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RE: Mid-Swan Landscape Restoration and Wildland Urban Interface Project

Submitted via email to: comments-northern-flathead-swanlake@usda.gov

These are comments on the Mid-Swan Landscape Restoration and Wildland Urban Interface (Mid-Swan) Project Draft Environmental Impact Statement (DEIS), on behalf of Friends of the Clearwater and Alliance for the Wild Rockies. Text in quotes is from the DEIS, unless otherwise indicated.

The Mid-Swan proposal would implement the 2018 Revised Forest Plan. In carrying out its mission, Alliance for the Wild Rockies (AWR) has participated in the public processes concerning management of the Flathead National Forest (FNF) since the early days of implementing the original Forest Plan, and has taken legal action a few times to force the Forest Service (FS) to manage the FNF in conformance with environmental laws such as the Endangered Species Act (ESA), the National Forest Management Act (NFMA), and the National Environmental Policy Act (NEPA). AWR also participated fully in the public process as the FS developed its Revised Forest Plan, including commenting at every stage and submitting a formal objection dated February 12, 2018. Because the FS provided essentially no relief in response to AWR's formal objection, we incorporate the documentation of its participation in the Revised Forest Plan public process within the comments on the Mid-Swan DEIS. By implementing the Revised Forest Plan with this proposal, the FS would violate laws and regulations.

FOREST SERVICE'S "DESIRED CONDITIONS" CANNOT DEAL WITH CLIMATE CHANGE

One of the two purposes of the Mid-Swan Plan is "to restore and maintain terrestrial and aquatic biodiversity in light of a changing climate. …Currently, existing conditions within the project area are not meeting desired conditions in the Forest Plan. This project serves to improve terrestrial, aquatic, and fire behavior conditions to meet and/or trend towards Forest Plan desired conditions…" However, the DEIS fails to consider that the effects of climate change likely means many of the vegetation desired conditions will not be achievable or sustainable, and therefore provide invalid and unwise direction for management actions. The DEIS simply fails to provide any credible analysis as to how realistic and achievable its desired conditions are in the context of a rapidly changing climate, along an unpredictable but changing trajectory.

The DEIS fails to consider that the effects of climate change likely means many of the vegetation desired conditions will not be achievable or sustainable, and therefore provide invalid and unwise direction for management actions. The DEIS simply fails to provide any credible analysis as to how realistic and achievable its desired conditions are in the context of a rapidly changing climate, along an unpredictable but changing trajectory.

Some FS scientists recognize this changing situation, for instance Johnson, 2016:

> Forests are changing in ways they've never experienced before because today's growing conditions are different from anything in the past. The climate is changing at an unprecedented rate, exotic diseases and pests are present, and landscapes are fragmented by human activity often occurring at the same time and place.
>
> The current drought in California serves as a reminder and example that forests of the 21st century may not resemble those from the 20th century. "When replanting a forest after disturbances, does it make sense to try to reestablish what was there before? Or, should we find re-plant material that might be more appropriate to current and future conditions of a changing environment?
>
> "Restoration efforts on U.S. Forest Service managed lands call for the use of locally adapted and appropriate native seed sources. The science-based process for selecting these seeds varies, but in the past, managers based decisions on the assumption that present site conditions are similar to those of the past.
>
> "This may no longer be the case."

ILLEGITIMATE LANDSCAPE PLAN

This so-called "project" will be designed and implemented utilizing procedures never contemplated in the Revised Forest Plan. However, from a review of the DEIS, it is obvious this is not really a project. The Mid-Swan "project" is the result of a planning process which includes some elements of project planning, but more closely resembles programmatic forest planning. To distinguish this entity from project planning, in these comments we refer to the Mid-Swan Landscape Restoration and Wildland Urban Interface Project as the "Mid-Swan Plan" or "MSPlan" for short.

Using this hybrid planning process, the programmatic Mid-Swan Plan would authorize major vegetation alterations on potentially 118,399 acres of the 174,205-acre DEIS analysis area over "approximately 15 years" which is the expected duration of the Forest Plan itself. Using this MSPlan process, the relevant, pertinent, and important details such as the amount, extent, degree, and methodology of vegetation removal in forested stands or any other specific geographic unit does not have to be spelled out in the NEPA document prior to the decision to heavily alter the vegetation using intensive logging and/or burning. In this process, such relevant, pertinent, and important details are to be determined during a later, post-Decision decisionmaking process conducted by agency employees, who do not have to disclose their rationale or second level decisions to the taxpayer/owners of these national forests in any legally established procedural manner.

In other words, with this hybrid process the NEPA document need not conform to NEPA. Whereas the Mid-Swan Plan would authorize major vegetation alterations on 185 square miles of national forest land, the direct, indirect, and cumulative impacts do not have to be analyzed and disclosed as NEPA requires for projects.

"Treatments identified for implementation will initially be field reviewed to determine current conditions and validate the predicted LOC needed to achieve landscape objectives." However from its context in the DEIS, "initially" means after a Decision has been made—many years after, in most cases.

