apparently applies to all of the areas that were rejected for further analysis. In fact, they even apply to areas the Forest Service has recommended for further consideration, so understanding why some areas were dropped and others were not is difficult, as noted above. All roadless areas should have been considered in at least one alternative. Attached are examples from other

25 See Roth, Dennis M. The Wilderness Movement and the National Forests: 1964-1980 (USDA Forest Service History Series FS 391, 1984); Foreman, Dave, No. 21 Around the Campfire: A Little Roadless Area History, *available at* https://rewilding.org/uncle-dave-foremans-around-the-campfire/ (2008); Allin, Craig W. The Politics of Wilderness Preservation, (Greenwood Press) (1982); Foreman, Dave and Wolke, Howie. The Big Outside (Ned Ludd Books 1989); and Foreman, Dave. No. 56 Around the Campfire: Chopping Down the Wilderness, *available at* https://rewilding.org/around-the-campfire-with-uncle-dave-chopping-down-the-wilderness-act/ (2013)

> national forest where most, if not all, roadless areas were considered for Wilderness under at least one alternative.

(FOC et al. Roadless Appendix at 1 and 2, footnotes included.) These are addressed in more detail in the site-specific analysis below.

Two more introductory points need to be addressed. From the response to comments, it appears that the Forest Service had our detailed Roadless Appendix, but in most cases did not respond to the specific issues. This is curious. The last point we wish to make is this site specific analysis is in support of the remedies in the main Roadless section of this objection. Rather than repeat those remedies here, we refer you to that section.

Areas Not Included at All or Dropped from Further Consideration

Gospel Hump Additions

We provided detailed comments in our in past submissions, including maps and photographs describing the on-the-ground situation. FOC did a citizens inventory of the roadless land contiguous to the Gospel-Hump Wilderness. We treat and have treated these areas as one because, in reality, they form one large roadless area.[26] The two issues we address in more detail below are the failure to identify all roadless areas and the failure to recommend any of the lands studied as Wilderness under any alternative.

Failure to Recognize All Roadless Land

The Gospel Hump area is where the problem is most acute. The response to comments states:

> In 1978 the Endangered American Wilderness Act (H.R. 3454(95th)), established the Gospel Hump Wilderness. In addition, the Act designated approximately 92,000 acres adjacent to the Wilderness "as generally depicted on said map" as Management Areas to be managed in accordance with a multipurpose resource management plan for multiple uses. The development of this plan was also required by the Act. There are three areas that comprise these Management Areas and are commonly known as Indian Creek, Johns Creek and Tenmile Creek. These areas were brought forward by Friends of the Clearwater during public scoping for the plan revision. However, given that management of these areas had been established through legislation they were not included in the wilderness inventory.
>
> The Act also identified about 45,000 acres, "generally depicted on said map," as Development Areas to be immediately available for resource utilization under the existing applicable Forest Service land management plans. The Committee on

26 Indeed, the Gospel-Hump and Frank Church-River of No Return Wildernesses and contiguous roadless lands are one large roadless area, the largest in the lower 48 states).

> Energy and Natural Resources submitted a report to accompany H.R. 3454. Maps of the areas were included in that report.
> **That report** includes the statement: "the committee expects the Forest Service to cease all further study it might contemplate undertaking with regard to the suitability and desirability of congressional designation of the lands within the" development" and "management" areas as components of the National Wilderness Preservation System." These Development Areas included areas adjacent to the east, north and west boundary of the Gospel Hump Wilderness and include the area of Boulder Creek brought forward by Friends of the Clearwater during public scoping for the plan revision. Given the Congressional intent as stated in the Committee on Energy and Natural Resources report, those areas were not included in the wilderness inventory.

(FEIS Appendix M at 213, emphasis added.) This is repeated in other pages of the response to comments as well. The Forest Service here is alleging that this report language, **which is not statute**, is the equivalent of **hard release** language, which has NEVER passed Congress. We will look first at the idea of hard release language:

> Hard release language is, generally, proscriptive. Several versions of hard release were developed, with varying levels of restrictiveness. The first was developed in 1980, shortly after the decision in the California lawsuit, with a more restrictive version developed in 1982, and a somewhat less restrictive version in the Wyoming bill in 1983. The latter version is the only one to have passed the Senate, but no version of hard release has passed the House.
>
> Hard release would have prohibited further reviews of the wilderness potential of national forest lands for at least several years. The most restrictive version would have prohibited *all* future reviews of the wilderness potential of national forest lands, thereby limiting the consideration of wilderness suitability solely to RARE 11; other versions would have prohibited further wilderness review in planning efforts completed or begun before a specified date.
>
> The range of management of lands not included in the Wilderness System by Congress would also have been restricted under hard release. Most versions directed that lands not designated as wilderness (or wilderness study areas) be managed for uses other than wilderness, a position reflected in the then-current regulations. (In addition, the initial version would have directed such management for areas recommended for further planning in RARE **11,** unless Congress had designated them wilderness by a specified deadline.) This direction would apparently have prohibited administrative wilderness management of areas not designated by Congress and, arguably, directs the Forest Service to attempt to seek development of all undesignated areas.
>
> Hard release language thus implicitly would have amended MUSYA, RPA, and NFMA by narrowing the options authorized for national forest management. As noted above, MUSYA stated that wilderness protection is authorized under

> multiple-use management, and the RPA/NFMA planning process is to be consistent with MUSYA. Thus, by preventing the Forest Service from considering wilderness protection, hard release restricts the planning and management options authorized in MUSYA, RPA, and NFMA.

[Gorte and Baldwin, 1993, Congressional Research Service at 6 (attached in the folder).] What this research makes clear is that hard release has never passed both houses of Congress. Further, release language didn't appear until 1980 in actual legislation. A report cannot amend statute, as the Forest Service implicitly alleges was done. Nowhere in the US Code does it state MUSYA, RPA, and NFMA were amended specific to roadless areas contiguous to the Gospel-Hump Wilderness. It takes an actual language in an amended statute to do that. A report is merely the thoughts of some members of the committee. The statute is voted on by all members of Congress, not the report.

Besides, the FS has already complied with the recommendation in that report cited above. The RARE II process was ongoing and in the final EIS and Record of Decision, those areas were dropped, rightly or wrongly, a process that carried over in the first iteration of the Nez Perce Forest Plan.[27] Again, report language cannot amend a statute.

Our comments in a letter of September 7, 2015 also covered this issue.

> The refusal by the agency to study most, but not all of these contiguous areas, is arbitrary and capricious. For example, the West Fork of Crooked River and the small addition near the Dixie worksite are in the Idaho Roadless Rule as is the Dixie Summit-Nut Hill area, which was studied in the Gospel Hump Plan. The alleged rationale, given on the agency's website, references several documents, none of which are relevant and none of which show the areas in question were "released" from future wilderness consideration in forest plan revisions. Indeed, the legislation is similar in tone to the Central Idaho Wilderness Act. A 1983 Office of General Counsel letter denies that there was any release in the Central Idaho Wilderness Act of 1983 (memo attached). There are few differences between the two pieces of legislation other than the Gospel Hump's multipurpose resource development plan that was eventually incorporated into the Forest Plan. In any case, the statute itself requires that the multi-resource development plan "shall conform in all respects to the provisions of the National Forest Management Act of 1976 (90 Stat. 2949; 16 U.S.C. 1600), including the regulations, guidelines and standards promulgated pursuant to those Acts."...

(FOC letter September 7, 2015 at 12.) Four important points deserve further elucidation.

1. The actual text of the stature establishing the Gospel-Hump Wilderness clearly states the Forest Service must comply with NFMA, including "regulations, guidelines and standards" that are developed in the future. Specifically, 36 CFR 219.7(c)(2)(v) does require the agency to "Identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and

27 These exclusions were likely illegal even in 1987. See also footnote 6.

determine whether to recommend any such lands for wilderness designation."[28] In other words, these areas are subject to wilderness review in the forest planning process. The text of the Act does not exclude those areas from future wilderness consideration, regardless of how the agency may try to spin it in the response to comments. The facts in this case, including the actual language in the statue, are opposite of the conclusion reached by the Forest Service. It is obvious the Forest Service is illegally deferring to report language to override the statute itself.

2. Similar report language is found in the legislative history of the 1980 Central Idaho Wilderness Act about ending the debate on future wilderness consideration for Meadow Creek and Cove-Mallard. The Forest Service has been provided with the OGC memo pointing out the fallacy of rejecting those areas.[29] The Forest Service correctly did not reject those areas for wilderness review in ether the 1987 Nez Perce Plan EIS or the current revision process. This memo was attached to FOC's letter of September 7, 2015 and is in this folder. The OGC memo clearly points out it was in response to the agency asking whether Congress "'released' roadless areas" from further consideration as Wilderness "in the current round of forest planning." The memo concluded no even though there was language in the statue and committee report that some in the Forest Service may have believed implied such an action. Senator McClure tried and failed to get that language inserted into the statute itself. This situation is similar for the areas contiguous to the Gospel-Hump Wilderness.

3. The West Fork of Crooked River and a small addition near the Dixie worksite present a special case. These areas were excluded from the FEIS in RARE II, along with all other areas contiguous to the Gospel-Hump Wilderness. For reasons that are unclear, these two areas were appropriately added during the IRR process and included in the revision[30] while other areas were inappropriately excluded in the IRR process and this revision.

4. Aside from the two areas mentioned above that are included in the inventory, the Forest Service did not articulate the reasons for not considering the other roadless land that is contiguous to the Gospel-Hump Wilderness. The response to comments is the first time the public was made aware that the Forest Service was

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28 This rule predates the revision process mentioned in the response to comments,. As we noted in the main body of the Roadless section of this objection and in FOC's detailed multiple submissions addressing the roadless review in the forest plan revision process, an inventory needed to be done, either under the 2007 or 2015 iterations of the Handbook. No inventory was done under either iteration of the Handbook direction.

29 Timing of the RARE II process in regard to the Endangered American Wilderness Act and the Central Idaho Wilderness Act could explain why the areas contiguous to the Gospel-Hump Wilderness were excluded from the first revision of the Nez Perce National Forest Plan. The Endangered American Wilderness Act was passed before RARE II was issued in final form; whereas the Central Idaho Wilderness Act came after RARE II was completed, and therefore RARE II included Meadow Creek and Cove-Mallard.

30 The attached Gospel-Hump hearing map gives some background to the history of designation of the Wilderness.

basing its approach on a specific statement in a committee report.

FOC et al. Comments in the Roadless Appendix provided more context:

> The exclusion from further consideration of the small area contiguous to the Gospel-Hump[31] is puzzling. The reference to the Endangered American Wilderness Bill, though erroneous, is the same reason as applied to areas that were excluded from the IRR—specifically, Johns Creek, upper Boulder Creek, East Fork Crooked River (see the attached satellite photos showing natural fire and no development in the area marked on the map), and Indian Creek. We have pointed this out this inconsistency in previous comments and included a letter from the OGC. What is indeed puzzling is this small Gospel-Hump contiguous area is considered roadless, but not those areas mentioned above. Furthermore, the agency apparently recognized the roadless nature of these via the Little Slate and Clean Slate projects and the recognition of the nature of a portion of Johns Creek and the Indian Creek additions as Management Area 2, which consists mainly of roadless areas. Again, the failure to do an inventory created this policy quagmire. These additions are a prime example of the arbitrary nature of the wilderness evaluation and analysis in the DEIS and of the problems we raised in our roadless report.

FOC et al. Roadless Appendix at 14. In sum, the Forest Service has acted inconsistently. It identified two areas in the IRR but rejects one from further consideration (along with most of the other IRR areas) in part, because of the erroneous belief, debunked in the previous paragraphs, the Endangered American Wilderness Act permanently "released" all those areas. There is no better demonstration for the need to do a redo of the inventory and a redo of the IRR than this inconsistency.

Failure to Include Deserving Land in Any Alternative

Our comments focused on the West Fork Crooked River roadless area, which was evaluated in the DEIS and FEIS. We have provided information, photographs, and maps of area, which is part of the larger Gospel-Hump Roadless area, including the Wilderness.

> The FOC This analysis and evaluation of the West Fork Crooked River demonstrate the duplicity of the Forest Service. Our roadless report and past comments also detail the problem. The evaluation leads one to believe the agency could recommend the area be considered. Yet, the analysis ends with this conclusion, "The recent fuels management activities reduce the apparent naturalness of the area." This is just the opposite of what the Forest Service argued before. This statement in the analysis apparently applies to the whole area. We agree the boundary of the roadless area should be adjusted and stated, "This particular portion of the area where logging and road building has occurred has no wilderness attributes and no roadless characteristics." However, that doesn't apply to **all** of the area. Had the agency done an inventory, as required, this could have

31 Here we referred to the area near the Dixie work center mentioned on this page.

> been solved. The attached map has a boundary adjustment to exclude areas affected by the logging. See the photo below, which shows the area affected, the rest of the roadless area and the East Fork area, also contiguous to the Gospel-Hump Wilderness, but erroneously left out of the IRR process. (Photo credit Alpha 1 Photography).

(FOC et al. Roadless Appendix at 13.) The IRR (attached) concludes under the heading Roadless Characteristics:

> Natural Integrity: Natural processes have received little impact, except near the road corridors along the west and south boundaries.
> Undeveloped Character: Except for the roads near the boundaries, the area would appear natural to most people.
> Opportunities for Experience: The adjacency of the Gospel Hump Wilderness along with this area offer good possibility for isolation. There is limited trail access to the interior of the area.

[IRR FEIS Vol 3 at page C3-323 (attached).] The agency reached a similar conclusion on pages 279 and 280 of the Orogrande Project EA, which was provided to you in the FOC et al. Roadless Appendix folder, under the heading *Resource Indicator and Measure 1 – Wilderness attributes and roadless characteristics.*

The Forest Service also claimed in the Orogrande Project that the development would have little impact on the area, especially the area as a whole.:

> **Manageability**- implementing alternative 2 would have no direct or indirect effects to the ability to manage the entire roadless area for wilderness because it does not include any permanent roads, the temporary road will be obliterated after use and effects to vegetation will be short-term and concentrated at the northeastern edge of the roadless expanse comprising approximately 2.5 percent of the roadless expanse.

(Orogrande EA at 284.) The EA also indicates on page 282 regarding natural integrity of the area, "The remainder of the 11,626 acre roadless expanse would not be affected. Project activities would directly affect approximately 290 acres or approximately 2.5 percent of the roadless expanse at its northeast edge." The Orogrande EA continues on page 283 regarding the impacts to wilderness and roadless, "Vegetation treatment activities proposed in the project are designed to emulate natural processes and fires in the landscape."

Now the Forest Service claims the area "possesses little wilderness character" and fails to include it in any alternative. FEIS Appendix E page 223 states, "The recent fuels management activities reduce the apparent naturalness of the area." This is in direct reference to the Orogrande Project. Inconsistencies regarding other resources like the potential for mineral development between the Orogrande EA and the IRR FEIS versus the FEIS Appendix E are also evident.

The pattern here is obvious. The Forest Service claims in a site-specific project EA (and argued in court on this case) is the project would have no perceptible negative impact on the wilderness character of the area. When it comes time to do the analysis in the forest plan revision, the agency argues the opposite. This inconsistency only creates public distrust.

Selway-Bitterroot Additions

Failure to Include Deserving Land in Any Alternative

Lochsa Face: FEIS Appendix E alleges:

> With the pervasive noise from Highway 12 that penetrates into much of the area, and high levels of recreational use associated with the hot springs on Warm Springs Creek, this area offers limited opportunity for solitude or a primitive and unconfined recreational experience. With the Idaho Roadless Rule themes of Backcountry Restoration, Primitive and Special Area of Historic and Tribal Significance, and lower portions in a recreational classified Wild and Scenic River, along with the high recreational use of the area, presence of a manned lookout tower and recreation rental cabin and suppression wildfire response tactics, the area requires management actions inconsistent with wilderness character, the area offers transition from the busy Highway 12 and Lochsa River corridor to the wildness of the Selway Bitterroot (sic)Wilderness. Therefore, it is more appropriate for this area to be managed under its Idaho Roadless Rule themes than as recommended wilderness.

FEIS Appendix E at 217 and 218. This is highly misleading. First, the IRR classifications do not preclude wilderness recommendation, as this alleges. There is nothing in the IRR that biases any area from being evaluated in any alternative for wilderness recommendation in the forest plan revision process.

Regarding noise on the highway, there are two points that need to be made. Regarding the fallacy of outside sights and sounds, a Forest Service publication states:

> The Endangered bill contained several areas scattered throughout the West (the act contained 17), which the Forest Service had not recommended for wilderness study in RARE I, primarily because they did not conform with various aspects of the agency's definition of wilderness purity. One of the main issues concerned the so-called “sights and sounds” doctrine that had been used to exclude areas that were close to major urban centers. Sandia Mountain, and Lone Peak and Pusch Ridge, which overlooked Albuquerque, and Salt Lake City and Tucson respectively, were chosen to illustrate the application of that “doctrine.” The final committee reports on the bill directed the Forest Service to dispense with this doctrine, arguing that the accessibility of such areas actually enhanced their values as wilderness.

Roth, Dennis M. The Wilderness Movement and the National Forests: 1964-1980 (USDA Forest Service History Series FS 391, 1984) at 52. This document is in the Site Specific Roadless Folder.

The inconsistency and irony here is that when Congress in a committee report tells the Forest Service to dispense with a doctrine, it refuses to do so, apparently because the agency wants to prevent deserving areas from even being considered as Wilderness. Yet, when Congress suggests in a committee report that areas undergoing wilderness review (RARE II) shouldn't go through that anymore, the Forest Service interprets this as applying for all time (see the discussion above on the Gospel-Hump Wilderness), even though the very statute requires those areas go through the planning process, which includes a wilderness review. Again, this is apparently because the agency wants to prevent deserving areas from even being considered as Wilderness.

Two other points are relevant. The idea of pervasive noise throughout this area is contradicted below in the quote from the IRR and in the 1987 FEIS Appendix C on page C-195 for the Clearwater National Forests Plan, part of this planning record. There is noise in part of the area, but it is not pervasive. Also, the Selway-Bitterroot Wilderness goes down to the Lochsa River, and has the same issue with the Highway 12. This is not unique. A portion of the Great Bear Wilderness in Montana is along Highway 2 and the much busier Interstate 90 is along the Alpine Lakes Wilderness in Washington.

The FOC et al. Roadless Appendix states:

> Why was this area rejected for further consideration? The analysis is not clear. It was part of the old Selway Primitive Area and has the same character as the contiguous Wilderness. Further, natural fire has played a role in this area and the Forest Service agreed that it would allow natural fires in this area as per a resolution agreement on an appeal with Friends of the Clearwater on the South Side Fuels Project in 2011. If the concern is Jerry Johnson Hot Springs, a minor adjustment could solve that problem (see map). This area is a prime example of the arbitrary nature of the wilderness evaluation and analysis in the DEIS.
>
> A portion of the Selway-Bitterroot Wilderness abuts the Lochsa with highway 12 on the other side of the river. If this is the reason the FS chose to exclude this area—the fact that the roadless boundary comes down to the river on the opposite side of the highway – it makes no sense to do so.

FOC et al. Roadless Appendix at 7 and 8. The IRR also weighs in on this issue:

> **Natural Integrity:** Because of its inaccessibility, the area has been lightly impacted by past human activity. Overall it appears undisturbed and natural. The majority of trails were constructed in the early 1900's by the Forest Service to provide access for wildfire control. In addition to the three previously mentioned pack bridges, there is another such bridge in the Warm Springs Creek drainage.

Two fire lookouts are located at Bear Mountain and Jay Point. The Bear Mountain Lookout is still manned during the summer months. The Jay Point Lookout has been condemned and will likely be replaced. A number of outfitter camps are located throughout the area but do not contain any permanent improvements so evidence is minor.

Opportunities for Experience: The major side-drainages and higher elevation, mountain-upland landforms in the western portion provides visitors with relatively high solitude. Existing trails in this area follow main ridges. The side-drainages are screened from activities and noise coming from the U.S. Highway 12/Lochsa River corridor. The view looking out of these areas is towards the undeveloped North Lochsa Face Roadless Area located immediately north of U.S. Highway 12. The more exposed ridges and faces on the steeper breaklands in the western part of the area have lower solitude due to the lack of vegetation and views of U.S. Highway 12.

Located east of the Warm Springs Creek drainage, solitude is relatively high because of dense vegetation, gentler sloped stream bottoms, and larger proportion of mountain-upland and scoured glacial landforms. Noise from heavy truck traffic on U.S. 12 is noticeable along the steep breaklands south of the Lochsa River in the western portion of the roadless area. Because of the narrow canyon, this noise can be heard up to 1 to 2 miles from the highway on exposed faces and ridges. This distance is significantly reduced in the side drainages. Those areas of stream breaklands located east of Warm Springs are not affected as greatly by highway noise as these steeper areas because of gentler topography and the denser timber cover.

Those areas previously discussed that have high solitude also provide a high degree of challenge for visitors wishing to be isolated from development and human activity. The majority of the side drainages, with the exception of Warm Springs Creek, currently receive extremely light use because of their isolation and difficult access. The mountain-upland landforms receive more use than these areas and provide better visitor dispersion because of more favorable vegetation, topography, and access.

The area by itself does not give an impression of vastness, but in association with the Selway-Bitterroot Wilderness, it does. The visitor does not usually separate the two areas as it appears as one very large roadless area.

(IRR FEIS Vol 3 at C3-19.)

Getting back to the other arguments in Appendix E, the issue of a recreational cabin (a Forest Service administrative site) is equally fallacious. The decision to make these sites recreation cabins never went through NEPA and can be easily reversed. Lastly, the mention of whitebark pine is off base. The FEIS contains no accurate map of its range. Also, given the lower elevation as compared to the Wilderness and climate change, it is

unlikely that this area is very good habitat anyway. The faulty logic proffered by the Forest Service in this instance would suggest the ridiculous notion that the Selway-Bitterroot Wilderness should not be designated because of whitebark pine.

Rackcliff-Gedney: FEIS Appendix E alleges:

> This area is bounded by Highway 12 to the west and FR 223—Selway River Road to the south. Additionally, two roads intrude extensively into the area—FR 317 – Coolwater Road and FR 319 – Fog Mountain Road. The Boyd-Glover Roundtop trail is a National Recreation Trail open to motorcycle use. About four miles of fire line and 200 acres of roadside hazard tree removal are present. Noxious weeds cover about 2 percent of the area. The area includes one administrative building, Coolwater Lookout—a snow-measuring installation and repeater site. Collectively, these improvements and impacts reduce apparent naturalness and opportunity for solitude and primitive recreation. With these many intrusions the area is a poor candidate for recommended wilderness and best meets the Nez Perce-Clearwater desired conditions managed under the IRR Backcountry Restoration theme.

(FEIS Appendix E at 220.) The issues here are similar to the Lochsa Face portion of the Selway-Bitterroot Additions.

The FOC et al. Roadless Appendix states:

> The DEIS states:
>
> > This area is bounded by Highway 12 to the west and FR 223 – Selway River Road to the south. Additionally, two roads intrude extensively into the area – FR 317 – Coolwater Road and FR 319 -Fog Mountain Road. The Boyd-Glover Roundtop trail is a national Recreation trail open to motorcycly (sic) use. About four miles of fireline and 200 acres of roadside hazard tree removal are present. Noxious weeds cover about 2% of the area. The area includes one administrative building, Coolwater Lookout, a snow- measuring installation and repeater site. Collectively, these improvements and impacts reduce apparent naturalness and opportunity for solitude and primitive recreation.
>
> The lookout is outside of the roadless area as are the roads. A portion of the Selway-Bitterroot Wilderness abuts the Lochsa with highway 12 on the other side of the river. If this is the reason the FS chose to exclude this area—the fact that the roadless boundary comes down to the river on the opposite side of the highway – it makes no sense to do so. Minor boundary adjustments could eliminate the area logged by the Lowell WUI timber sale. It should be noted, that this sale was approved with a CE even though it apparently had, according to the analysis in the DEIS, an irreversible and irretrievable commitment. This area is a prime example of the arbitrary nature of the wilderness evaluation and analysis in

the DEIS and of the issues we raised in our roadless report.

> The boundary also failed to include lands that are roadless. The picture below includes the area excluded from the IRR but included in the 1987 forest plan. The area in the mid and foreground, left of the Selway River was excluded. Impacts are not evident. If they existed, they may have been rendered unnoticeable by the 2015 fires. A satellite photo of the area is attached as well.[32]

(FOC et al Roadless Appendix at 9.) The point is the Forest Service made a mistake in stating the roads and development associated with the lookout were part of the roadless area.[33] Fire lines, unfortunately, are even allowed in Wilderness and some have been constructed by machinery in recent years in Oregon (Soda Mountain Wilderness), California (Trinity Alps Wilderness), and Arizona (Bear Wallow).

Contrast the above two units with Rawhide. The FEIS Appendix E states:

> **Rawhide – Recommend moving forward in analysis**
> This 6,000-acre roadless area lies between two other roadless areas, sharing 75 percent of its boundary with them. Much of the area burned in the early 1900's and ecological processes have continued with little impact from human activity. Eighty-seven percent of the area is within the NRV and the area provides a small amount of whitebark pine habitat. There are no structures, mining claims, fire lines, timber harvest or grazing. Apparent naturalness is high. About half of the area provides a roaded natural setting. The remainder provides a semi-primitive non-motorized recreation opportunity spectrum (ROS). The eastern boundary is adjacent to a high speed, well-traveled road. Sights and sounds from this road impact most of the area and reduce the opportunity for solitude. However, its juxtaposition between two other roadless areas warrants further consideration.

(The FEIS Appendix E at 221.) The point is much larger areas are rejected from further analysis that have similar circumstances. While we support the Rawhide unit moving forward and recommend it as part of the Upper North Fork proposed wilderness, the inconsistency is glaring. This problem applies to virtually every area excluded from moving forward. In sum, there are no valid reasons for excluding these two units from every alternative for wilderness recommendation.

The Remaining Areas

The issues in the above discussion apply to every other area neglected in Appendix E. Yet another example is given below.

Cove-Mallard: (The FS confusingly refers to Cove as Gospel Hump): These are addition to the Frank Church River of No Return Wilderness. The FOC et al. Roadless Appendix noted:

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32 FEIS Appendix E fails to address this issue.

33 This may be due to a bad map in the 1987 FEIS for the Nez Perce National Forest Plan EIS.

> Cove – The DEIS claims there has been "some timber harvest." There has been none as the Cove- Mallard sales were excluded from the boundary. What did happen was some fireline construction; most of it was miles away and in the opposite direction of the prevailing winds. Is that what the DEIS refers to? (See attached).
>
> The DEIS also states, "some summer motorized use has been noted." What the DEIS fails to note is that use is illegal.
>
> The DEIS leads the reader to believe there is a lot of mining activity taking place. To what is the DEIS referring? Please detail and explain specifically what recent activity has removed the entire area from consideration for Wilderness?
>
> The reference to the committee report is irrelevant because committee language is not statute. This is deceptive.
>
> Mallard—The reference to the roads in the DEIS are deceptive because they are excluded. The DEIS claims, "summer motorized use is increasing." What the DEIS fails to note is that use is illegal.
>
> Alternatives should have recommended both of these areas as an addition to the Wilderness.

(FOC et al. Roadless Appendix at 15.) Indeed, the RODs for the Cove Timber Sales and the Mallard Timber Sales (both attached) closed the trails in the roadless area to summer motorized use and all of the newly constructed roads, which are excluded from the roadless area as mapped by FOC and provided twice during the revision process. The only use allowed was snowmobile use in these areas. Thus, the references to wheeled motorized use in the FEIS Appendix E are in error. See also the Nez Perce National Forest FEIS for DRAMVU included in the FOC et al. Roadless Appendix folder that confirms these closures.

The upshot is the FEIS Appendix E has factual errors that make it unreliable. Other areas are rejected in the FEIS for further consideration for essentially the same faulty reasoning as those areas addressed above. and the FEIS is baseless in its refusal to consider these areas in at least one alternative.

Further, in the other areas it appears that the Forest Service ignored the detailed analysis in the FOC et al. Roadless Appendix and previous submissions from FOC. There is considerable information provided to the Forest Service throughout the planning process that has been effectively ignored relating to the IRR areas and areas that were not IRR areas but should have been considered.[34] Add to that the inconsistency between the FEIS

34 Again we refer you to the FOC et al. Roadless Appendix and previous FOC submissions during the revision process about additions or boundary adjustments that should have been made to areas that were fully reviewed. These include Weitas Creek, Meadow Creek, North Lochsa Slope, and the

Appendix E versus the IRR and the Appendices (both C) in the FEISs for the 1987 Clearwater and the Nez Perce National Forests Plans, proves that the wilderness review is unreliable and inadequate. It needs to be redone.

Areas and Parts of Areas Analyzed but Not Recommended

The DEIS only offered a few hints as to what the agency might recommend for the few areas that went through the process. Given that reality, we have a few general concerns before addressing specific areas. The final boundaries on Meadow Creek and Kelly Creek/Great Burn were never even analyzed or hinted at in the DEIS or DFP. Indeed, the maps in both the FEIS and DEIS did not hint at such shockingly carved up boundaries for those two areas. At the very least, this violates the spirit of NEPA. Had there been an adequate range of alternatives in the DEIS (and FEIS), this might have been avoided. In addition, the maps in the FEIS are such a small scale as to make it difficult to actually see precisely where the recommended wilderness boundaries are located for those two areas and Mallard-Larkins.

As noted elsewhere in this objection, the Forest Service wrongly ignored the 1993 Clearwater National Forest Plan Lawsuit Settlement Agreement. Thus, the DROD and LMP recommend far less land than is currently managed as recommended wilderness. Further, even without that agreement, the allocations (including ROS settings) the LMP incorporates would result in far more development and motorization of the backcountry. The protection afforded to wolverines, lynx, elk, and grizzlies by MAs A3, C1, C6, and B2 (motorization and other forms of development) and the standards that close trails eventually accessing the Selway-Bitterroot Wilderness to motorized use are far more protective than the LMP. The Nez Perce National Forest Plan and the existing travel restrictions also offer more protection than does the LMP.

Weitas Creek

The rationale for not recommending this low elevation habitat is weak (draft ROD Appendix II-2 and 3). While some motorized use takes place, that is because the Forest Service has failed to abide by the current Forest Plan and 1993 Lawsuit Settlement Agreement. Most of the Weitas Creek Roadless Area should be closed to protect 100% elk habitat effectiveness. The agency is thumbing its nose at two federal judges who ruled against it in two cases on the Travel Plan by dragging its feet until the plan revision, which will remove the protections. In fact, the ROS allocation would open up areas that are currently closed to motor vehicles in summer, even-without closing the areas that should be closed. The information provided in the FOC et al Roadless Appendix (pages 3 and 4 and the folder), past FOC comments on the wilderness review process, and this Site Specific Roadless folder.

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combination of Upper North Fork and Rawhide. In the case of Weitas Creek and the Upper North Fork, we documented how Appendix C of the Clearwater National Forest Plan FEIS indicated these adjustments would aid in the management of those areas.

The concern over elk forage is misplaced. The irony is the Forest Service feigns concern for elk, but refuses to abide by its own Forest Plan to protect elk habitat. The fires in the early 1900s created an extremely abnormal (though natural) increase in elk forage. This, coupled with extensive predator poisoning and killing, caused a drastic and abnormal (somewhat unnatural) increase in elk numbers. Those number have come down, and needed to come down. Further, the Cook Mountain area is an important site for studying natural fire in the Clearwater.

The desire to create vegetative restoration for elk forage is also misleading, draft ROD Appendix II- 3. Manipulation to create more forage is not restoration, rather a desire to create an abnormal situation that occurred in the early 1900s. Prior to that time most of this area was heavily forested.

Page 29 of the draft ROD points out Weitas Creek is proposed as a Wild and Scenic River (Scenic). However, it surroundings dictate it should receive a wild designation.

Weitas Creek is unique. It is a broad valley large stream, very rare in this area, contains most of the incomparable Cayuse Creek (historically, the most important steelhead spawning area anywhere), the scientifically valuable Hemlock Creek, and is overall a lower elevation area. It is the premier wilderness candidate on the Nez Perce and Clearwater National Forests. Opening it up to even more motorized use and development will do nothing for elk or species like fisher, wolverine, or grizzlies.

Selway-Bitterroot Wilderness Additions

Meadow Creek: The FOC et al. Roadless Appendix noted:

> West Meadow Creek and East Meadow Creek are not almost severed by a road. That is a mischaracterization. They are one area.
>
> Areas west of the Meadow Creek divide should be considered for Wilderness. We point out in the general comments at the beginning of this appendix as this is a question regarding the agency's stated concern about being able to manage areas where motorized use occurs. In any case, there is a section of the divide trail that is closed to motorized use. Some of the roadless land was erroneously excluded even though the Forest Service recognized it roadless (see attached information).

(FOC et al. Roadless Appendix at 6 and 7.) The division of Meadow Creek into two separate areas was wrong. It is one area and it appears the Forest Service finally recognizes this (draft ROD at Appendix II-3).

Nevertheless, the scant recommendation is based on inaccurate information. The draft ROD on page 33 leads the reader to believe that roads 287 and 385 are in the roadless area. They are not and would be open if the entire area were recommended wilderness. The draft ROD states the western portion of Meadow Creek "is currently open to and popular for summer and winter motorized recreation." Ibid. This is also misleading as

most motorized use is on the divide part of the trail that is open. The maps provided in FOC et al Roadless Appendix folder are from the Forest Service and show what is open. The Butter Creek Trail was closed because of resource damage, yet this area is excluded. The draft ROD also claims "the Fire Risk Assessment identified this excluded area as being critical to protecting private land and other values at risk near the Elk City Township." and then states private land borders the roadless area. Ibid. This is also misleading for two reasons. The prevailing winds and slopes burn fires away from the private land. The vast majority of Meadow Creek is miles from any private land. Minor boundary adjustments or even placing the boundary along the divide trail would eliminate perceived conflicts.

Sneakfoot and North Fork Spruce: The draft ROD states:

> I am also no longer recommending Sneakfoot Meadows or North Fork Spruce, commonly known as the "Selway Additions" for designation as wilderness. These two areas adjacent to the Selway Bitterroot Wilderness in the 1987 plans totaled 19,330 acres and through this decision will now be managed through the management area 2 plan components and the Idaho Roadless Rule, which will protect the roadless characteristics these areas possess while making them available for additional management opportunities, including for motorized over-snow use in the winter.

The amount of land that is currently managed as recommended wilderness includes the Lawsuit Settlement Agreement Areas which are greater than 19,330 acres. This is misleading. Further, this will create barriers for wolverine and grizzlies.

Reintroducing fire into these areas has already happened naturally (draft ROD page 30). There is no need to exclude this area as a recommended wilderness and reintroduce fire. Several natural fires have burned here since 2003 as the Forest Service well knows.

Pot Mountain

The Forest Service admits this area has high wilderness attributes. However, in the name os so-called sustainable recreation (read mechanized and motorized) the area is not recommended (draft ROD Appendix II-9). Mechanized recreation use is not sustainable for grizzlies. (See https://www.nytimes.com/2019/10/07/science/bears-biking-national-parks.html).

Fish and Hungery Creeks

The concern over elk forage is misplaced (draft ROD Appendix II-8). Like on Weitas Creek, the irony is the Forest Service feigns concern for elk, but refuses to abide by its own Forest Plan to protect elk habitat. The fires in the early 1900s created an extremely abnormal (though natural) increase in elk forage. This, coupled with extensive predator poisoning and killing, caused a drastic and abnormal (somewhat unnatural) increase in elk numbers. Those number have come down, and needed to come down.

The desire to create vegetative restoration for elk forage is also misleading. Ibid.. Manipulation to create more forage is not restoration, rather a desire to create an abnormal situation that occurred in the early 1900s. Prior to that time most of this area was heavily forested.

Rapid River

Draft ROD Appendix II-9 suggests this area was eliminated because the Payette National Forest administrators do not recommend that part for Wilderness. That being the case, why does the this LMP and draft ROD eviscerate the Kelly Creek/Great Burn area, when contiguous areas on the Lolo National Forest are recommended for Wilderness?

Kelly Creek/Hoodoo/Great Burn

The draft ROD at page Appendix II- 4 states, "A portion of the area has well established snowmobile use and some summer motorized use." That use is illegal. The high country, the place illegally used by snowmobiles, is closed to snowmobile use in the Clearwater Travel Plan. Further, summer motorized use (Fish Lake) was closed by a Judge Winmill's Order. The Forest Service has apparently failed to enforce the law. Instead, this decision gives in to lawless behavior.

The draft ROD alleges:

> To provide for connectivity of habitats for wide ranging species, from the Mallard Larkins, all the way to the Selway Bitterroot Wilderness, we have created a landscape that will largely, with a few exceptions, be managed in a way that allows natural processes as the most prevalent form of management. The area has sparse motorized access currently, and through this decision will continue to provide large blocks of secure area for animals such as grizzly, bear, wolverine, and elk.

Because of the desire to open up the northern and southern ends of Kelly Creek/Great Burn in the winter, to allow mountain biking on the Stateline Trail, and the fact that the Upper North Fork is allocated to winter motorized use, this so-called connectivity does not exist. It will create more conflicts with wolverine and grizzlies than currently exist.

Upper North Fork/Rawhide

Not recommending this area mainly because of the fear of catastrophic fire is misplaced and shows ignorance of fire ecology (draft ROD Appendix II-7). This area naturally has stand-replacing fires. Please see our past submissions on fire ecology. Recent research also suggests prescribed fire may actually increase future fire severity.

Mallard-Larkins

The FOC et al. Roadless Appendix stated on page 19, "The spectacular Elizabeth Lakes Country was eliminated under every alternative. This crucial addition should not have been missed. No reason is given in the analysis portion of Appendix E for excluding this area." Elizabeth lakes is currently an A3 management area, which provides considerable protection, especially if the Forest Service were to follow its extant Forest Plan.

Boundary exclusions are not well documented, including some in the east and the west end of the IRA. A boundary "3,900-acre addition" adds lands that are currently of unknown or questionable wilderness quality. The maps are too small to clearly see where the boundary changes really are. While the addition is likely not a problem, it seems contradictory since areas of recognized high wilderness quality are excluded.

Moose Mountain

This area was recommended for Wilderness in RARE II. Dropping the area because of outside sights and sounds is addressed elsewhere in this objection (draft ROD Appendix II-7).

What is most disconcerting is the ROS allocation maps will allow turning the area into motorized use both summer and winter (the ROS maps also misrepresent the current situation).

SPECIES OF CONSERVATION CONCERN AND FOCAL SPECIES

Objectors commented extensively on the subject of Species of Conservation Concern (SCC), and on Focal Species. See, for example, the FOC et al comments on the draft LMP/EIS with a section starting on page 156. In addition, FOC submitted a letter on the topic to the Planning Team in a letter dated August 19, 2014, and followed that up with another letter to the Forest Supervisor dated November 30, 2016. The FS failed to explain its use of scientific information as best available science in regards to SCC and Focal Species, failed to explain why scientific information cited by commenters is not considered best available science, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in letters and comments. This violates NEPA.

Schultz, et al., 2013 state:

> (The 2012 Planning Rule) regulations represent the most significant change in federal forest policy in decades and have sweeping implications for wildlife populations. …The new planning rule is of concern because of its highly discretionary nature and the inconsistency between its intent on the one hand and operational requirements on the other. Therefore, we recommend that the USFS include in the Directives for implementing the rule commitments to directly monitor populations of selected species of conservation concern and focal species and to maintain the viability of both categories of species. Additional guidance must be included to ensure the effective selection of species of conservation concern and focal species, and these categories should overlap when possible. If the USFS determines that the

> planning unit is not inherently capable of maintaining viable populations of a species, this finding should be made available for scientific review and public comment, and in such cases the USFS should commit to doing nothing that would further impair the viability of such species. In cases where extrinsic factors decrease the viability of species, the USFS has an increased, not lessened, responsibility to protect those species. Monitoring plans must include trigger points that will initiate a review of management actions, and plans must include provisions to ensure monitoring takes place as planned. If wildlife provisions in forest plans are implemented so that they are enforceable and ensure consistency between intent and operational requirements, this will help to prevent the need for additional listings under the Endangered Species Act and facilitate delisting. Although the discretionary nature of the wildlife provisions in the planning rule gives cause for concern, forward-thinking USFS officials have the opportunity under the 2012 rule to create a robust and effective framework for wildlife conservation planning.