From the DEIS:

> Vegetation treatment requires a silvicultural prescription, which provides a detailed and logical series of treatments in order to achieve objectives. To determine this series of treatment needs, it is necessary to know existing conditions for the silviculturist to prescribe the appropriate treatment to meet the desired conditions. The data collected in support of writing the silvicultural prescriptions would include current stand conditions; such as insect and disease activity, stand composition, tree size, and structural information. **The examination can be a walk-through** or can follow common stand exam (CSE) protocols. It is also expected that the data collected for prescriptions would be **sufficient to determine if a proposed area of treatment meets old growth criteria** or if additional surveys are needed to make that determination. (Emphases added.)

So the FS proposes that "walk-through" surveys, resulting in little or no documentation of numerical attributes of stands, will be relied upon? How can the public provide its allegedly vital role of review at this post-NEPA stage if there is to be so little data gathering? How does this reflect on the FS's perspective of the values the public holds for something so increasingly rare and special as old-growth forests?

Within this programmatic MSPlan process, relevant management direction expressed as standards, guidelines, goals, objectives, desired conditions and other Forest Plan direction does not have to be explicitly addressed in the DEIS. And the results of monitoring, required under the Forest Plan, is also irrelevant for Mid-Swan Plan purposes.

This programmatic MSPlan process includes "identifying ecological needs", which is a brand new process not found in the recently hatched December 2018 Forest Plan.

In 1999 Roger Sedjo, a member of the Committee of Scientists convened to advise the agency during the rewrite of the national forest planning rule, expressed concerns about the discrepancy between forest plans and Congressionally mandated programs (the MSPlan being the present example):

> (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, emphases added.)

So the programmatic Mid-Swan Plan, as outlined in the DEIS, substitutes for the existing Forest Plans because the latter were hardly used to guide or direct MSPlan design. And the development of this hybrid programmatic MSPlan is conducted in disregard of the existing programmatic planning regulations—the 2012 Planning Rule. The MSPlan is, in effect, a revision of the Forest Plan for which the agency doesn't want to follow proper procedures to implement.

And during development of this Mid-Swan Plan, consistency with relevant direction from the Forest Plan need not be demonstrated. There is little in the DEIS explaining how the MSPlan is consistent with all the relevant Forest Plan direction such as standards, guidelines, etc.

In this Mid-Swan Plan process, the true costs to the taxpayer/owners are obfuscated and hidden from same taxpayer/owners. So the MSPlan implements privatization of public land and resources on the Flathead National Forest.

In this Mid-Swan Plan process, there is no mechanism for the owners of the national forests to hold managers accountable if they fail to make forests "resilient" because there is no timely, scientifically supported way of measuring that major goal. In this MSPlan there is no way for anyone to be held accountable when things go wrong, which is pretty much guaranteed when the second level decisionmakers are not accountable to the taxpayer/owners.

Perhaps the most important point that need be made is this: The FS does not explain how its Mid-Swan Plan would sustain a restored landscape into perpetuity. In this MSPlan there are no details on how frequent and how extensive treatments need to be, the types of treatments necessary, how many miles of roads are needed (both permanent/system and "temporary"), etc.

This means we cannot know how many acres at any given time will be suffering reduced productivity because of soil damage or infested by noxious weeds, or how many acres of wildlife habitat will be subject to diversity impacts due to snag losses from dealing with safety or from public firewood cutting. Also missing from the MSPlan is an economic analysis, which would disclose how much this continuous active management, manipulate-and-control regime will cost on an annual basis—and therefore how likely such a regime could actually be implemented in order to achieve or maintain the "desired" vegetation conditions.

A central tenant of the Mid-Swan Plan is to "improve the resilience of forest ecosystems." From the DEIS:

- **Resilience**, as defined by Forest Service Handbook 1909.12, is the ability of an ecosystem and its component parts to **absorb or recover** after a disturbance such as fire, insect or disease attack, or drought (FSM 2020.5).

- Furthermore, the Forest Plan recognizes that a **diverse vegetation mosaic** makes the forest more **resistant and/or resilient** to natural and human-influenced **patterns and processes** that may affect conditions at the stand and landscape level, thereby providing stability to the social, economic, and ecological benefits described above (FW-DC-TE&V-03).

- Restoring natural levels of **forest heterogeneity**, through a diverse array of vegetation management and prescribed fire, will help promote **habitat resilience** without the risk of **large-scale** habitat loss.

- Vegetation management and wildlife habitat direction in the Forest Plan addresses future uncertainties, such as climate change, by focusing on the development of landscapes and forest conditions that are **resilient and resistant** to disturbances and **stressors**.

Sprinkled throughout the above DEIS quotes on increasing resiliency are terms (emphasized) which beg to have some sort of metric or measuring method attached to them, so that the FS can demonstrate at some later date that resiliency has been improved. Attaching metrics to those terms is essential to the veracity of the MSPlan, yet there is insufficient information in the DEIS that can lead to objective, independent measurement of such terms.