Unfortunately, the Directives for implementing the 2012 Planning Rule failed to supplement the Rule, and no "robust and effective framework for wildlife conservation planning" exists for the NPCNF. This is most evident in the FS planning for Species of Conservation Concern (SCC) and Focal Species.

Species of Conservation Concern

The 2012 Planning Rule requires:

> The responsible official shall determine whether or not the plan components required by paragraph (a) of this section provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area. If the responsible official determines that the plan components required in paragraph (a) are insufficient to provide such ecological conditions, then additional, species-specific plan components, including standards or guidelines, must be included in the plan to provide such ecological conditions in the plan area.

The FEIS provides inadequate scientific basis for demonstrating the coarse filter approach using vegetative plan direction would "provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area" as required by the planning rule. And where the coarse filter approach is not sufficient, the FEIS states, "Fine-filter plan components can be added when additional direction is needed to support a specific species." However, the LMP's fine-filter components are too minimal and would fail to protect biological diversity and species viability.

The Regional Forester has designated the animal species white-headed woodpecker, mountain quail, harlequin duck, bighorn sheep, fisher, and pacific lamprey as SCC. The FS's determinations regarding SCC are not based upon best available science and are arbitrary and capricious. Since the planning rule requires the FS to ensure viability only for those species on

the SCC list, it is of extreme importance that this list be scientifically robust. It's clear the FS is attempting to dodge practically all viability requirements of the planning rule.

There isn't even a species on the SCC list representing habitat affected by a natural process so vital even the FEIS acknowledges—mixed-severity fire. FOC et al. draft EIS/draft forest plan comments also discuss the importance of fire as a natural process, and at p. 243 begins a section on the black-backed woodpecker, which is a natural fit as an SCC. A September 2015 letter to Congress from 264 scientists explained to Congress:

> (N)umerous scientific studies tell us that even in the patches where forest fires burn most intensely, **the resulting wildlife habitats are among the most ecologically diverse on western forestlands and are essential to support the full richness of forest biodiversity** . . . This post-fire renewal, known as "snag forest" is quite simply **some of the best wildlife habitat in forests, and is an essential state of natural processes** . . . post-fire logging does far more harm than good to public forests.

The combination of the LMP coarse filter and fine filter approaches for wildlife and fish are scientifically inadequate and will allow population declines without any truly functioning adaptive management mechanisms in place to reverse course. As Noon et al., 2003 warned, "(the) failure to detect declining species and to address the putative threats to their persistence leaves only the prohibitive provisions of the Endangered Species Act to serve as a safety net." The case of the wolverine is instructive. Ten years ago the NPCNF's SCC Assessment did not include it. Yet the wolverine was listed as Threatened under the ESA in 2023. And there's little reason to expect the USFWS to provide an effective safety net, given "the agency employs a myriad of delay tactics in attempting to avoid listing species under the ESA." (Bechtold, 1999.)

Noon, et al. 2003 strongly suggest there is insufficient scientific support for the approach taken by the LMP: "Reliance on such 'coarse-filter' assessment techniques is problematic because there tends to be poor concordance between species distributions predicted by vegetation models and observations from species surveys." They recommend implementing a fine filter approach with the coarse filter approach. However, the quality of what Noon et al. 2003 recommend far exceeds what the FS has done with this LMP:

> Many rare and declining species are limited primarily by the availability of suitable habitat (Wilcove et al. 1998), and the viability of such species depends to a great extent on how much of their habitat is conserved. Population viability analysis (PVA) is an in-depth method of fine-filter assessment used to evaluate habitat loss or similar risk factors for specific species (Boyce 2002, Shaffer et al. 2002).
>
> An assessment approach that includes both coarse and fine filters and PVA was recommended by the Committee of Scientists to the US Forest Service and incorporated into the 2000 NFMA regulations (COS 1999). In addition to rare and at-risk species, the committee recommended that two groups of species be evaluated using fine filters—those that provide comprehensive information on the state of a given ecosystem (indicator species) and those that play significant functional roles in ecosystems (focal species). The latter category includes species that contribute disproportionately to the transfer of matter

> and energy (e.g., keystone species), structure the environment and create opportunities for additional species (e.g., ecological engineers), or exercise control over competitive dominants, thereby promoting increased biotic diversity (e.g., strong interactors). Thus, fine-filter assessments might be needed for 10 to 50 of the 200 to 1100 species typically evaluated in regional planning efforts carried out by the Forest Service and may need to include select invertebrates as well as vertebrates and plants.
>
> Formal PVAs are needed only for species in decline or at high risk or for species with such functional significance that their loss might have unacceptable ecological effects. Many methods of viability assessment exist to accommodate diverse sources and amounts of data (Beissinger and Westphal 1998, Andelman et al. 2001). All methods explicitly or implicitly require some sort of model that relates population dynamics to environmental variables, including variables affected by management. The range of available methods offers a tradeoff between complexity of analysis and generality of results.
>
> Population viability analysis is neither inherently difficult nor expensive, but it does require thoughtful model choice and construction and good judgment in the implementation of analyses. Perhaps the most demanding aspect of building realistic PVA models for assessment of alternative management scenarios is acquisition of sufficient data to yield accurate and precise parameter estimates (Beissinger and Westphal 1998). These models then permit reliable assessments of alternative management scenarios (Noon and McKelvey 1996). The choice of models and data collection methods depends in part on the life history characteristics of the species to be assessed, the quality and quantity of existing data, the time and money available for additional data acquisition, and the resolution and extent of analysis (Beissinger and Westphal 1998, Andelman et al. 2001).
>
> An expert panel convened by the National Center for Ecological Analysis and Synthesis, at the request of the Forest Service, concluded that "viability assessment is an essential component of ongoing forest management and forest planning processes. A variety of methods can and should be incorporated into viability assessments" (Andelman et al. 2001, p. 136). A scientifically credible approach to management of a diversity of plant and animal communities in US national forests and national grasslands combines coarse-filter and fine-filter approaches to identify conservation targets, including the judicious use of PVA for focal species and species at risk. Scientifically valid and pragmatic management does not require that the status of all species be directly assessed. But failure to detect declining species and to address the putative threats to their persistence leaves only the prohibitive provisions of the Endangered Species Act to serve as a safety net.

Andelman et al. 2001 provide this caution concerning how the FS uses historical information:

> (B)ecause existing landscapes typically differ from historical landscapes in many aspects, methods are needed to evaluate existing capabilities of the landscape to provide for species viability, and to project future probabilities that the landscape can continue to support the species.

Traill et al., 2010 discuss more details of a fine filter approach:

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

How logical and reasonable it would be to take at-risk species or species highly dependent upon components of the ecosystem that have been depleted by past logging or are otherwise known to be harmed by the management regime, create a spatial and temporal description of how the landscapes at various nested levels would look to assure those species' abundance and distribution (based on best available biological science), and then design a forest plan to actually achieve those conditions (or at least allow natural processes to create them). Instead, we have thousands of pages of documents designed to obfuscate and distract from accomplishing anything resembling that task.

Considering the LMP's weak direction for SCC there are no genuine, scientifically robust conservation strategies for wildlife. The LMP contains no nondiscretionary requirement to survey for any fish or wildlife species that might inhabit the NPCNF or to monitor their abundance or population trends. As a result, the LMP is inconsistent with NFMA requirements to maintain diversity on the NPCNF.

Focal Species

The LMP finally takes up the subject of Focal Species in its Appendix 3 Monitoring Plan:

> Focal Species are a small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs. Monitoring focal species provides **meaningful information** regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities and the persistence of native species in the plan area. Focal species are commonly selected on the basis of their functional role in ecosystems. The monitoring program must include one or more monitoring questions addressing the status of focal species as a means to assess the ecological conditions required under 36 CFR 219.9. **Focal species for the Nez Perce-Clearwater are Western pearlshell mussel, Ponderosa pine, and elk.**

(Emphases added.) The FEIS states:

> The monitoring plan also includes monitoring questions to evaluate the status of focal species as a means to assess the ecological conditions required under 36 CFR 219.9. Focal species are a small subset of species whose status permits inference **to the integrity of the larger ecological system** to which it belongs. …The monitoring program must include one or more monitoring questions addressing the status of focal species as a means to assess the **ecological conditions** required under 36 CFR 219.9.

(Emphases added.) Yet the LMP exemplifies the meaning of meaninglessness in its choice of Focal Species and its monitoring methodology. In comparing the No Action and action alternatives, the FEIS fails to identify the vast distinction between similarly conceived Management Indicator Species (MIS) under the 1987 forest plans. Most glaring, there is no Focal Species representing old-growth habitat—the importance of which the FS recognizes in the 1987 NPNF Forest Plan FEIS: "**One of the most critical elements of diversity in a managed forest is old growth. If sufficient old growth is retained, all other vegetative stages from grassland through mature forest will be represented in a managed forest."** The FS did not state why that FEIS statement is wrong. It just ignored its implications for focal species, monitoring, for "the integrity of the larger ecological system to which (old growth) belongs" and diversity in the context of NFMA and the 2012 Planning Rule. FOC et al comments on the draft LMP examined this issue in great detail, but the FS refused to respond in any meaningful way. The LMP and FEIS violate NFMA and NEPA.

The 2012 Planning Rule requires the use of **focal species**—a concept that is not really distinct from the 1982 Planning Rule concept of management indicator species (MIS). Essentially, the LMP adopts nothing of value concerning focal species from the 2012 Planning Rule, and identifies very few focal species.

This is inconsistent with the agency's own best available science. We look to the USDA's responses to comments on the 2012 Planning Rule to provide further explanation of how the LMP ought to utilize focal species, because the definition in the Planning Rule itself is so vague. The USDA says:

> Appropriate monitoring of focal species will provide information about the integrity of the ecosystem and the effectiveness of the plan components in maintaining diversity of plant and animal communities in the plan area. In other words, focal species monitoring is used as means of understanding whether a specific ecological condition or set of conditions is present and functioning in the plan area.
>
> …Focal species …are species whose presence, numbers, or status are useful indicators that are intended to provide insight into the integrity of the larger ecological system…
>
> …Focal species monitoring provides information regarding the effectiveness of the plan in providing the ecological conditions necessary to maintain the diversity of plant and animal communities and the persistence of native species in the plan area.

> Monitoring for …focal species will also provide information about the effectiveness of plan components for at risk species.[35]

Essentially, this means that focal species are basically to be used as monitoring tools, to check on the effectiveness of LMP components for maintaining "at risk" [36] species and the diversity of plant and animal communities on the Forests, and whose presence, numbers, or status as monitored are intended to provide insight into the Forests' ecological integrity.

However, not only are focal species to provide insight into the effectiveness of forest plan elements, the USDA states that they are also to provide insight into the 2012 Planning Rule itself:

> Focal species …are species whose presence, numbers, or status are useful indicators that are intended to provide insight into …the effectiveness of the § 219.9 provisions.

Those are very big shoes for a focal species to fill—perhaps that's why the FS refuses to make a genuine effort at identifying and utilizing focal species for the NPCNF LMP.

If identified correctly, how would the status of focal species be measured? The USDA admits the 2012 Planning Rule is vague, and largely says what is **not** required:

> …The rule does not specify how to monitor the status of focal species. …The objective is not to choose the monitoring technique(s) that will provide the most information about the focal species, but to choose a monitoring technique(s) for the focal species that will provide useful information with regard to the purpose for which the species is being monitored.
>
> …Focal species monitoring is not intended to provide information about the persistence of any individual species. The rule does not require managing habitat conditions for focal species, nor does it confer a separate conservation requirement for these species simply based on them being selected as focal species.
>
> … (P)opulation trend monitoring is not required by the final rule.

The USDA does suggest how focal species might be monitored: "Monitoring methods may include measures of abundance, distribution, reproduction, presence/absence, area occupied, survival rates, or others." No requirements in the Forest Plan area responsive to those suggestions.

The Committee of Scientists (1999) states:

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[35] How the Forest Plan might utilize focal species to conserve and recover "at risk" species is uncertain, because the USDA states that "Focal species are not intended to be a proxy for other species…" and "Focal species are not surrogates for the status of other species."

[36] Unfortunately, there is no Glossary definition of "at risk species."

> Given the importance of monitoring for ecological sustainability, a critical step will be to broadly define ecological attributes to include any biotic or abiotic features of the environment that can be measured. The convention has been to refer to the measured attributes as "indicator variables" under the assumption that their values are indicative of the integrity of the larger ecosystem to which they belong. The Committee adopts this definition and extends it to include the concept of focal species. These are species that fulfill the indicator criterion and provide specific insights into the biological diversity of the ecological system at different scales.

The USDA does state that there must be more than mere measurement of vegetative conditions—that a set of ecological conditions must be monitored:

> Respondents felt that monitoring habitat conditions only, specifically related to vegetation composition and structure, will not adequately address the reasons why species may or may not occupy those habitats; and that there may be other stressors unrelated to habitat that make suitable habitat conditions unsuitable for occupation by a particular species. The final rule requires monitoring the status of select ecological conditions. The concept of ecological conditions as defined in the proposed rule and the final rule includes more than vegetation composition and structure…
>
> Those ecological conditions "encompass (vegetation composition and structure) as others, including stressors that are relevant to species and ecological integrity. Examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species.

The USDA also stated:

> The concept of focal species is well supported in the scientific literature and community. … The inclusion of the focal species (§ 219.19) in the monitoring section is based on concepts from the March 15, 1999, Committee of Scientists report, which recommended focal species as an approach to monitor and assess species viability.

Here is an example of the 2012 Planning Rule ignoring its own best available science. Whereas "population trend monitoring is not required by the final rule", the Committee of Scientists (1999) report is completely contradictory. They state:

> Habitat alone cannot be used to predict wildlife populations, however. The presence of suitable habitat does not ensure that any particular species will be present or will reproduce. Therefore, populations of species must also be assessed and continually monitored.

Yet **monitoring ecological conditions** for focal species—habitat—is precisely what the 2012 Planning Rule says is all that's required. The Committee of Scientists (1999) states:

> An emphasis on focal species, including their functional importance or their role in the conservation of other species, combines aspects of single-species and ecosystem

management. It also leads to considering species directly, in recognition that **focusing only on composition, structure, and processes may miss some components of biological diversity**.

Regarding how to go about choosing focal species, the USDA's responses to comments on the 2012 Planning Rule states:

> In some circumstances, a threatened, endangered, proposed, or candidate species, or a species of conservation concern may be the most appropriate focal species for assessing the ecological conditions required by § 219.9.
>
> The Committee of Scientists report said focal species may be indicator species, keystone species, ecological engineers, umbrella species, link species, or species of concern. Agency directives will provide guidance for considering the selection of a focal species from these or other categories. Criteria for selection may include: the number and extent of relevant ecosystems in the plan area; the primary threats or stressors to those ecosystems, especially those related to predominant management activities on the plan area; the sensitivity of the species to changing conditions or their utility in confirming the existence of desired ecological conditions; the broad monitoring questions to be answered; factors that may limit viability of species; and others.

The Committee of Scientists (1999) also suggests a pool of potential focal species:

> The key characteristic of a focal species is that its status and time trend provide insights to the integrity of the larger ecological system. The term "focal" includes several existing categories of species used to assess ecological integrity:
>
> 1) Indicator species: species selected because their status is believed to (1) be indicative of the status of a larger functional group of species, (2) be reflective of the status of a key habitat type; or (3) act as an early warning of an anticipated stressor to ecological integrity. The presence of fish in a river is an indicator of water quality.
> 2) Keystone species: species whose effects on one or more critical ecological processes or on biological diversity are much greater than would be predicted from their abundance or biomass (e.g., the red-cockaded woodpecker creates cavities in living trees that provide shelter for 23 other species).
> 3) Ecological engineers: species who, by altering the habitat to their own needs, modify the availability of energy (food, water, or sunlight) and affect the fates and opportunities of other species (e.g., the beaver).
> 4) Umbrella species: species who, because of their large area requirements or use of multiple habitats encompass the habitat requirements of many other species (e.g., deer).
> 5) Link species: species that play critical roles in the transfer of matter and energy across trophic levels or provide a critical link for energy transfer in complex food webs. For example, prairie dogs in grassland ecosystems efficiently convert primary plant productivity into animal biomass. Prairie dog biomass, in turn, supports a diverse predator community.

6) Species of concern: species that may not satisfy the requirement of providing information to the larger ecosystem but because of public interest will also be monitored and assessed for viability. Such species include some threatened and endangered species, game species, sensitive species, and those that are vulnerable because they are rare.

BIRD SPECIES DIVERSITY

The 2023 Land Management Plan (LMP) for the Nez Perce-Clearwater National Forest is a violation of the National Forest Management Act (NFMA) as it has no provisions to maintain a diversity of wildlife in the project area, including 70 species of western forest birds; this NMFA failure also triggers a violation of the Migratory Bird Treaty Act (MBTA) which requires preservation of these western forest birds; the MBTA is also being violated by this LMP because the Forest Service has failed to evaluate LMP proposed project impacts on 70 species of western forest birds; this analysis failure also triggers a violation of the National Environmental Policy Act (NEPA).

We have estimated that there are approximately 70 species of western forest birds that are impacted by forest vegetation activities that involve removal of any sized trees, including noncommercial trees (including those within the forest subcanopy) and prescribed burning activities; all these activities remove habitat for western forest birds and thus reduce their carrying capacity across the forest landscape. The following is a summary of the western forest birds that occur on the Nez Perce-Clearwater National Forest, along with their habitat associations. All of these species will be adversely impacted by the proposed vegetation management activities planned on the Nez Perce-Clearwater Forest, as defined in the LMP. These include 87,000 acres of logging over 5 years (LMP 32-33), up to 15,000 acres of logging for elk over 5 years(LMP 65)m and 6,333 acres of logging every 5 years also for elk management (LMP 65). These planned treatments for each of the 5 year spans of LMP implementation will remove/degrade 21,754 acres of habitat for western forest birds per year, and 108,773 acres of habitat for western forest birds over 5 years. Over 15 years of the LMP implementation, 326,310 acres of habitat for western forest birds will be removed and/or degraded. Yet there is no analysis in the 2023 LMP and the associated Final Environmental Impact Statement (FEIS) as to how these massive modifications of the forest landscape can maintain these 70 species of western forest birds, or how these massive removals of habitat for these species will impact their carrying capacity. The Nez Perce-Clearwater LMP and associated FEIS need to be revised to address these severe shortcomings.

The following is a summary of how 70 species of western forest birds use habitats on the Nez Perce-Clearwater National Forest. Presence of these species is based largely on birds noted to be present in Latilongs 25 and 48 as per Skaar (1996) titled Montana Bird Distribution, Fifth Edition, March 1996. These Latilongs are immediately adjacent to the Nez Perce-Clearwater National Forest.

The following 45 species of western forest birds are generally associated with mature and older coniferous forests:

Vaux's Swift	Lewis's Woodpecker	Hairy Woodpecker
Three-toed Woodpecker	Black-backed Woodpecker	Northern Flicker
Pileated Woodpecker	Olive-sided Flycatcher	Hammond's Flycatcher
Cassin's Finch	Evening Grosbeak	Gray Jay
Stellar's Jay	Williamson's Sapsucker	Mountain Chickadee
Red-breasted Nuthatch	Chestnut-backed Chickadee	Pygmy Nuthatch
Brown Creeper	White-breasted Nuthatch	House Wren
Winter Wren	Ruby-crowned Kinglet	Mountain Bluebird
Swainson's Thrush	Golden-crowned Kinglet	Townsend's Solitaire
Hermit Thrush	American Robin	Varied Thrush
Solitary Vireo	Yellow-rumped Warbler	Townsend's Warbler
Wilson Warbler	Orange-crowned Warbler	Western Tanager
Chipping Sparrow	Black-headed Grosbeak	Pine Grosbeak
Dark-eyed Junco	Brown-headed Cowbird	Red Crossbill
Pine Siskin	White-winged Crossbill	Clark's Nutcracker
White-headed Woodpecker		

The following 15 species of western forest birds are more strongly associated with deciduous vegetation, as well as more dense understory vegetation, within coniferous forested landscapes:

Dusky Flycatcher	Least Flycatcher	Lazuli Bunting
Red-naped Sapsucker	Cordilleran Flycatcher	Downy Woodpecker
Tree Swallow	Western Wood-Pewee	Veery
Cedar Waxwing	Black-capped Chickadee	Warbling Vireo
Rufous Hummingbird	Violet-green Swallow	Calliope Hummingbird

The following 14 forest raptors are likely present in coniferous forests of the Nez Perce-Clearwater National Forest.

Golden Eagle	Cooper's Hawk	Flammulated Owl
Barred Owl	Northern Goshawk	Red-tailed Hawk
American Kestrel	Sharp-shinned Hawk	Great Horned Owl
Northern Pygmy-Owl	Northern Saw-whet Owl	Boreal Owl
Great Gray Owl	Western Screech Owl	

The following is a summary of how logging and fuels management activities planned on the Nez Perce-Clearwater National Forest by the 2023 LMP will reduce the carrying capacity of western forest birds, due to a failure of the RFP to require management of these species. This summary includes all species of western forest birds that have been identified in various reports as species of conservation concern. These include Montana Species of Concern, Region 10 Birds of Conservation Concern, species identified as declining by monitoring results (USDA 2023), and birds identified as Priority Species by either the Montana or Idaho Partners in Flight documents.

a. Birds requiring old growth forests

The following 25 species of western forest birds, including raptors, or approximately 36% of all species of western forest birds, have been identified as being associated with old growth forests for one or more of their seasonal needs (USDA 1990; USDA 2018). These old growth-associated species would comprise roughly 30% of the total western forest bird species present in this landscape:

> Vaux's Swift, Lewis Woodpecker, Hairy Woodpecker, Three-toed Woodpecker, Black-backed Woodpecker, Pileated Woodpecker, Chestnut-backed Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, Townsend's Warbler, Pygmy Nuthatch, Brown Creeper, Hammond's Flycatcher, Winter Wren, Golden-crowned Kinglet, Swainson's Thrush, Hermit Thrush, Pine Grosbeak, Varied Thrush, Northern Goshawk, Williamson's Sapsucker, White-headed Woodpecker, Great Gray Owl, Boreal Owl, and Flammulated Owl.

The Nez Perce-Clearwater LMP does not require protection of any old growth forests. Any and all old growth can be logged down to 10-15 trees, or the level required in a silvicultural seed tree cut, due to misrepresentation of the Green et al. (1991) definitions of old growth, which in itself is a NEPA violation. The agency does not actually identify the level of current old growth on the forest, so it is no clear if existing amounts meet the requirements of the 25 species of western forest birds that require old growth. Whatever this current level of old growth is, it could be reduced to "zero" with LMP implementation. The historical levels of old growth in the Northern Rockies is 20-50% (Lesica 1996). The recommended level of old growth for passerine birds is 20-25% (Montana Partners in Flight 2000). The recommended level of old growth for the Pileated Woodpecker is 25% (Bull and Holthausen 1993), and is 20% for the Northern Goshawk (Reynolds et al. 1992).

The LMP FEIS did not define why vegetation treatments in old growth will maintain habitat for the 25 species of western forest birds that use old growth for persistence. Until the agency can provide supporting documentation that logging of old growth will maintain these 25 species of western forest birds that use old growth forests, the LMP and associated FEIS are a violation of the NFMA, the NEPA and the MBTA.

b. Birds requiring forested snag habitat

The Nez Perce-Clearwater LMP uses a snag management strategy, as noted in Table 13 at page 34, that was shown to be invalid in the 1980s and 1990s. To date, no forests in Region 1 of the Forest Service have demonstrated that the average number of snags per acre "across a landscape" is a valid proxy for carrying capacity of western forest birds. The current LMP strategy for snag management has been identified as invalid since 1988 (Goggans et al. 1988) and 1997 (Bull et al. 1997). Simply keeping a few snags in logged areas does not provide foraging habitat, hiding cover, and thermal cover required by birds that nest in cavities. There are no valid habitat strategies for any cavity-nesting bird in the Nez Perce-Clearwater LMP, which means that the persistence of at least 28 species of western forest birds that require forested snag habitat (USDA 2018) will have significant habitat losses as a result of this project. This severe impact of the LMP on these bird species was never identified in the LMP FEIS. The LMP FEIS also did not define how populations of these 28 species of western forest birds associated with snags will be

maintained to ensure a diversity of wildlife are maintained by the LMP. These species comprise approximately 40% of all western forest bird species within this landscape, and are identified as follows:

> Vaux's Swift, Lewis Woodpecker, Red-naped Sapsucker, Hairy Woodpecker, Downy Woodpecker, Three-toed Woodpecker, Black-backed Woodpecker, Northern Flicker, Pileated Woodpecker, Tree Swallow, Violet-green Swallow, Black-capped Chickadee, Mountain Chickadee, Chestnut-backed Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, Winter Wren, Pygmy Nuthatch, Brown Creeper, House Wren, Mountain Bluebird, American Kestrel, Flammulated Owl., Northern Pygmy Owl, Great Gray Owl, Boreal Owl, Flammulated Owl, and Northern Saw-whet Owl.

c. Western forest birds noted to require relatively undisturbed older forest habitat with high conifer seed production and bark beetle infestations

The Nez Perce-Clearwater LMP does not require any management for western forest birds that require older, undisturbed forest stands in addition to old growth habitats. These stands would not necessarily be old growth forests, but would be recruitment old growth. Hutto (1995) identified the following 16 species of western forest birds as generally restricted to older, undisturbed forest habitat.

> Brown Creeper, Chestnut-backed Chickadee, Golden-crowned Kinglet, Gray Jay, Hammond's Flycatcher, Hermit Thrush, Mountain Chickadee, Pine Grosbeak, Pileated Woodpecker, Red-breasted Nuthatch, Townsend's Warbler, Varied Thrush, Winter Wren, Ruby-crowned Kinglet, Solitary Vireo, and Stellar's Jay.

These older, undisturbed forest stands, while not necessarily providing old growth forests, would provide high levels of nesting sites, hiding cover, thermal cover, and foraging sites, including conifer seed production. Older forest stands with relative high densities of older trees provide the highest level of conifer seed production for western forest birds, including the Red Crossbill; many birds require a minimum level of conifer seed production for survival, particularly in forests with high level of productivity at lower elevations (Benkman 1996). The following 21 species of western forest birds are known to consume conifer seeds (Smith and Balda 1979; Smith and Aldous 1947):

> Clark's Nutcracker, Hairy Woodpecker, Gray Jay, Stellar's Jay, Mountain Chickadee, White-breasted Nuthatch, Red-breasted Nuthatch, Pgymy Nuthatch, Red Crossbill, Pine Siskin, Red-shafted Flicker, Lewis's Woodpecker, Winter Wren, American Robin, Evening Grosbeak, Brewer's Blackbird, Evening Grosbeak, Pine Grosbeak, American Goldfinch, Slate-colored Junco, Oregon Junco, and Chipping Sparrow.

Unmanaged older conifer forests are also important to western forest birds by providing areas for infestations of mountain pine beetles, which provide foraging sites for woodpeckers, which in turn create nesting cavities for all those other birds that require cavities for nesting. A 2006 publication by the Avian Science Center noted that in areas that provided significant pine beetle populations, especially lodgepole pine forests, 4 woodpecker species were commonly located in

beetle infested areas, including the Hairy, Pileated, Three-toed Woodpeckers, and the Common Flicker; the Three-toed Woodpecker was associated with both insect-infested trees from bark beetle outbreaks and post-fire outbreaks. They also noted that primary cavity-nesters such as woodpecker rely on forest conditions for nesting, foraging and protection, and natural disturbances such as beetle infestations may provide suitable habitat conditions for a number of these species, mainly because of the foraging opportunities found therein; the Three-toed Woodpecker was the most associated with beetle outbreak areas and was found in disproportionately high numbers. In essence, managing for beetle outbreaks is management for woodpeckers which is management for almost all other cavity nesting birds, as woodpeckers create the nesting cavities for almost all other cavity nesting birds.

The Nez Perce-Clearwater LMP has no management requirements for western forest birds that rely on mature and older undisturbed forests that provide high concentrations of conifer seed resources, and high levels of insect pests that not only feed birds, but provide essential habitat for all cavity nesting birds by brining in woodpeckers. As such, this LMP is a violation of the NFMA as wildlife habitat diversity is not being ensured. This LMP is also a violation of the NEPA because there is no analysis in the associated FEIS as to how the lack of management of adequate levels of older forests with natural disturbances of insects will affect carrying capacity of the majority of western forest birds.

d. Western forest birds/raptors that have been identified as needing increased management of the population and/or habitat

The following species of western forest birds have been identified as Montana Species of Concern, including 8 identified as associated with old growth forests, and 6 which require cavities for nesting:

> Northern Goshawk, Golden Eagle, Brown Creeper, Evening Grosbeak, Pileated Woodpecker, Cassin's Finch, Varied Thrush, Lewis's Woodpecker, Clark's Nutcracker, Black-backed Woodpecker, Great Gray Owl, Flammulated Owl and Veery.

The following species of western forest birds have been identified as Bird Species of Conservation Concern for Region 10, the Northern Rockies, by the U. S. Fish and Wildlife Service, including 2 associated with old growth forests, which also require cavities for nesting;

> Calliope Hummingbird, Rufous Hummingbirds, Flammulated Owl, Lewis's Woodpecker, Olive-sided Flycatcher, Evening Grosbeak, and Cassin's Finch.

The following 11 species of western forest birds have been identified as Priority I Species in the Idaho Partners in Flight (2000) Bird Conservation Plan that are associated with old growth (USDA 2018; USDA 1990):

Northern Goshawk, Lewis Woodpecker, Williamson's Sapsucker, Black-backed Woodpecker, Brown Creeper, Varied Thrush, Townsend's Warbler, Hammond's Flycatcher, Flammulated Owl, and White-headed Woodpecker, and Vaux's Swift.

Of these 11 species associated with old growth forests in Idaho that are identified as Priority I species for conservation, 6 also require snags as nesting habitat, including the Lewis Woodpecker, White-headed Woodpecker, Black-backed Woodpecker, Brown Creeper, Flammulated Owl, and Vaux's are associated with snags for nesting habitat.

The following 10 species of western forest birds have been identified as in decline in the Northern Rockies Region 10 of the U.S. Fish and Wildlife Service (USDA 2023), including 4 that require cavities for nesting, and 3 that are associated with old growth forests:

> Three-toed Woodpecker, Black-capped Chickadee, Brewer's Blackbird, Clark's Nutcracker, Least Flycatcher, Mountain Bluebird, Northern Flicker, Varied Thrush, White-winged Crossbill, and Winter Wren.

The following 4 species of western forest birds are noted to recently be in decline on the Flathead National Forest, including 3 associated with old growth forests (USDA 2023):

> Black-capped Chickadee, Golden-crowned Kinglet, Varied Thrush, and Winter Wren.

e. Summary of project impacts on western forest birds dependent upon older forested habitat for viability

The status of western forest birds has been identified as a conservation concern. Rosenberg et al. (2019) reported that 64% of 67 species of western forest birds are in decline. The North American Bird Conservation Initiate (2022) estimated that roughly half of western forest bird species are in decline. These differences are due to different definitions of a western forest bird. But both reports identify the need for increased conservation measures for these birds. In spite of this, the Nez Perce-Clearwater LMP has no conservation strategies of habitat plans for any of the likely 70 species of western forest birds that may occur on this forest.

There are 24 species of western forest birds on the Nez Perce-Clearwater National Forest that require old growth forests as primary habitat. These represent 36% of all western forest birds that have no management requirements in the forest's 2023 LMP.

There are 28 species of western forest birds on the Nez Perce-Clearwater National Forest that require cavities within forested habitat for nesting. These represent 40% of all western forest bird species.

The combined total of western forest birds that use either old growth forests or forests with snag habitat is almost 50%, or half, of all species of western forest birds that likely occur on the Nez Perce-Clearwater National Forest. Yet the LMP has no valid conservation strategy for half of all species of western forest birds that likely occur on the forest. Given the massive vegetation treatments planned across this forest as per the LMP, it is scientifically impossible for the forest to avoid huge declines in the carrying capacity of these birds, in violation of the NFMA. The failure of the LMP FEIS to disclose to the public and also to evaluate this massive reduction in carrying capacity for old growth and snag-associated species of western forest birds is a violation of the NEPA and the MBTA as well.

The provision of adequate amounts of old growth forests, and older forest habitats infested with insects and disease to provide snags, will also address the dependence of many western forest birds of undisturbed older forest habitats that also contain high production of conifer seeds. These are clear habitat requirements that can be addressed by the agency, but were completely ignored in the 2023 LMP. As such, the LMP as currently defined and evaluated in the FEIS means that the forest's planning process has failed to meet the legal requirements, and needs to be revised to adhere to the requirements of the NEPA, the NFMA, and the MBTA.

f. The LMP and associated FEIS did not evaluate how clearcutting, including openings over 40 acres in size, will affect the carrying capacity of 70 species of western forest birds.

Clearcutting will remove habitat for almost all western forest birds until conifer and shrub regeneration occurs. Examples of the adverse effects of clearcuts include for the Pileated Woodpecker (Bull and Holthausen 1993), that is both a Montana Species of Concern and a Priority 1 species in Idaho. Another clear example of adverse effects of clearcutting includes the Northern Goshawk (Reynolds et al. 1992), where openings over 4 acres are not considered foraging habitat. Clearcutting will also remove old growth forest for up to 200 years prior to recovery, it will remove forested snag habitat for at least 100 years, and it will remove high concentrations of conifer seeds for a similar time period, until trees reach maturity (Benkman 1993). Yet the 2023 LMP and associated FEIS did not evaluate how clearcutting will impact 70 species of western forest birds. The level of carrying capacity reduction for these birds per acre of clearcutting needs to be defined to the public, and environmental impacts disclosed and evaluated in regards to the planned massive logging programs planned on this forest.

g. The LMP and associated FEIS did not evaluate the impacts of wide-spread prescribed burning on 70 species of western forest birds.

It has been documented that smoke is toxic to birds. As the result of Bald Eagle nestlings being killed by a prescribed burn near their nest, a California State Wildlife Health Lab Biologist reported the following (Defiance Canyon Raptor Rescue 2022):

"A bird's respiratory system is more sensitive to toxins, including smoke, than a mammal's respiratory system. This is because birds have a higher oxygen demand than mammals and a bird's lungs are 10 times more efficient at capturing oxygen. The rapid efficiency of gas exchange in bird lungs makes them more susceptible to inhaled toxic agents, including smoke. Inhaled toxins, such as smoke, can cause irritation and damage the respiratory system. It also can compromise the immune system, making the bird more susceptible to infections. This is especially true in young birds in the nest that are unable to escape the smoke. Smoke inhalation toxicity in birds is caused by irritant gasses (aldehydes, hydrogen chloride, and sulfur dioxide), particulate matter, and nonirritant gases (carbon monoxide, carbon dioxide, and hydrogen cyanide) released by combustion."

The Nez Perce-Clearwater LMP does not evaluate the impacts of prescribed burning and fuels reduction activities that create smoke on direct and indirect mortality of western forest birds.

Clearly, the RFP does not ensure viability of this large suite of wildlife as a result. Until the impact of prescribed fire on western forest birds is evaluated in the LMP FEIS, the legal requirements of a LMP cannot be met.

h. The Nez Perce-Clearwater LMP and associated FEIS does not address the impacts of climate change on western forest birds, specifically as to how fuels management activities, including logging, will exacerbate adverse impacts of climate change on these species.

One adverse impact is that forest thinning, including both overstory and understory thinning, will increase the temperatures within forest stands where either or both the overstory and understories are reduced. Montana Outdoors (2019) noted that some areas of Montana can expect more than 5 more week of above 90 degree weather each year; the state's temperature have increased 0.42 degrees per decade, which is an increase of 2.7 degrees in the past 65 years, which is above the national average; higher altitudes are more sensitive to temperature fluctuations; total precipitation from spring rains has declined by 0.9 inches in western Montana; computer models predict a 4 degree increase in temperatures in western Montana by mid-century; western Montana will also see 10 to 15 additional days of 90 degree-plus temperatures by mid-century. Forest thinning will exacerbate these heat effects for western forest birds, and likely will also reduce their carrying capacity.

There are already documented severe impacts on western forest birds triggered by severe weather events. In the fall of 2022, hundreds of thousands, if not millions of migratory birds in New Mexico died (D'Ammassa 2022). The general consensus of causes of death by the U. S Geological Survey National Wildlife Health Center was starvation and unexpected weather, that triggered physical exertion without nourishment to support recovery; birds were in poor body condition already due to starvation, and an unusual winter storm exacerbated conditions. This report did not address why birds were already in poor condition due to starvation, but this could easily be attributed, in part, to management actions on public lands that reduce a large category of forages needed by birds due to forest thinning and fuels management activities. Also the reduction of thermal cover required to mitigate severe weather conditions due to Forest Service management activities across the western landscape likely contributed to bird mortality that fall. The actual impact of the loss of thermal cover on western forest birds, including in the breeding season and fall migration, has not been addressed by the Nez Perce-Clearwater LMP and associated FEIS. Until the forest completes a valid analysis of climate impacts on western forest birds, the LMP and associated FEIS cannot meet the legal requirements for the planning process.

i. The Nez Perce-Clearwater LMP and associated FEIS do not apparently require any surveys of low density forest raptors prior to implementing projects.

We would not locate any requirements for the Forest Service to survey proposed treatment areas for 14 species of forest raptors prior to vegetation treatments. As such, the agency failed to provide an analysis of approximately how many forest raptor nests will be destroyed during or after the breeding season due to vegetation treatments likely to occur on 108,773 forest acres every 5 years, which is 21,754 acres per year. Forest raptors likely present in these project areas include the Northern Goshawk and Sharp-shinned Hawks, both Priority 1 species in Idaho, as

well as the Boreal Owl, plus 2 owls also Montana Species of Concern, the Great Gray Owl and Flammulated Owls, as well as the Northern Pygmy Owl, Northern Saw-whet Owl, Great Horned Owl, Western Screech Owl, American Kestrel, Red-tailed Hawk, and Barred Owl. In specific habitats, the Golden Eagle would also be present in vegetation project areas. The impact of vast vegetation treatments on these low density species, who have no habitat protection plans

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CONSISTENCY WITH NFMA AND 2012 PLANNING RULE REQUIREMENTS

FOC et al. draft EIS/LMP comments raised the issue of revised plan inconsistency with NFMA and the 2012 Planning Rule in numerous places, not is a section of its own.

The pervasive lack of connection between the FEIS and the 2012 Planning Rule is quite remarkable. There is a disturbing overall lack of substance in to protect, maintain, and restore the values expressed in the 2012 Planning Rule.

We use “ecological sustainability” as an example. The FEIS states: “Forestwide components …provide for integrated social, economic, and **ecological sustainability** and ecosystem integrity and diversity while providing for ecosystem services and multiple uses.” (Emphasis added.)

The 2012 Planning Rule includes a section at 36 CFR § 219.8 entitled “Sustainability” under which it states, “The plan must provide for social, economic, and ecological sustainability within Forest Service authority and consistent with the inherent capability of the plan area…” Logic and science is clear: without ecological sustainability, the dependent social and economic systems cannot sustained. Ecological sustainability is a prerequisite for social and economic sustainability.

Under Ecological Sustainability, the planning rule states:

> *Ecosystem Integrity.* The plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity, taking into account …(s)ystem drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession, wildland fire, invasive species, and climate change; and the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change.

Yet the LMP doesn't recognize the importance of many of these ecosystem integrity indicators; plan components are at best weak, discretionary, nonbinding and unenforceable. The LMP falls far short of implementing sustainability as the 2012 Planning Rule requires.

The Forest Plan offers up "plan components …to offer coarse filter ecosystem characteristics to deliver ecological conditions that would provide for ecological integrity … ." These "coarse-filter" plan components primarily involve direction that ultimately end up calling for vast, repetitive, and extensive active vegetation manipulations such as logging and prescribed burning. The FS would have one believe that managing vegetation "towards" (not even necessarily achieving) those plan components is pretty much all that's necessary for maintaining ecosystem integrity and furthermore, for meeting diversity requirements under NFMA. However the natural range of variability upon which LMP components are based is not consistent with best available science because the data is insufficient for defining NPCNF reference conditions and natural range of variability. Furthermore, the effects of climate change completely invalidate the idea that the FS can realistically expect to "move towards" them.

The FS lacks scientific basis for relying so heavily upon its very limited data sources for designing something as vital as LMP components to maintain ecological sustainability. Reliability of the limited data set is not properly established.

The LMP prescribes aggressive mechanical treatments, mostly logging but also other vegetative manipulations such as mechanical thinning and prescribed burning, to manipulate vegetation, without adequate scientific basis demonstrating the treatments would actually mimic even the reference conditions fading into the rear view mirror because of climate change. The FS does not use any scientifically-validated or peer reviewed metrics to describe the complex landscape patterns created predominantly by natural processes which created those reference conditions.

Therefore the FS cannot make any assurances that its management actions result in habitat conditions for wildlife that actually insure or maintain diversity, including population viability for native fish, plants, and wildlife, and which would adequately compensate for the unavoidable adverse ecological side-effects of the aggressive vegetation manipulation regime. These side effects are caused by human-caused factors (management) that are well outside the historic or natural range of variability. The LMP and FEIS simply do not view ecological damage through the same lens as for vegetative conditions. Here is a simple list of factors directly influencing biological diversity under the FS's management regime, and their HRVs:

FACTOR	HRV
Road density	zero
Noxious weed occurrence	zero
Miles of long-term stream channel degradation ("press" disturbance)	zero
Culverts	zero
Human-induced detrimental soil conditions	<1%
Maximum daily decibel level of motorized devices	zero
Acres of significantly below HRV snag levels for many decades	zero
Roadless extent	100%
Extent of veg. communities affected by exotic grazers (livestock)	zero

Going hand-in-hand with the LMP's myopic focus and reliance on Vegetative forest plan components is the agency's use of the concepts "resilience" and resistance." The LMP Glossary defines "resilience" as "The capacity of a plant or animal community or ecosystem to maintain or regain normal function and development following disturbance." and "resistance" as "The ability of a community to avoid alteration of its present state by a disturbance." However, the FS provides absolutely nothing that would allow anybody to actually measure the resilience or resistance of the ecosystem as they stand now, or measure the changes following management actions. An essential component of an operational definition is measurement. A simple and accurate definition of measurement is the assignment of numbers to a variable in which one are interested. In this case, the variables are resilience and resistance, and how the agency measures it in the ecosystem.

For now, the only way the FS has to measure changes in resilience or resistance would be, using circular reasoning, the acres of vegetation treatments. (Although the LMF doesn't even propose monitoring resistance or resilience in its Appendix 3 Monitoring Plan.)

The FEIS indicates the SIMPPLLE and PRISM models were used in the forest plan to calculate the natural range of variation for vegetation conditions and to project the vegetation conditions of the alternatives across the Forest into the future for analysis in the environmental impact statement" The FEIS discloses how tenuous the Vegetation coarse filter approach is:

> Although the best available information, including corroboration with actual data, and professional experience and knowledge is used to build these models, there is a high degree of variability and an element of uncertainty associated with the results because of the ecological complexity and inability to accurately predict the timing and location of future events. These models are tools that provide information useful for understanding vegetation change over time and the relative differences between alternatives. The models are not intended to be predictive or to produce precise values for vegetation conditions.

FOC et al. draft LMP/DEIS comments at pp. 18 – 23 discuss the notion of model validity, data reliability and related subjects. For example, "Beck and Suring, 2011 state …'Model validation s critical so that models developed within any framework can be used with confidence.'" Unsurprisingly, the FS failed to address those comments.

The FS will take vague descriptions for LMP Desired Conditions for vegetation as drivers for timber sales and will call the logging "restoration" because some existing values for forest stands will fall outside these numbers. In this perverse archery, the Desired Conditions will be used as targets and the arrows will be timber sales. However, the recipients of the arrows will be the fragile fish and wildlife populations, and the public which will subsidize the logging and will have to foot the bill for fixing the inevitable unintended consequences, such as increased greenhouse gas emissions, more endangered species, etc.

Habitat connectivity and fragmentation

The 2012 Planning Rule requires the Forest Plan to include plan components to maintain or restore habitat connectivity. The LMP does not include adequate management direction for habitat connectivity and linkage zones. The FEIS does not present an analysis of the quality of habitat in linkage zones.

Lehmkuhl, et al. (1991) state:

> Competition between interior and edge species may occur when edge species that colonize the early successional habitats and forest edges created by logging. Competition may ultimately reduce the viability of interior species' populations.
>
> Microclimatic changes along patch edges alter the conditions for interior plant and animal species and usually result in drier conditions with more available light.
>
> Fragmentation also breaks the population into small subunits, each with dynamics different from the original contiguous population and each with a greater chance than the whole of local extinction from stochastic factors. Such fragmented populations are metapopulations, in which the subunits are interconnected through patterns of gene flow, extinction, and recolonization. (Internal citations omitted.)

In terms of quality of habitat, the continued fragmentation of the NPCNF is a major ongoing concern. It is documented that edge effects occur 10-30 meters into a forest tract (Wilcove et al., 1986). The size of blocks of interior forest that existed historically before management (including fire suppression) was initiated must be compared to the present condition.

Harrison and Voller, 1998 assert "connectivity should be maintained at the landscape level." They adopt a definition of landscape connectivity as "the degree to which the landscape facilitates or impedes movement among resource patches." Also:

> Connectivity objectives should be set for each landscape unit. …Connectivity objectives need to account for all habitat disturbances within the landscape unit. The objectives must consider the duration and extent to which different disturbances will alienate habitats. … In all cases, the objectives must acknowledge that the mechanisms used to maintain connectivity will be required for decades or centuries.

(Id., internal citations omitted.) Harrison and Voller, 1998 further discuss these mechanisms:

> Linkages are mechanisms by which the principles of connectivity can be achieved. Although the definitions of linkages vary, all imply that there are connections or movement among habitat patches. Corridor is another term commonly used to refer to a tool for maintaining connectivity. …the successful functioning of a corridor or linkage should be judged in terms of the connectivity among subpopulations and the maintenance of potential metapopulation processes. (Internal citations omitted.)

Harris, 1984 discusses connectivity and effective interior habitat of old-growth patches:

> Three factors that determine the effective size of an old-growth habitat island are (1) actual size; (2) distance from a similar old-growth island; and (3) degree of habitat difference of the intervening matrix. …(I)n order to achieve the same effective island size a stand of old-growth habitat that is surrounded by clearcut and regeneration stands should be perhaps ten times as large as an old-growth habitat island surrounded by a buffer zone of mature timber.

Harris, 1984 discusses habitat effectiveness of fragmented old growth:

> (A) 200-acre (80 ha) circular old-growth stand would consist of nearly 75% buffer area and only 25% equilibrium area. …A circular stand would need to be about 7,000 acres (2,850 ha) in order to reduce the 600-foot buffer strip to 10% of the total area. It is important to note, however, that the surrounding buffer stand does not have to be old growth, but only tall enough and dense enough to prevent wind and light from entering below the canopy of the old-growth stand.

Harris, 1984 believes that "biotic diversity will be maintained on public forest lands only if conservation planning is integrated with development planning; and site-specific protection areas must be designed so they function as an integrated landscape system." Harris, 1984 also states:

> Because of our lack of knowledge about intricate old-growth ecosystem relations (see Franklin et al. 1981), and the notion that oceanic island never achieve the same level of richness as continental shelf islands, a major commitment must be made to set aside representative old-growth ecosystems. This is further justified because of the lack of sufficient acreage in the 100- to 200-year age class to serve as replacement islands in the immediate future. …(A) way to moderate both the demands for and the stresses placed upon the old-growth ecosystem, and to enhance each island's effective area is to surround each with a long-rotation management area.

The LMP is not consistent with 2012 Planning Rule requirements to include plan components to "maintain or **restore structure, function, and composition,** taking into account: …**System drivers, including dominant ecological processes, disturbance regimes, and stressors**…" The LMF does not include adequate management direction for **structure, function, and composition**. The FEIS does not present an adequate analysis of for **structure, function, and composition**.

AQUATIC SPECIES DIVERSITY AND VIABILITY, WATER QUALITY, AQUATIC AND RIPARIAN HABITAT

Objectors' comments discuss aquatic and riparian related issues. For example, FOC et al. DEIS/DFP comments include a highly detailed critique of plan direction starting on page 109. Much of that criticism is based on scientific information cited. In response, the FEIS failed to explain why the scientific information cited by commenters is not considered best available science, failed to explain why the authors of those sources made wrong conclusions, failed to explain why that science doesn't apply to the NPCNF, and/or failed to reconcile contradictions between DEIS analyses/conclusions and the scientific information cited in comments. This violates NEPA.

Some of the major topics are summarized from FOC et al. DEIS/DFP comments as examples:

- Standards are weakened or eliminated (Ibid.). Protection is reduced for all streams, though less so for the higher priority streams (Id. at 121).

- Lack of Updated information in the Assessment (Ibid.). Nonetheless, what the assessment and existing data show are that the watersheds in roadless areas and Wilderness are in good condition whereas other watersheds generally are not. (Id. At 110 and 111).

- So-called restoration logging has not worked (Id. at 112)

- Monitoring will be less robust than done previously, in part due to the changes in monitoring protocol from the 1987 plans, and in part due to funding. The newer monitoring protocol makes comparisons with past monitoring efforts difficult.

In essence, the FS is saying this: radically increasing logging, with the attendant roads (the impacts of temporary roads are long-lasting and not temporary), the weakening of current standards for water quality and stream side protection, and the likely impacts of global climate change via extreme precipitation events that lead to sediment deposition in streams from failed roads, often breaching current 300-foot buffers will result in better fish and water quality even though over 30 years of more stringent policies under the extant forest plans has not resulted in stream recovery on compromised watersheds. That is illogical.

The LMP would weaken direction from current INFISH/PACFISH requirements, which did not accomplish much restoration of native fish habitats or increase populations of native fish during the many years of implementation. One of the major ways the LMP weakens INFISH/PACFISH is by opening the floodgates to allowing logging—including logging machines—to occur in riparian buffers. The LMP and FEIS make it sound like such logging would be the exception. However, the FS's whole purpose for such loopholes (which emphasize "restoration" in riparian zones using, unsurprisingly, logging) is to make logging there the rule.

The FEIS, draft ROD and LMP Reduce Watershed Protection while Radically Increasing Logging Levels in the PTSQ

Reducing watershed protection while radically increasing logging is impossible; the LMP, draft ROD, and FEIS make allegations that are inconsistent with agency data. The FOC et al. DEIS/DFP comment (quoting from FOC's scoping comment at page 53) states:

> Research on the CNF has shown that water quality and fish habitat in roadless areas, even though these areas have seen major fire, is far better than in roaded areas. Indeed, the assessment supports this view. Specifically, the map on Table 1-39 is a visually representation of the issue and page 1-138 states that the high functioning watersheds "are primarily in Wilderness or unroaded areas of the Forests."
>
> Even more profound is the fact that after over 20 years of so-called restoration logging—building roads and logging, in part to pay for road decommissioning on some routes, a strategy of *robbing Peter to pay Paul* or *the check is in the mail*—none, or almost none of the watersheds which have been affected by "management" meet current forest fish habitat and water quality standards on either national forest. While the assessment claims that progress is being made, this is a failed management strategy. Progress toward functioning watersheds that may take decades or centuries is not acceptable.

(FOC et al. DEIS/DFP comment at 112.) While the Assessment used old data, it was the best data available. Page 1-135 of the Assessment (also quoted on page 3 FOC's scoping comments and on the FOC et al. DEIS/DFP comment on page 110) helps set the context for the current condition:

> Information from the numerous EAWS, PUAs, SBAs, monitoring reports, and models were used to develop the rankings for each of the attribute ratings in the WCC system. Within this system, Class I watersheds are considered “functioning properly,” Class II watersheds are “functioning at risk,” and Class III watersheds are “impaired function.” Across the Forest, there are 220 6th field HUC watersheds designated as managed (at least in part) by the Forests. There are 140 Class I, 73 Class II, and 7 Class III watersheds (Figure 17)”

(Chapter 1 Assessment at 1-135.) When compared with other information in the Assessment it becomes clear:

> Combine this [the above paragraph] with Figure 1-39 and it is quite apparent that every watershed impacted by management treatment, as implemented or approved by the USFS, resulted in each of these watersheds being placed into the either the classification “functioning at risk” or having “impaired function.” The roadless and wilderness watersheds are the ones that are "functioning properly." This proves the management strategies—log and build roads, while doing some road decommissioning—is a failed strategy. It has not recovered any watershed.

(FOC scoping comments at 3, also quoted in FOC et al. DEIS/DFP comment at 110.) Further, the FOC et al. DEIS/DFP comments note:

> Crosswalking to compare the new DFP standards, guidelines, objectives, and desired conditions to show that the Forest Service has carried forward the 1987 standards from both plans demonstrates that those measures were important. But, the new draft forest plan lessens the current standards by changing them to desired conditions, guidelines, and objectives, or changing the standards to qualitative ones that are not precise. Additionally, without rigorous monitoring, under the vague standards, the agency could make many decisions that would cumulatively add up to huge environmental degradation.
>
> There are only three management areas, and standards do not change amongst them. No standard would stop logging and roadbuilding in a watershed that is at risk or impaired.

(FOC et al. DEIS/DFP comments at 109.) At the same time, the LMP states:

> **FW-STD-RMZ-01.**
> Vegetation management shall only occur in riparian management zones from the edges of the active stream channel to within 150 feet within Riparian Management Zone Category 1 and to the edges of the active stream channel to 100 feet within Riparian Management Zone Category 2, 3, and 4 to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, for example, hand fuel treatments, prescribed fire, small diameter (for example, sapling, pole) conifer thinning, may be authorized if aquatic and riparian-associated resources are maintained. Timber Harvest in this zone shall leave trees on site or use for aquatic restoration. Vegetation management may occur in the outer Riparian Management Zones to meet desired conditions for fuel loading and silvicultural desired conditions, so long as project activities retain functions of the outer Riparian Management Zone, including sediment filtering, large wood recruitment to streams, and protection of the inner Riparian Management Zone from windthrow. Vegetation management in Riparian Management Zones shall not retard attainment of aquatic and riparian desired conditions.

(LMP at 49.) One problem with this statement is it is not a standard, as required in the planning regulations. "A standard is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements." 36 CFR 219.7(e)(1)(iii). This is not a mandatory constraint for two reasons:

- The section allowing logging and other so-called vegetation management is discretionary in part of the RMZ. All of the RMZ allows chainsaw medicine, stated as fuel treatments and conifer thinning. Most thinning, such as pre-commercial thinning, is done for eventual log production. This is not a constraint as it allows

logging and other activities in the RMZ, unlike current PACFISH and INFISH buffers. All the agency has to do is the incantation that any action won't affect the RMZ desired conditions, without any data to make such a conclusion.

- These are not measurable or quantifiable standards. Such standards would be no vegetation treatments within RMZs. A standard that is not easily quantifiable or measurable is neither mandatory nor a constraint.

Further, the FOC et al. DEIS/DFP comments on page 122 quoted from the draft Forest Plan Revision for the Blue Mountains, "Research has shown that effective vegetated filter strips need to be at least 200 to 300 feet wide to effectively capture sediment mobilizing by overland flow from outside the riparian management area." The FOC et al. DEIS/DFP comments also stated:

> Furthermore, headwater streams and non-fish bearing streams need more, not less, protection (Rhodes et al., 1994; Moyle et al., 1996; Erman et al., 1996; Espinosa et al., 1997). Both Erman et al., 1996 and Rhodes et al., 1994 conclude, based on review of available information, that intermittent and non-fish-bearing streams should receive stream buffers significantly larger than those afforded by PACFISH/INFISH. The revised forest plan should have fully protected buffers of at least 300 feet for all waterbodies.

(Ibid.) INFISH and PACFISH were intermittent measures. The Court intended those measures to be a minimum.

Unlogged buffers are not only important for watersheds, but terrestrial wildlife. The fisher range maps in the FEIS demonstrate that unlogged forests are needed for fisher and connectivity. Indeed, the FS has alleged in recent timber sales on the NPCNF that PACFISH buffers function as fisher habitat, so logging fisher habitat outside of RHCAs won't do any harm to the species. Now, this draft plan would effectively eliminate those buffers by 50% or 67%.

Remedy - Withdraw the FEIS, draft ROD and LMP. Make a minimum of 300-foot buffers inviolate from vegetation management for all streams, not just fish-bearing streams. Given climate change and steeper slopes on the NPCNF, those buffers should probably be expanded to something like 500 feet.

PIBO Problems

The FOC et al. DEIS/DFP comments noted:

> Some of the background data used in the DEIS/DFP are from the PIBO monitoring. There are two concerns we have about this methodology. It appears that when applied to the Nez Perce and Clearwater National Forests, some of the reference streams have lower streambank stability than do the other streams. While we don't know why this is the case, streambank stability is particularly important

> in watersheds where livestock grazing takes place. Most of the Nez Perce and Clearwater National Forests are not grazed by domestic livestock, though where it occurs there is considerable concern about the impacts and the Forest Service has been very slow in updating allotment management plans. Having reference streams with a lower rating that other streams will skew the results. This should be addressed.
>
> The other concern is whether that monitoring takes place and how frequently it will be done. While we understand that the PIBO monitoring is supposed to be done by an outside team, there is no guarantee that they will be funded to do this in coming years. In any case, the Forest Service has not lived up to its promise to the American public to do the monitoring it promised to do in the 1987 forest plans. Will the Forest Service forgo activities in areas where monitoring is not up to date or adequate?

(FOC et al. DEIS/DFP comments at 127 and 128.) This raises two problems. PIBO was designed for a different area, mainly drier forests in Region 4 that are heavily grazed. On the Nez Perce and Clearwater National Forests, the areas most heavily logged and where grazing takes place are different geologically than the steeper terrain further east. Thus, the concern about reference streams not being properly selected is valid. This is based upon the PIBO information the FS has documented in the Assessment and elsewhere.

Small sample size, the frequency of sampling, and the fact the PIBO methodology is slow to show changes until too late (unless many sites are monitored and done so frequently) all work together to make the methodology less reliable than is required. Around the year 2000, both the Nez Perce and Clearwater National Forests had addressed the issue of small sample size by adding several contract sites to those already identified by the agency's PIBO monitoring group. These sites were located in watersheds where there were gaps in the sites originally selected by the PIBO monitoring group. However, that has now ended due to funding constraints. Even that was likely not sufficient.[37]

With global climate change in the mix, agency management programs are likely to increase sediment levels because of the erratic and extreme nature of projected precipitation events. Already, rain-on-snow events are periodic and natural events that can cause extreme sedimentation where roads are present. The monitoring program, as envisioned, is not up to the task.

The upshot is, the sample size and site locations are too few and therefore lack the necessary robustness to detect management induced changes. This means that PIBO is not sufficient to make determinations about whether desired conditions or other plan

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37 Even though the Nez Perce and Clearwater National Forests may have more monitoring sites than other national forests in Region I, even that is not enough. Besides, these two Forests are the only anadromous fish forests in the Region so the fisheries and aquatic resources take on a tremendous importance. Also, these two Forests are larger than any other national forest unit in the Region. As such, it would make sense that more monitoring sites are on these two national forests.

components are being met. Couple this with the massive increase in logging, and this is a disaster waiting to happen.

Remedy - Significantly increase PIBO monitoring sites and measurement frequency. Keep current fish habitat and water quality measures in the extant forest plans. Keep and improve the existing fish habitat and water quality standards. For example, strengthen Appendix A in the extant Nez Perce Forest Plan to prohibit "entries" in watersheds not meeting standards.

Priority Watersheds/Conservation Watershed Network

The FOC et al. DEIS/DFP comments discussed this topic on pages 121 and 122. There were big changes that occurred between the DEIS and FEIS. Appendix K of the FEIS and the LMP propose fewer conservation watersheds than the DEIS and DFP. Appendix K states, "It was determined that HUC12 watersheds that met three criteria or more would provide a designated collection of watersheds where management emphasizes habitat conservation and restoration to support threatened or endangered native fish and species of conservation concern." Appendix K page 35. This is arbitrary.

This leaves out crucial watersheds previous identified that have good habitat for ESA listed fish and/or Westslope cutthroat. These include but are not limited to Pete King Creek, Gospel Creek, Lighting Creek, Big Mallard Creek, lake Creek, Lower Crooked Creek, Lower American, East Fork American, Gedney Creek, Lake Creek, Musselshell Creek, Middle Lolo, Gravey Creek, Osier Creek, and Upper Skull Creek. Other watersheds were left out of the DEIS including but not limited to, Weitas Creek (Lower, Middle and Upper and tributaries), most of Kelly and Cayuse Creeks, Horse Creek, and Twentymile Creek.

Remedy - Include all watersheds that meet any of the criteria as Conservation Watersheds.

LMP does not adequately constrain road activities or minimize road network

The FEIS does not demonstrate the project area is being managed consistent with Travel Management Regulations. The Travel Management Regulations (36 CFR 212) Subpart A requires the FS to identify the minimum road system needed to manage the Forest sustainably. The FEIS does not demonstrate how it is minimizing the forestwide road system in compliance with the Travel Management Regulations and related Directives.

The FEIS and LMM do not demonstrate the NPCNF is being managed consistent with Travel Management Regulations. The Travel Management Regulations (36 CFR 212) Subpart A requires the FS to identify the minimum road system needed to manage the Forest sustainably. The FEIS does not demonstrate how it is minimizing the forestwide road system in compliance with the Travel Management Regulations and related Directives.

Forest Service scientists Gucinski et al., 2001 identify many of the highly adverse impacts of forest roads. Concerning road density impacts on fish populations, for example, they note:

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

Gucinski et al., 2001 recognize the ongoing ecological damage of roads—regardless of the adequacy of maintenance funding:

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

Roads influence many processes that affect aquatic ecosystems and fish: human behavior (poaching, debris removal, efficiency of access for logging, mining, or grazing, illegal species introductions), sediment delivery, and flow alterations (Trombulak and Frissell 2000). (Also see: Gucinski et al. 2001; Wisdom et al., 2000; Pacific Rivers Council, 2010.) We also incorporate WildEarth Guardians (2020) which discusses best available science on the ecological impacts of roads.

Log hauling itself adds sediment to streams. From an investigation of the Bitterroot Burned Area Recovery Project, hydrologist Rhodes (2002) notes, "On all haul roads evaluated, haul traffic has created copious amounts of mobile, non-cohesive sediment on the road surfaces that will elevate erosion and consequent sedimentation, during rain and snowmelt events." USDA Forest Service, 2001a also presents an analysis of increased sedimentation because of log hauling, reporting "Increased traffic over these roads would be expected to increase sediment delivery from a predicted 6.30 tons per year to 7.96 tons per year."

USDA Forest Service, 2016b (NPCNF's Johnson Bar Draft EIS) states, "Increased heavy-truck traffic related to log hauling can increase rutting and displacement of road-bed material, creating conditions conducive to higher sediment delivery rates (Reid and Dunne, 1984)." The abstract from Reid and Dunne, 1984 states:

> Erosion on roads is an important source of fine-grained sediment in streams draining logged basins of the Pacific Northwest. Runoff rates and sediment concentrations from 10 road segments subject to a variety of traffic levels were monitored to produce sediment rating curves and unit hydrographs for different use levels and types of surfaces. These relationships are combined with a continuous rainfall record to calculate mean annual sediment yields from road segments of each use level. A heavily used road segment in the field area contributes 130 times as much sediment as an abandoned road. A paved road segment, along which cut slopes and ditches are the only sources of sediment, yields less

than 1% as much sediment as a heavily used road with a gravel surface.

The FEIS does not consider the fact that roads increase the efficiency of water transport during storm or snowmelt events, elevating water yields well above natural, with damaging effects. The analysis of the effects of roads fail to take into account the increases of extreme peak flows due to the high density of roads. FS hydrologist Steve Johnson, states, "Impacts from roads basically fall into three areas: introduced sediment into streams; snowmelt re-direction and concentration; and surface flow production." (Johnson, 1995.) Also, "snowmelt re-direction and concentration and surface flow production" increase peak flow amounts multiplicatively by the presence of roads in a drainage." (Id.)

Frissell, 2014 states:

> Roads are ecologically problematic in any environment because they affect biota, water quality, and a suite of biophysical processes through many physical, chemical, and biological pathways (Trombulak and Frissell 2000, Jones et al. 2000). The inherent contribution of forest roads to nonpoint source pollution (in particular sediment but also nutrients) to streams, coupled with the extensive occurrence of forest roads directly adjacent to streams through large portions of the range of bull trout in the coterminous US, adversely affects water quality in streams to a degree that is directly harmful to bull trout and their prey. This impairment occurs on a widespread and sustained basis; runoff from roads may be episodic and associated with annual high rainfall or snowmelt events, but once delivered to streams, sediment and associated pollutant deposited on the streambed causes sustained impairment of habitat for salmon and other sensitive aquatic and amphibian species. Current road design, management of road use and conditions, the locations of roads relative to slopes and water bodies, and the overall density of roads throughout most of the Pacific Northwest all contribute materially to this impairment. This effect is apart from, but contributes additively in effect to the point source pollution associated with road runoff that is entrained by culverts or ditches before being discharged to natural waters.

The FS touts management projects as "restoration," but such claims are mostly overhyped because of their primary focus on "vegetation" (i.e., logging) misses what really needs restorative action—the overbuilt road system. Wisdom et al., 2000 point out road-related issues the FEIS does not consider:

> Efforts to restore habitats without simultaneous efforts to reduce road density and control human disturbances will curtail the effectiveness of habitat restoration, or even contribute to its failure; this is because of the large number of species that are simultaneously affected by decline in habitat as well as by road-associated factors.

The LMP does include Plan Elements requiring Road Management Objectives for each road, which follow from designations under the Travel Management Rule Subpart B.

The FS's 2001 Roadless Rule FEIS states: "The use of temporary roads may have the same long lasting and significant ecological effects as permanent roads, such as the introduction of

nonnative vegetation and degradation of stream channels." Practically all FS vegetation management projects nowadays include utilization of "temporary" roads, yet even though temporary roads would allegedly be decommissioned after the logging is completed, there is a likelihood that the FS would later construct another "temporary" road on these same sites for the next round of "treatments." The LMP lacks is a programmatic limitation on the use of temporary roads, so their long-term effects can be quantified.

U. S. Fish and Wildlife Service, 2002, concluded:

> Culverts left in place behind gated and bermed roads . . . pose a risk to bull trout . . . Whatever the design life, any crossing structure would have a 100% chance of failure over its installation life if it is not removed after the road is abandoned.

The 1998 Bull Trout Biological Opinion (BO) indicates that bull trout are absent when road densities exceed 1.71 mi./sq. mi., depressed when the road density = 1.36 mi./sq. mi. and strong when road density equals or is less than .45 mi./sq. mi. (P. 67.)

U.S. Fish and Wildlife Service, 2015 states:

> Culverts that remain in the road behind gates and berms that are not properly sized, positioned, and inspected …have an increased risk for failure by reducing awareness of potential maintenance needs. The accumulation of debris has the potential to obstruct culverts and other road drainage structures. Without maintenance and periodic cleaning, these structures can fail, resulting in sediment production from the road surface, ditch, and fill slopes. The design criteria to address drainage structures left behind gates and berms require annual monitoring of these structures.

Members of the ID Team for the NPCNF's Clear Creek Project fully expressed concerns in project files for that project. From 110606TransportationNFMAQuestions.docx:

> 2. What is broke or at risk?
> The existing size of the transportation system is in excess of what is needed for current uses of the National Forest land. Newer technologies require a less invasive road system structure. A history of skid road or jammer road use, and not properly stabilizing roads has lead to a higher risk of failure by landslides and culvert washouts. These risks are even higher in landslide prone landscapes.
>
> Another concern with the large transportation system is that it is cost prohibitive to maintain. The Forest cannot currently maintain all of the transportation system. Currently higher priority roads are being maintained to minimal standards, while other roads are not being maintained and have deferred maintenance. Roads with reduced maintenance or no maintenance are at a higher risk of failures and road closures.
>
> More than 50 percent of the Nez Perce National Forest roads were built between 1960 and 1979. Road standards used during construction of these roads employed current BMPs. The life span of BMPs range anywhere from 10 to 50 years with repeated maintenance, so

it is likely that many BMPs installed during original construction are at the end of their life span. BMPs productivity and life spans are reduced if maintenance has not occurred. Roads with BMPs near or at the end of their life span have a higher risk of failure.

4. How do you fix it?
Analyze all the system and non-system roads in the area and determine a minimum road system required based on needs and risks. Maintain roads needed for public and administrative use. Prioritize the repair of the needed roads based on risk and needs. Update all needed roads to ensure existing standards are met. Updates may include reconstruction, relocation or maintenance of roadways so they are in a stable condition. During the updates, use BMPs for minimal impact on the watershed.

Decommissioning roads no longer needed for access, that are temporary in nature, that are causing environmental damage or that are redundant.

9. What are the social / resource implications of no actions?
With only limited road maintenance and no decommissioning, roads will fail causing irreparable resource damage. Road fill and culvert failures will have an impact on stream quality. Public safety is also a concern with no action. To protect individuals from failing roads, road closures would be a common occurrence. Limited to no maintenance leads to structure failures of culverts, bridges and road fills. As road densities in the assessment area are considered high, by no action, there will be a continued adverse affects on the wildlife.

10. What are some of the foundational elements used in shaping your responses?
Nez Perce National Forest Plan
Selway Middle Fork Subbasin Assessment
CFR 36, Part 212, Travel Management Rule - Subpart A
Interior Columbia Basin Assessment

(Emphasis added.) From 111017WildlifeClearCreekNFMAComments.docx:

What's broke / at risk (threats) (this is all based on roads which are likely the largest cumulative effects out there. I believe we need to manage motorized uses in identified "sacrifice areas" and restrict motorized use in high quality habitats. I believe there is demand for a restricted roaded setting for hunters to use roads in a non-motorized setting.

From 110606NFMAQuestionsKaren.docx:

What's broke / at risk
Roads are the major contributor of sediment to streams, especially at stream crossings. Ditchlines can direct flow and road surface sediment into perennial streams at crossings. These can be a chronic (ongoing) source of sediment to streams. Culverts at crossings are mostly undersized which greatly increases the risk of plugging and failure. Crossing failures can contribute large amounts of sediment to streams. They can be costly to fix and the sediment delivered to streams can take decades to flush out of the system. Road failures

also disturb existing vegetation and expose bare soil to potential erosion until the site heals.

Scientific information from government studies conducted for the Interior Columbia Ecosystem Management Project strongly indicates the high negative correlation between road density and fish habitat conditions. USDA Forest Service & USDI Bureau of Land Management, 1996a state:

> "High integrity [forests] contain the greatest proportion of high forest, aquatic, and hydrologic integrity of all [] are dominated by wilderness and roadless areas [and] are the least altered by management. [] Low integrity [forests have] likely been altered by past management [] are extensively roaded and have little wilderness." (Pp. 108, 115 and 116).

And USDA Forest Service & USDI Bureau of Land Management (1996) state, "Increasing road density is correlated with declining aquatic habitat conditions and aquatic integrity. [] An intensive review of the literature concludes that increases in sedimentation [of streams] are unavoidable even using the most cautious roading methods." (P. 105).

Additional information on fisheries and hydrology

USDA Forest Service, 2017c explains that native westslope cutthroat trout have declined due to habitat degradation and competition with nonnative brook trout:

> The distribution and abundance of westslope cutthroat trout has declined from historic levels (less than 59 percent of historically occupied stream habitat) across its range, which included western Montana, central and northern Idaho, a small portion of Wyoming, and portions of three Canadian provinces (Liknes and Graham 1988, Shepard et al. 2005). Westslope cutthroat trout persist in only 27 percent of their historic range in Montana. Due to hybridization, genetically pure populations are present in only 2.5 percent of that range (Rieman and Apperson 1989). Introduced species have hybridized or displaced westslope cutthroat trout populations across their range. Hybridization causes loss of genetic purity of the population through introgression. Within the planning area, genetically pure populations of westslope cutthroat trout are known to persist in Ruby Creek (MFISH 1992, 2012). Some of these remaining genetically pure populations of westslope cutthroat trout are found above fish passage barriers that protect them from hybridization, but isolate them from other populations.
>
> Brook trout are believed to have displaced many westslope cutthroat trout populations (Behnke 1992). Where the two species co-exist, westslope cutthroat trout typically predominate in higher gradient reaches and brook trout generally prevail in lower gradient reaches (Griffith 1988). This isolates westslope cutthroat trout populations, further increasing the risk of local extinction from genetic and stochastic factors (McIntyre and Rieman 1995).
>
> Habitat fragmentation and the subsequent isolation of conspecific populations is a concern for westslope cutthroat trout due to the increased risk of local and general extinctions. The probability that one population in any locality will persist depends, in part on, habitat quality and proximity to other connected populations (Rieman and McIntyre 1993).

> Therefore, the several small, isolated populations left in the project area are at a moderate risk of local extirpation in the event of an intense drainage-wide disturbance.
>
> Habitat degradation also threatens the persistence of westslope cutthroat trout throughout their range. Sediment delivered to stream channels from roads is one of the primary causes of habitat degradation. Sediment can decrease quality and quantity of suitable spawning substrate and reduce overwintering habitat for juveniles which reduces spawning success and increases overwinter mortality. Roads can also alter the drainage network of a watershed and thereby increase peak flows. The end result of increased peak flows is decreased channel stability and accelerated rates of mass erosion. Across their range the strongest populations of westslope cutthroat trout exist most frequently in the wilderness, Glacier National Park, and areas of low road densities or roadless areas (Liknes and Graham 1988, Marnell 1988, Rieman and Apperson 1989, Lee et al. 1997).

Also *see* USDA Forest Service, 2017c for discussion on bull trout.

The FEIS does not consider the "lag time between hilltop recovery (growth) and channel recovery" (USDA Forest Service 1994b):

> It is important to recognize that the Equivalent Clearcut Area model uses tree growth (canopy density) to estimate Spring peak flows and that channels do not recover immediately in response to tree growth. There is a lag time between hilltop recovery (growth) and channel recovery. The length of the lag time is difficult to predict and is likely to be influenced by factors other than simply canopy density (e.g. the role of culvert failures, in-stream activities, geology, etc.).

Peak flows can be altered by forest harvest activities after removal of canopy through less interception, which results in more snow accumulation and snowmelt available for runoff (Troendle and King 1985).

ASPEN

The FOC et al. DEIS/DFP comments stated:

> The DC for aspen is bizarre and it applies across the all the national forest acreage, regardless of management area. Though found here in places like scree slopes, it is not a major component, nor has it ever been, in the Nez Perce and Clearwater National Forests. It isn't even mentioned in the definitive Forest Service publication about Northern Idaho forest habitats (Cooper et al. 1991). Trying to maintain one percent across the two national forests would be 40,000 acres of aspen. What evidence do you have that there were historically 40,000 acres of aspen in these national forests? Does this mean there will be mechanical treatment (non-commercial logging) in Wilderness and roadless areas to propagate aspen? If the Forest Service were really concerned about deciduous vegetation, it would consider alder, willow, or perhaps cottonwood for special treatment, which are more representative of northern Idaho. It would appear the Forest Service is trying to turn the

> forests of northern Idaho into Utah, Colorado, or northern New Mexico. That makes no ecological sense.

(FOC et al. DEIS/DFP comments at 371.) Not much more needs to be said here. The direction in the LMP on pages 22 and especially page 32 conflict with Wilderness and likely the Idaho Roadless Rule as aspen is not a recognized as a forest type here. It is not common only because the Nez Perce and Clearwater National Forests are not aspen habitat—aspens were and are a very minor component for that reason. The word aspen is not even mentioned in Cooper et al., a Forest Service publication. With the natural fire program in the North Fork Clearwater River watershed, that dates back over 30 years, and the natural fire programs in the Wilderness, there is no need for such a program, especially in Wilderness and roadless areas.

Remedy - Eliminate **FW-OBJ-FOR-01** and **FW-DC-FOR-01.** Alternatively, alter those plan components so they do not apply to Management Area 1 and Management Area 2.

WILD AND SCENIC RIVERS

Rather than repeat our extensive comments in past submissions (see FOC et al. DEIS/DFP comments pp. 373 - 377, which also refer to previous submissions). We provide only some brief excerpts to illustrate two overriding problems. They are the suitability analysis and the misclassification of stream segments.

We also refer you to the thorough treatment of Wild and Scenic Rivers in the Idaho Rivers United and American Rivers objections.

Suitability

The FOC et al. DEIS/DFP comments stated:

> Our previous comments went into detail on Wild and Scenic Rivers. We also incorporate, by reference, the issues and concerns raised in the comments from Idaho Rivers United. In particular, the problems with doing a suitability analysis is well articulated in those comments. Indeed, the Forest Service did draft suitability analyses in legislation EISs on some of the eligible rivers identified in the 1987 plans, recognizing it was the purview of Congress to make the suitability decisions. ...

(FOC et al. DEIS/DFP comments at 373.) The planning process is directed at eligibility. The number of eligible rivers studied in the plan is fairly large (though still inadequate), owing to the abundance of high quality rivers and streams in these two national forests. The suitability analyses lack the rigor of past studies, specifically the LEISs done on these two national forests. Further, it eliminates the vast majority of eligible rivers and streams, many of which have numerous ORVs.

Remedy - Remove the suitability analyses and do them in separate documents. That will improve the public involvement, lacking in the suitability phase of this plan revision.

Misclassification:

The FOC et al. DEIS/DFP comments stated:

> Aside from the problem of doing suitability analysis in the revision process, the DFP and DEIS make serious errors when analyzing recommending segments as wild, recreational, or scenic. For example, all segments in roadless area should be classified as wild. There is inconsistency on how this is done.
>
> Weitas Creek is classified as scenic even though it goes through a roadless area. The only segment accessed by a road is at the old Weitas Guard Station. That is unlike what is proposed for Cayuse Creek at the landing meadow where the Toboggan Ridge Road crosses Cayuse Creek. Except for that short segment at the landing meadow and one other further along the road where Cayuse Creek crosses the Toboggan Ridge Road, Cayuse Creek is recommended as wild under the action alternatives that include it. Like Weitas Creek, Fish Creek is recommended as scenic, even under the alt. W that recommends the surrounding area as Wilderness. It is contrary to policy to have anything but wild river recommendations Wilderness or recommended Wilderness. Similar problems exist for upper Meadow Creek, Colt Killed Creek and East Fork of Meadow Creek.

(FOC et al. DEIS/DFP comments at 376.) The Forest Service has ignored the criteria for classification in FSH 1909.12 Chapter 80 at 82.8, exhibit 01. This chart clearly shows that Weitas Creek, Colt Killed Creek, Fish and Hungery Creeks, and Meadow Creek should be classed as Wild for all or 99 percent of their length. Cayuse Creek, mentioned in the quote above, provides the template of how to classify segments that are 99% percent roadless, but have a road crossing. Further, the designated Wild segment of the St. joe River has a road crossing east of Heller Bar. The Forest Service has misclassified these segments.

Remedy - Classify Weitas Creek as Wild, except for a tiny segment at the mouth and maybe a tiny segment where the 555 route accesses the Weitas Guard Station (though this is very remote and the 555 routes is a less of a road than the 320 and 715 roads that parallel and cross the Wild segment fo the St; Joe River). Classify Colt Killed Creek as Wild, except for a tiny segment near Colt Killed Cabin. Classify all of Meadow Creek Wild except a short segment at between the mouth and Slims Campground. Classify all of Fish and Hungery Creeks as Wild except for the segment between the trailhead and Highway 12.

Other

The FOC et al. DEIS/DFP comments stated:

> Table 30 in the DFP allows activities that are inconsistent with case law in designated Wild and Scenic River corridors. These include logging and snowmobile and motorized use (presumably, terrestrial) in the wild Salmon River. However, the only exceptions are the road segments at Mackey Bar and Whitewater and boats on the river. Also, no grazing allotments are located in the existing Wild and Scenic Rivers even though it is

allowed on Table 30.

(FOC et al. DEIS/DFP comments at 377.) While some changes have been made to the Wild Segments Chart (LMP, pages 93 and 94) the logging provision is still in. So is a provision for construction of new structures, which are not allowed, Prescribed fires is not needed as the Wild segments are within designated wilderness with fire management plans that date back decades. Livestock Allotments don't occur within any Wild River segments either.

Remedy - Change Table 29 to say "no" for every item in the Wild River column.

OBJECTION CONCLUSION

Objectors remain committed to participating in the development of ecologically sound management direction for the NPCNF.

Sincerely submitted,

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Note: This list displays references cited in this Objection, with the exceptions that most of those cited in previous comments are instead listed in those comment documents.

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EXHIBIT A

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

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

January 25, 2024

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

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

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

<u>Rebuttal</u>

Claim- our recommendations go well beyond our results.

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

Allen et al. are ignorant of history. The current Bitterroot Recovery Area was the result of a political deal between timber harvest interests and two national conservation organizations.

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

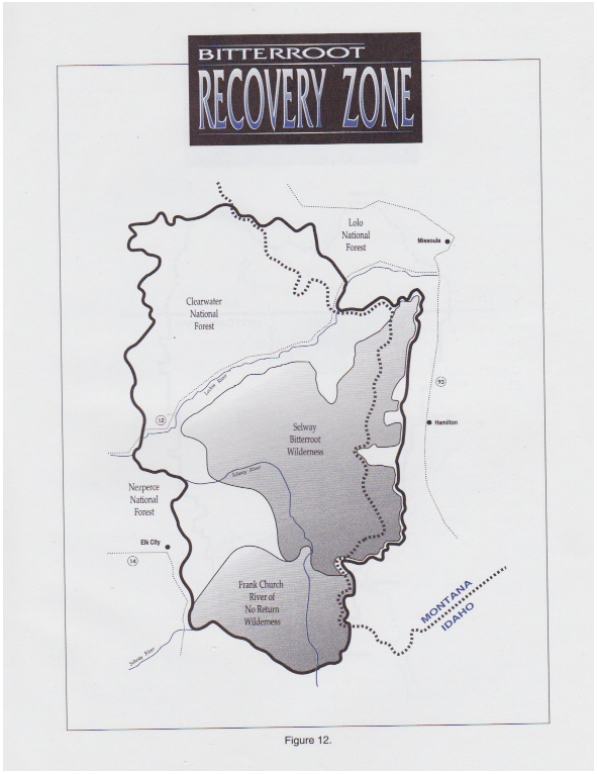


Figure 1. Bitterroot Recovery Zone in the Grizzly Bear Recovery Plan.

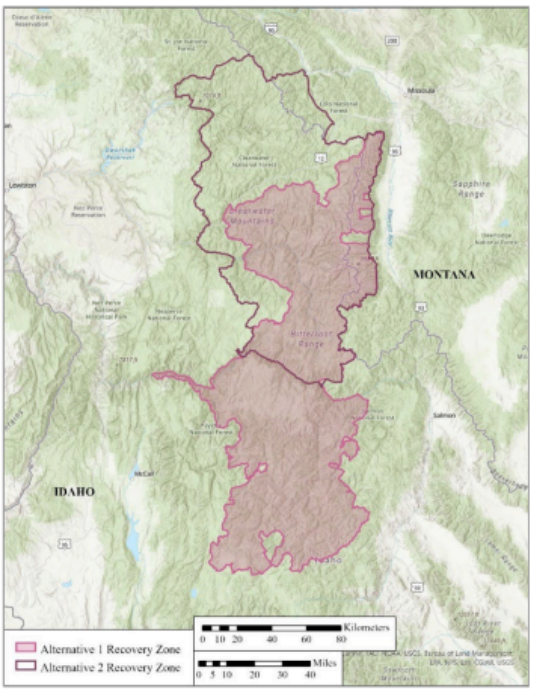
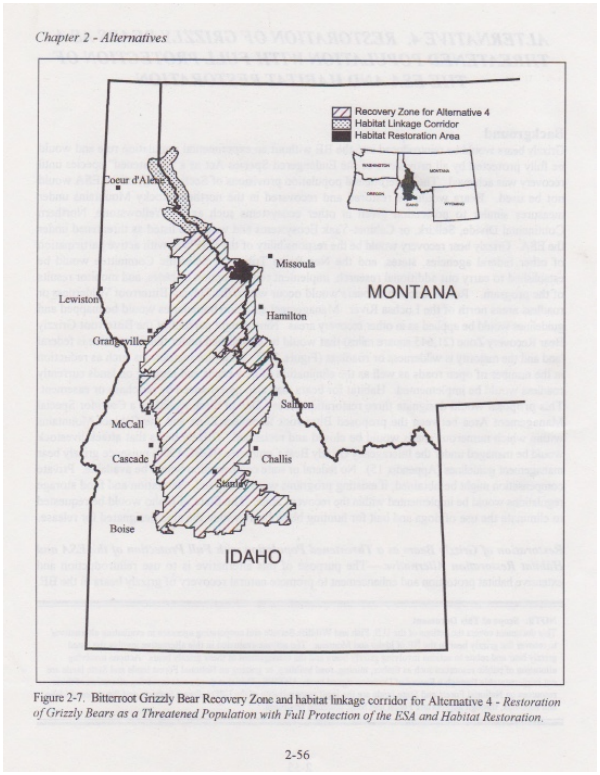


Figure 11. Map of the Bitterroot Ecosystem recovery zone as identified in the Final EIS under the preferred alternative, reintroduction, and alternative 2, natural recovery.

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



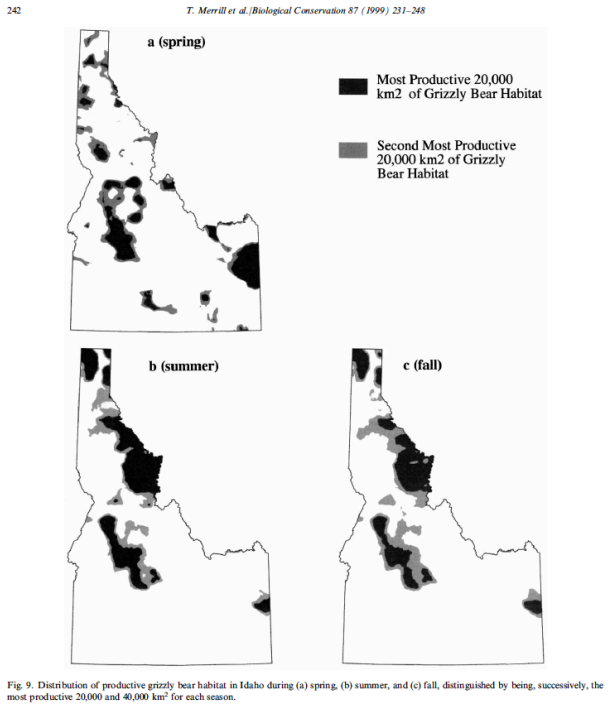


Figure 3. Alternative 4 Recovery Area. USFWS 2000.

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

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

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

Claim- we disregarded smaller core areas

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

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

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

Claim- Conservation Strategy standards are just recommendations-

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

Claim- we relied primarily on non-peer reviewed papers

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

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

We vigorously object with the accusation of purposefully tweaking model design to underestimate denning habitat. The purpose of our study was to document denning habitat, not hide it. In fact, we revealed that: "The model may slightly overestimate denning suitability in the highest elevations of the Selway-Bitterroot Wilderness and Glacier National Park unless

there is a relative abundance of natural cave-like openings. This is because LANDFIRE EVT did not have classifications for alpine fell-fields or alpine bedrock and scree."

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

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

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

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

Insinuation- that "visual" inspection was inappropriate

Visual inspection is part of ground-truthing the models. We draped our model results over the actual landscape and the Forest Service commonly applies the same approach in EAs and EISs. We also visually inspected all 362 den locations as a check of the LANDFIRE EVT vegetative cover types. Other models were important, just not the best. We reported results for the top 3 models out of 16, far more models than the average paper considers. The top 3 models had very close AUC scores. We did not select the model developed with principal components algorithm because the PCA based model had a lower AUC and we needed to discuss

independent variables in the study and we were concerned about possible information loss leading to generalization.

Clarity-

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

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

Paper of record-

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

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

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

Limiting factor-

We found and reported denning habitat is not likely to be a limiting factor on population restoration in the Bitterroot. One of the study purposes was to determine if there is adequate denning habitat for a recovering population within the core area as well as in key connectivity areas between the NCDE, CYE and BE. It is intuitive there would be denning habitat in the Bitterroot as there were many grizzly bears there historically. There is no research that we found showing a threshold where denning habitat becomes limiting at the population level.

Poor site selection and den abandonment-

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

Raster surfaces-

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

Road impact results-

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

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

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

We disagree with the above statement that the use of unprojected coordinate systems leads to measurement errors.

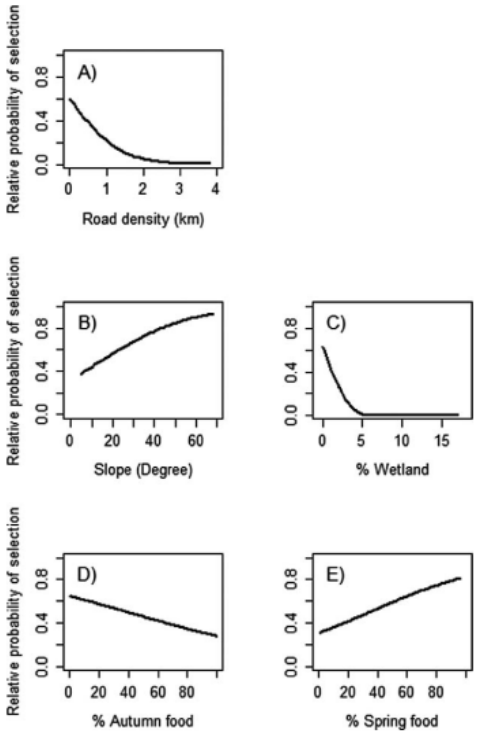


FIG. 2.—Relative probability of den selection of the most-supported multivariate model (Table 7) of den selection by male and female grizzly bears (*Ursus arctos*) in the boreal forest and Rocky Mountain of Alberta, Canada, between 2000 and 2011. A) Road density (km^2) at the 0.6-km scale, B) slope (degree),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

Figure 5. From: Pigeon, et al. (2014).

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

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

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

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

Roads database-

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

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

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

Mike Bader
Independent Wildlife Consultant

Paul Sieracki
Geospatial Analyst/Wildlife Biologist

Appendix A

A document, "120911JHudsonCLaneEmsgOldGrowthFIAPlots.pdf" from Clear Creek project files is an email message:

> From: Hudson, Joe B -FS
> To: Lane, Cynthia -FS
> Cc: Hill, Lois R -FS
> Subject: old growth - FIA plots
> Date: Tuesday, September 11, 2012 2:10:06 PM
>
> Cindy, One of the tasks we had identified for the old growth issue was **asking Renatta to run percentages of OG using Nez Forest Plan OG criteria using 150 years as age**. Not sure if we need Phil Jahn's product before doing this or not. My thinking is that since this is a Forest level project it is probably appropriate for the request to Renatta to make the run should come from yourself. You agree?
>
> Joe B. Hudson
> District Ranger

(Emphasis added.) The Hungry Ridge DSEIS, Reyes and Morgan, and the Twentymile Proposed Action don't address the following NPNF Forest Plan Appendix N direction:

> Where available, stands should be at least 300 acres. Next best would be a core block of 150 acres with the remaining blocks of no less than 50 acres and no more than 1/2 mile away. If existing old-growth blocks are less than 100 acres, the stands between the old-growth blocks should be designated old-growth replacement. The entire unit consisting of old-growth blocks and replacement old growth should be managed as an old-growth complex. If the old-growth component is less than 50 percent of the complex, the complex should be considered replacement old growth. Within the old-growth complex, only the stands that meet old-growth criteria will be counted toward meeting the allocation for existing old growth. The replacement stands will be counted toward meeting the allocation for replacement old growth.

The FS believes that the Green et al. document is best available science in regards to old growth, as demonstrated by its February 2023 Record of Decision for the Clear Creek Integrated Restoration project. The February 2015 Clear Creek Final EIS Appendix D states, "The Green et al. definitions are regarded as the "best available science" for the classification of old growth at the site-specific level." And the September 2015 Clear Creek Final EIS Appendix D discusses how Green et al. is to be implemented as best available science:

> Using Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 the following criteria would be used to define old growth:
>
> Each old growth type is determined by minimum criteria including minimum age class of

large trees, minimum number of trees per acre with a particular diameter at breast height (DBH), with minimum basal area. Associated stand characteristics include:

1) Variation in diameter
2) Percent dead or broken top
3) Probability of down woody debris
4) Percent Decay
5) Number of canopy layers
6) Snags greater than or equal to 9 inches in diameter

The September 2015 Clear Creek Final EIS Appendix D goes on to present this table:

Table D-2. Old Growth Characteristics1

Minimum Criteria	Minimum Age of Large Trees (Years)	150
	Minimum Number of Trees Per Acre (TPA)	3-10
	Minimum Diameter at Breast Height (DBH) [6]	13-21
	Minimum Basal Area (Square Feet Per Acre) [5]	40-80
Associated Characteristics	Diameter at Breast Height Variation[3]	M-H[7]
	Percent Dead/Broken Top	0-36
	Probability of Down Woody[3]	L-H[7]
	Percent Decay[2]	0-41
	Number of Canopy Layers[4]	1-3
	Snags Greater Than or Equal to 9 Inches DBH[2]	0-42

[1]Green et al., 1992 Varies by Habitat Type -See Green et al. 1992 Old Growth Chart for Complete Description
[2]These values are not minimum criteria. They are the range of means for trees greater than or equal to 9 inches DBH across plots within forests, forest types, or habitat type groups.
[3]These are not minimum criteria. They are Low, Moderate, and High probabilities of abundant large down woody material or variation in diameters based on stand condition expected to occur most frequently.
[4]This is not a minimum criteria. The number of canopy layers can vary within an old growth type with age, relative abundance of different species, and successional stage.
[5]In Old Growth Type 4B, 120 square feet of basal area applies to habitat type groups F, G, and G1, and 80 square feet of basal area applies to habitat type groups H and I. In whitebark pine forest type, 60 square feet of basal area applies to habitat type groups I and J, and 40 square feet of basal area applies to habitat type group K.
[6]In Old Growth Type 7, the 25" minimum DBH only applies to cedar trees. Old trees of other species are evaluated with a minimum DBH appropriate for that species on these habitat types (21" for Douglas fir, grand fir, lodgepole pine, western hemlock, white pine, ponderosa pine; and 17" for subalpine fir, and mountain hemlock). (Green et al, 1992, Errata 2011)
[7]L = Low, M = Medium, H = High.

The September 2015 Clear Creek Final EIS Appendix D continues:

> The primary reason for managing for old growth is to maintain viable populations of old growth dependent species. Our reasoning for maintaining old growth has not changed in the amended old growth description.
>
> The proposed site specific Forest Plan amendment for old growth is consistent with the previous forest plan amendment on old growth.
>
> The Nez Perce National Forests minimum requirements for amount and distribution of old growth has not changed. However, old growth categories are clarified and defined. … We have substituted the Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 requirements for old growth but the process to designate and distribute old growth remains the same. The process for assigning recruitment old growth stands also remains the same. It is important to recognize and understand that some watersheds may not have any verified

old growth because natural disturbance agents like severe wildfire have removed old growth from the landscape. Because of natural events like the fires of 1910 and 1938, recruitment old growth may be quite young and may take many years before functioning as old growth.

Adopting the definitions for old growth found in Green et al. (1992) that define successional stages, stratification by habitat types, and other site conditions would help refine our interpretation of the old growth characteristics described in Appendix N of the Forest Plan. (Emphasis added.)

Additionally, adoption of this amendment would ensure consistent terminology and analysis. Old growth determination is done through data collection in accordance with Region One stand exam protocols that correlate to the definitions found in Green et al (1992).

Following direction to use best available science, the Nez Perce National Forest has updated Forest direction for old growth and snag management. Old Growth Forest Types of the Northern Region by Green, Joy, Sirucek, Hann, Zack and Naumann is the current and best science available for defining old growth. Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 is based on habitat types to determine old growth conditions. Greens research is based on field data called stand exams with over 20,000 samples. (Emphasis added.)

Although Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 criteria for old growth is more complex, **the criteria is also more relevant, more precise and within the capability of the specific Nez Perce National Forest habitat types.** Each habitat type is assigned to a habitat type group which corresponds to an old growth type. Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 defines old growth within the ecological conditions with specific criteria that are within the capability of the habitat type. Green et al. 1992, errata corrected 02/05, 12/07, 10/08, 12/11 old growth description is based on successional processes in which stands develop into late seral single storied stands or late seral multi storied stands or the stage where climax tree species dominates the stand. (Emphasis added.)

Friends of the Clearwater invites an open discussion about how Green et al might be applied as best available science concerning old growth. To date the FS has chosen to be nonresponsive and arbitrary in its actions rather than attempting to identify what consensus may be reached between its experts, independent scientists, and conservation interests.

We understand how the Green et al distinctions between various habitat types opens up the possibility of recognizing and protecting a wide diversity of old-growth conditions on the NPNF which might not as easily be recognized by the Forest Plan Appendix N criteria, which might also result in better addressing wildlife habitat needs. We also see that Green et al recognize that age of large trees is an important feature of old-growth forest and habitat—in fact a minimum criteria—which is not clearly emphasized in Forest Plan Appendix N. But in order to find agreement with the public and to manage genuinely consistent with best available science the FS

must halt its abuses of Green et al as the interested public has repeatedly requested. Furthermore, the solution is not to throw out the baby with the bathwater as the HR DSEIS does, both in terms of turning its back on the diversity of habitat types featured in Green et al and ignoring age criteria both Green et al and the Forest Plan EIS recognize.

Green et al. clearly uses age of large trees as one of its minimum criteria. Jahn (2021), the document commissioned by the FS we put into context above, is also clear on this point. Some of his sources are the NPNF Forest Plan and Forest Plan FEIS. Jahn (2012) refers to the NPNF 1987 Forest Plan EIS:

> EIS at II-89:
> In order to maintain minimum viable populations of old-growth-dependent species, an estimated 5 percent of the forested acres within prescription watersheds and 10 percent of the total forested acres will be managed as old-growth habitat in all alternatives except one. It is uncertain what percentage of forest communities that are 160 years old or older is suitable old-growth habitat. Nevertheless, the amount of old-growth and older age classes is used as an indicator of the total amount of old-growth habitat available in each alternative.
>
> Editor's Note: The above reference to "150 years or older" for overmature sawtimber (old growth habitat) is believed to be a possible misprint or typographical error. All other references to old growth and the overmature age class of timber, in the NPNF Plan documents and supporting old growth literature, at the time, cite the age of 160 years.

The Forest Plan FEIS at IV-53 states:

> Given these requirements, and assuming that tree communities that are 160 years old or older provide suitable habitat for old-growth-dependent species, all alternatives will provide the amount and kind of habitat necessary to maintain minimum viable populations of old-growth-dependent species for the first 5 decades (Table IV-17).

And the NPNF's current Clear Creek NEPA documents and project file documents recognize that old trees are essential components of old growth. The Clear Creek FEIS Appendix D adopted by FSEIS and 2023 ROD states:

> The original old growth amendment did not state that the minimum age for old growth is 150 years old. However, on page III-56 of the forest plan describing Management Area 20 – Old Growth, old growth is described as being over mature and 150 years old or older.

111006LHillMWardEmsgOGRefsInNPFP.pdf from Clear Creek project files is an email message:

> From: Hill, Lois
> Sent: Thursday, October 06, 2011
> To: Ward, Michael

> The age references for old growth are not described in the NPFP as standards, and we shouldn't assume that they are. **They do, however, give a strong indication of the age range assumptions the planners made when they wrote their FP.**

(Emphasis added.) 120802MWardEmsgProjDevelopmentDiscussioWithJOppenheimer.pdf is from the Clear Creek project files. It includes email messages, wherein the FS is having the dialogue about age criteria vs. no age criteria and FPOG/NIOG:

> From: Ward, Michael
> Sent: Thursday, October 13, 2011 4:38 PM
> To: joppenheimer@idahoconservation.org
> Subject: RE: Has the storm passed?
>
> Old trees, big tree are cool. Most of the DF/GF are valueless. We don't want to cut them down. We want to protect real cool biological O/G. We have a lot of Biological O/G
> We want to treat the mid seral
> We're heavy in mid seral
> Much of the mid seral is over 21"
> According to FP it could be considered O/G which is rediculous.
>
> From: Michael P Ward <michaelward@fs.fed.us>
> Date: Thu, 13 Oct 2011 22:28:11 +0000
> To: Jonathan Oppenheimer joppenheimer@idahoconservation.org
> Subject: RE: Has the storm passed?
>
> Got a message from Robyn about the O/G stuff...haven't spoke with her yet.
> Regardless, here's where we are: (message from Joe)
> Talked to Marty. Basically we will use both. . . kinda. . . We will show that we meet the Forest Plan Standard using Forest Plan definition (no age). The FP standard is 5% at the watershed level. This step is basically a check off (mapping exercise) that yes, we will meet FP standards of not entering 5% of stands meeting FP definition.
>
> Once we document that we meet the Forest plan standard and state that we are not going to enter the 5% required under FP, then we bring in best available science (Green et. al.) and use Green et. al. thru alternative development, effects analysis etc. KEY: We will conduct effects analysis using Green et. al.
>
> Confused? No worries. Fort Matt's purpose in the field, and wildlife, we will use Green et. al. definition, i.e., we should be free to treat those acres that don't meet Green et. al. definition, even though they meet FP definition. Basically we could treat all acres minus the 5% meeting Green et. al. that we designate as OG, however that will probably be a discussion the collaborative will need to have.
>
> Marty is willing to come to a team meeting and explain. Maybe we should invite him to the field trip in Oct. I forgot to ask if it would require a FP amendment but I don't think so since we willl be meeting FP standard regardless.

We note that last FS email is addressed to a staff member of a conservation group who was formerly engaging in a collaborative process. Apparently the FS is willing to discuss these matters in the context of collaboration but NOT within the NEPA or forest plan revision context.

Another set of email messages is a document from Clear Creek project files, in the context of the Jahn process (120829CLaneEmsgOLInterpWhitePaperStatementOfWork.pdf):

> From: Hill, Lois R -FS
> Sent: Wednesday, August 29, 2012 6:10 AM
> To: Lane, Cynthia -FS
> Cc: Hudson, Joe B -FS; Ward, Michael P -FS; Bienkowski, Matthew W -FS; Roberts, Michelle M -FS; Hill, Lois R -FS
> Subject: FW: Urgent...Old Growth Statement of work and Justification
>
> I agree with Joe's comments.
>
> The crosswalk between Green et al. and Forest Plan Appendix N should clearly address the six criteria described on page N-1.
>
> Also, when researching the planning record for the Forest Plan EIS, the focus should be on the assumptions that the planners made and where they drew their definitions from.
>
> Thanks for getting on top of this so quickly, Cindy.
> --Lois

Even the Hungry Ridge Updated Old Growth Analyis states, in discussing NPNF Forest Plan Management Area 20, "The Forest Plan describes these lands as approximately half of the area has a timber condition class of overmature sawtimber (**150 years or older**)." (Emphasis added.) Under Management Area 20, the Forest Plan states: "Approximately half of the area has a timber condition class of overmature sawtimber (**150 years or older**). The remainder of the area is comprised of immature stands (40-80 years) that will provide for replacement old-growth habitat." (Emphasis added.) Clearly the Forest Plan recognizes that old trees are essential habitat for old-growth associated wildlife: "These lands **provide critical habitat** for wildlife species dependent on old-growth forest conditions such as the pileated woodpecker, the pine marten, and the fisher." (Id.) Also, "Goals" for MA 20 include one to "Provide 'suitable' habitat (existing and replacement) for old-growth-dependent wildlife species." (Id.)

A June, 2014 document "1.0 Terrestrial & Aquatic Ecosystems and Watersheds" was written as part of the NPCNF's Assessment, a component of forest plan revision. It states, "The different stages of succession are often referred to as seral stages and can be described as follows: …Old Growth is a subset of the late-seral communities. Not only are these dominated by larger, older trees, but they have dead and down material present. Old growth in different forest types looks differently. Green et al. (1992) described old growth characteristics for the Northern Rockies."

Also, the draft LMP includes Glossary definitions:

Old Growth Forests: Are ecosystems distinguished by **old trees and related structural attributes**. Old growth encompasses the **later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function**. In the context of the Nez Perce-Clearwater ecosystem the definitions for old growth are those provided within the document titled "Old Growth Forest Types of the Northern Region (Green et al. 1992, and errata 12/11).

Old Growth Associated Species: the group of wildlife species that is associated with old-growth forest plant communities on the Nez Perce-Clearwater.

Old Growth Habitat: A community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multistoried crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. **The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate.** Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest.

Until stands of forest trees approach the 160-year breakpoint the FS and NPNF Forest Plan FEIS recognizes, they are less likely to have developed the structural diversity (snags, logs on the ground, decadence, canopy layers and canopy closure) needed to support wildlife species' habitat needs. That is the rationale for including those criteria found in NPNF Forest Plan Appendix N as part of the standards.

So for example in a section entitled "Important statements from research" Kootenai National Forest (2004) identifies components of complexity as important for the Sensitive species fisher, which happens to be an NPNF Management Indicator Species and a SCC under the LMP.

- Jones, 1991: "…fishers did not use non-forested habitats." "It is crucial that preferred resting habitat patches be linked together by closed-canopy forest travel corridors."
- Ruggiero et al. 1994: "...**physical structure of the forest** and prey associated with forest structures are the **critical features that explain fisher habitat use**, not specific forest types.
- Thomas, 1995: "**Most habitats preferred by fishers have been described as structurally complex, with multiple canopy layers and abundant ground-level structure (in the form of logs, other downed wood, under-story shrubs, etc**.). Powell and Zielinski (1994) listed three **functions of structural complexity**, which may be important for fishers: high diversity of prey populations, high vulnerability of prey items, and increased availability of dens and rest sites. Structure also substantially influences

> snow accumulation and density, which have been shown to be important variables in fisher habitat use (Raine 1983, Leonard 1980, Powell and Zielinski 1994)."

(Emphases added.) Such complexity can be seen in the photographs included in "120802MWardEmsgProjDevelopmentDiscussioWithJOppenheimer.pdf".

Finally, Attachment A includes documents the NPNF produced for NEPA analyses of previous timber sale projects, to comply with the Forest Plan. Two pdfs (Old Growth SurveysSelway RD 1,2) document 1992 field surveys for old growth on the Selway Ranger District. The document, entitled "OLD GROWTH SURVEY" shows that the NPNF created a standard field survey form using Forest Plan Appendix N old-growth criteria as "CRITICAL COMPONENTS" and includes a rating for "LARGE TREE AGE" with a breakpoint being 150 years. The critical importance of the age of old trees is not new to the FS, however it is being arbitrarily ignored in the DSEIS/UOGA old-growth inventory process.

The FS must map the old growth designations, providing identifying labels on old growth polygons with which one may use to cross-reference to documents disclosing the old-growth character of each corresponding polygon, which could also reveal how the old-growth criteria were being applied for any given polygon.

NPNF Forest Plan Appendix N states, "Old-growth stands will be identified through the use of stand exam information, aerial photos, and field reconnaissance." A document "Campbell OG analysis note.pdf" in Attachment A explains how the NPNF used queries of existing database and aerial photos to identify "potential oldgrowth" in 1995. Once identified, "The …stands **would need to be field verified** to determine if they could be reallocated to oldgrowth or replacement oldgrowth following the steps outline in Appendix N of the Forest Plan." (Emphasis added.)

The document "120906MBienkowskiEmsgOGStandsFieldReviewNotes.pdf" from Clear Creek project files is an email message:

> From: Bienkowski, Matthew W -FS
> To: Hill, Lois R -FS; Kirkeminde, Margaret -FS; Lucas, Megan D -FS; Smith, Karen A -FS; White, Tam -FS; Ward,
> Michael P -FS; Graves, Doug A -FS; Roberts, Michelle M -FS; Hudson, Joe B -FS
> Subject: Proposed NEW Focus Area for Clear Creek
> Date: Thursday, September 06, 2012 2:23:24 PM
> Attachments: 120823IDTMtgNotesmbupdate.docx

The attached "IDT Meeting Notes 8/23/12" to that email states:

> Field Reviews of Potential Old Growth Stands
> …Based on a review of aerial photos, stand exams will be done for the following stands to determine whether they meet the criteria for old growth…

We offer examples of how proper old-growth surveys have been conducted on the NPNF and elsewhere. Attachment A includes documents the NPNF produced for NEPA analyses of previous timber sale projects, to comply with the Forest Plan. One document (Old Growth SurveysSalmon River RD.pdf) is a series of 1992 documents on field surveys for old growth on the Salmon River Ranger District. They utilize a "SCORECARD FOR OLD GROWTH HABITATS" which features Forest Plan Appendix N old-growth criteria for "West-side Mixed Conifer" and "West-side Ponderosa Pine", which is apparently an early example of the NPNF integrating the Green et al habitat types into the old-growth identification and allocation process. The surveyors also use observations to rate the quality of the old-growth habitat, making notes of the habitat components they observe which biological knowledge indicates are used by old-growth associated wildlife. In these Attachment A documents the surveyors also take notes on actual wildlife sightings while they're in the forest. Essentially, the surveyors are immersed in the experience of what it means to be in old growth, increasing their credibility as surveyors of old growth in the process.

Attachment B is a document entitled, "Kootenai N.F. – Three Rivers District Old Growth Validation Process – All Proposed Sales." It includes a section, "Instructions For Old Growth Walkthrough and Write-up" which was "developed in an effort to standardize old growth walkthrough surveys and write-ups." It also has a section listing old-growth criteria used by the Kootenai National Forest (similar to that in NPNF Forest Plan Appendix N), and includes a blank field form for use by the field surveyor. That form includes a couple lines where the surveyor is to indicate in his or her judgment why the stand meets the old-growth criteria displayed on the form.

Also, KNF Forest Plan Old Growth Appendix 17 (USDA Forest Service, 1987b) reveals those FS managers' commitment to conduct field surveys:

> During the next decade, each District will work towards completing a field inventory of designated old growth stands. Specific information items will be gathered which will help in monitoring and determining habitat suitability for several indicator species and will help to rate the relative value of each stand. The key information items will be stored in some type of data base to help facilitate use of habitat suitability models for monitoring of dependent wildlife species.
>
> …It is anticipated that as old growth field verification and other stand exams continue, we will find that some designated stands are not suitable old growth habitat while others not previously designated will be found to be suitable. Records of these findings should be kept so that the Forest Plan data base can be updated.

So we know the FS has done in the past, and still can perform, proper old-growth field surveys if it wants to. But for the old growth designators of the Hungry Ridge FEIS and Draft Supplemental EIS process "old growth" is little but an abstraction. The FS designates with data too unreliable for making valid conclusions, building little credibility in the process.

Old-growth maps must include important reference details which would help facilitate navigation so the public can survey the designated FPOG and ROG. By navigation details we

mean, for example, roads, trails and streams that are relatively easy to find are juxtaposed on the map with old growth polygons.

Forest Plan old growth percentage standards are not based on best available science.

Our comments on the Hungry Ridge DEIS inquired as to what the historic levels of old growth were before industrial logging arrived on the scene: "What is the HRV for old growth forestwide?" The FS responded, "Estimating the amount of old growth that was historically present in the project area would be speculative." On this topic, FOC's Hungry Ridge Objection stated:

> …a more recent issue is questioning of the scientific adequacy of the forestwide 10% standard. Our comments on the DEIS asked, "Please disclose the natural historic range vs. current conditions regarding patch size, edge effect, and amount of interior forest old growth in the project area and forestwide. Please **estimate** how much old growth in the project area has been destroyed by logging. What is the HRV for old growth forestwide?" The FS responded, "Estimating the amount of old growth that was historically present in the project area would be speculative." That is bizarre—the FS has no qualms about speculating on the amounts of various other categories of forest in the project area, and basing the goals of this project on such speculation. Yet it won't speculate on the amount of old-growth habitat historically needed to maintain viability of its old-growth Management Indicator Species and other old-growth associated wildlife? The FS may be reluctant to discuss the issue because the amount of old growth on the Forest is well below the historic range; and that fact alone shows how the FS is managing inconsistent with best available science in proposing to destroy hundreds of acres of old growth.

FOC's Objection to the Hungry Ridge ROD states:

> We incorporate by reference FOC's April 13, 2015 objection to the draft Record of Decision for the Clear Creek Integrated Restoration Project and final Environmental Impact Statement, as providing further insight into the old-growth policy and old-growth associated wildlife on the NPNF.
>
> Ten percent old growth, the forestwide Standard, isn't even within the FS's own "Desired Distributions" for VRUs 3, 7, 10, and 17, and is at the low end for VRU 8.

Yanishevsky (1994) points out the inadequacy of maintaining merely "minimum" amounts of habitat such as snags and old growth.

One might assume the NPNF Forest Plan minimum old-growth standards are based upon historic amounts prior to EuroAmerican exploitation, so that maintaining such minimum would safeguard wildlife populations so they wouldn't vanish from any national forest or need listing under the ESA. But estimates of the amount of old growth on the Forest prior to EuroAmerican management are not available nor reliable, because so much forest had been logged long before adoption of old-growth definitions. This is demonstrated in FS statements responding to requests for data on presettlement amounts of old growth. For example, USDA Forest Service, 2019c

states:

> Regarding the historic range of variability of old growth in the analysis area, **there is no way to accurately determine how much of the Forest may have met the Green definitions of old growth (Green et al., 1992**). To determine whether a forest stand meets those definitions, it requires detailed information on how many trees per acre exist in the stand over a certain diameter and age, the total stand density, the forest type and lastly, the habitat type group that the stand occupies. **No historical information exists that can provide that level of detail.** Therefore, a numeric desired condition or an HRV estimate for old growth is not included in this analysis. (Emphases added.)

Similarly, the Northern Region's Bollenbacher and Hahn, 2008g state, "actual estimates for the amount of OG are constrained by the limited field inventory data collected before the 1930s, and inconsistent—or absent—OG definitions."

Following his research, Lesica (1996) suggested reliance on 10% as minimum old-growth standard could result in extirpation of some species. He estimated that 20-50% of low and many mid-elevation forests were in old-growth condition prior to European settlement.

Gautreaux, 1999 states:

> …research in Idaho (Lesica 1995) of stands in Fire Group 4, estimated that over 37% of the dry Douglas-fir type was in an old growth structural stage (>200 years) prior to European settlement, approximately the mid 1800's.
>
> Based on research of Fire Group 6 in northwest Montana (Lesica 1995) it was estimated that 34% of the moist Douglas-fir type was in an old growth structural stage (>200 yrs.) prior to European settlement, approximately the mid 1800's.
>
> Based on fire history research in Fire Group 11 for northern Idaho and western Montana (Lesica, 1995) it was estimated that an average of 26% of the grand fir, cedar, and hemlock cover types were in an old growth structural stage prior to European settlement.
>
> …fire history research in Fire Group 9 for northern Idaho and western Montana (Lesica, 1995) estimated that 19-37% of the moist lower subalpine cover types were in an old growth structural stage (trees > 200 yrs.) prior to European settlement. While this estimate is lower than suggested by Losensky's research…
>
> Lesica found an estimated 18% of the cool lodgepole pine sites was in an old growth structural stage (>200 years) prior to European settlement, approximately the mid 1800's. … This same research in Fire Group 8 in drier, lower subalpine types of Montana had over 25% of the stands in an old growth structural stage during the same historical period.

Also, Lesica (1996) states, "Results of this study and numerous fire-history studies suggest that **old growth occupied 20-50% of many pre-settlement forest ecosystems in the Northern Rockies**." (Emphasis added.) Lesica, 1996 (also cited in Gautreaux, 1999) stated forest plan standards of maintaining approximately 10% of forests as old-growth **may extirpate some species**. This is based on his estimate that 20-50% of low and many mid-elevation forests were in old-growth condition prior to European settlement. This should be considered some of the best science on historic range of old growth necessary for insuring viability of old-growth associated species.

If the FS was interested in making its old-growth standards consistent with the best available science, it would undertake an amendment process that would increase its "minimum[38]" 10% standard (and the 5% distribution standard) up to a level within the natural range of variability, resembling reference conditions. Unfortunately, it looks as though the Nez Perce National Forest had its preferred "expert" weigh in on this topic: "The Ranger has indicated he is not interested in increasing old growth, believing there is enough OG out there." (111017WildlifeClearCreekNFMAComments.docx)

Clear Creek project file document (111125VRUageclass.pdf) includes a table stating the Desired Condition for various Vegetative Response Units (VRUs), which are categories roughly similar to habitat types or which roughly correspond to Green et al old growth types:

	Desired Condition					
	Age Class					
VRU	0-40	41-100	101-150	150+	Climate Modifier	Dominant Habitat Types
1	20-40	40-60	15-20	50-10	Cool Moderately Dry	Abla/xete, Pico/vagl
2	10--20	10--30	10--20	40-60	Cold and Moderately Dry	Pial, Laly
3	15-25	15-35	10--30	20-50	Moderately Warm & Dry	Pipo/phma, Psme/Phma, Abgr/phma
4	15-25	20-40	15-35	10--40	Moderately Warm & Moist	Abgr/asca, Abgr/clun
5	20-40	40-60-	15-20	5--10	Cool and Moderately Dry	Pien/phma, Abla/vaca, Pico/vaca
6	15-25	20-40	15-30	15-45	Cool and Moist	Abla/clun, Abla/mefe, Tsme/clun, Tsme/mefe
7	10--20	15-35	10--30	35-65	Moderately Cool and Moist	Thpl/clun, Thpl/asca
8	15-25	20-40	15-35	10--40	Moderately Warm & Moist	Abgr/asca, Abgr/clun
9	10--20	10--30	10--20	40-60	Cold and Moderately Dry	Pial/vasc, Abla/vasc, Pico/vasc
10	10--20	10--30	10--30	35-65	Cool and Wet	Abla/stam, Pien/smst, Tsme/stam
12	10--20	10--30	5--25	40-70	Warm and Dry	Pipo/agsp, Pipo/feid
17	10--20	15-35	10--30	25-55	Moderately Cool and Moist	Thpl/clun, Thpl/asca

That "Desired Condition" is based upon what the FS believes is the historic range or norm. That document includes the age class of 150+ and except for one or two VRUs, 10% is at the bottom end (or below) the Desired Condition for the 150+ year age class, which is a minimum criteria for old growth in Green et al. Another document (111125VRUdfcmatt.pdf) includes narratives with the numbers (called "Typical stand age class distribution").

This is another topic concerning old growth about which the NPNF refuses to engage in dialogue. Since the wildlife evolved prior to the era of pre-industrial logging when the abundance and distribution range of old growth was much greater than now, the FS has no scientific basis supporting its assumption that merely meeting its Forest Plan old growth percentage standards will maintain viable populations as the Forest Plan requires. Along with climate concerns as discussed in these comments, this is why facilitating the destruction of old growth of any category would be reckless, arbitrary and capricious.

[38] http://dictionary.reference.com defines "minimum" as: "least possible."