"Resilience" is a term that can be useful to characterize aspects of forest ecosystems, if objectivity and scientific support is also present. However, mostly what is suggested about resilience is, it only happens when the forest is "treated", and the more the forest is "treated" the more resilient it becomes. From the FS's perspective, resilience can only be engineered by management.

So it's unsurprising that the DEIS's proposed monitoring provides no way to monitor resilience. The DEIS only guarantees one of the three types of necessary monitoring—implementation monitoring—would occur. Such monitoring only determines if the FS performs the tasks it says it would, not if the tasks were effective, or if the tasks validate the assumptions included in the NEPA analysis. So, it appears that counting the number of acres treated is all the FS believes is needed to prove that resilience is improved.

Resilience is not the absence of natural disturbances such as wildland fire, insects, and diseases etc. rather, it is the opposite (DellaSala and Hanson, 2015, Chapter 1, pp. 12-13). What the FS is promoting is control of the forest ecosystem through mechanical means to maintain unnatural stasis and in the process, eliminating, suppressing or altering natural disturbances such as insect or disease effects or wildland fire. In other words, a lot of tree farming—its purpose being to maximize commercial exploitation. This is the antithesis of ecological resilience and conservation of native biodiversity. Ecological resilience is ultimately demonstrated by functioning natural processes, including fire. This is dynamic equilibrium, where a varied spectrum of succession stages is present across the larger landscape, which tends to maintain the full complement of native biodiversity on the landscape. (Thompson et al., 2009).

Frissell and Bayles (1996) note:

> Most philosophies and approaches for ecosystem management put forward to date are limited (perhaps doomed) by **a failure to acknowledge and rationally address the overriding problems of uncertainty and ignorance about the mechanisms by which complex ecosystems respond to human actions.** They lack humility and historical perspective about science and about our past failures in management. They still implicitly subscribe **to the scientifically discredited illusion that humans are fully in control of an ecosystemic machine and can foresee and manipulate all the possible consequences of particular actions while deliberately altering the ecosystem to produce only predictable, optimized and socially desirable outputs.** Moreover, despite our well-demonstrated inability to prescribe and forge institutional arrangements capable of successfully implementing the principles and practice of integrated ecosystem management over a sustained time frame an at sufficiently large spatial scales, would-be ecosystem managers have neglected to acknowledge and critically analyze past institutional and policy failures. They say we need ecosystem management because public opinion has changed, neglecting the obvious point that **public opinion has been shaped by the glowing promises of past managers and by their clear and spectacular failure to deliver on such promises**. (Emphases added.)

The FS strives to achieve the "natural range of variability"[1] (NRV). Frissell and Bayles (1996) ask:

> From the point of view of many aquatic species, the range of natural variability at any one site would doubtless include local extirpation. At the scale of a large river basin, management could remain well within such natural extremes and we would still face severe degradation of natural resource and possible extinction of species (Rhodes et al., 1994). The missing element in this concept is the landscape-scale *pattern* of occurrence of extreme conditions, and patterns over space and time of recovery from such stressed states. How long did ecosystems spend in extreme states vs. intermediate or mean states? Were extremes chronologically correlated among adjacent basins, or did asynchrony of landscape disturbances provide for large-scale refugia for persistence and recolonization of native species? These are critical questions that are not well addressed under the concept of range of natural variability as it has been framed to date by managers.

[1] The DEIS also calls it "natural range of variation."

…The concept of range of natural variability also 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.** (Emphasis added.)

The MSPlan does not reduce ecological damage the way it intends for vegetative NRV. Other factors that have been heavily influenced by management along with their historical range of variability (HRV) include:

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)	rare
Extent of veg. communities affected by fire suppression	zero

The Mid-Swan Plan would not "move" those factors anywhere close to the NRV, and thus the adverse legacy impacts would continue.[2] Holistic restoration would be impossible under the MSPlan. How these chronic effects square with the FS's claim to be "increasing resilience" goes unexplained in the DEIS.

The FS's apparent purpose for the MSPlan is to avoid doing site-specific NEPA at the project level. The public will never get a chance to review and comment on site-specific analyses that will be directed by "the LOC[3] flexible toolbox." Likewise there will be no opportunity for the public to become fully informed about site-specific actions in order to exercise the right to object. The Mid-Swan Plan doesn't respect democratic processes established by Congress and written into the FS's own policies, regulations, and procedures.

The MSPlan won't really achieve restored conditions since there is no coherent plan to end the *causes* of the DEIS's alleged vegetation imbalance *symptoms*.

[2] And while the DEIS acknowledges such factors ("Decades of fire suppression, road development, timber management practices, non-native species introduction, and climate change are some examples that have influenced the patterns and processes not just in the project area, but across the broader landscape"), the "solutions" to be imposed by the MSPlan involve perpetuating and worsening those very same factors!

[3] LOC = level-of-change, according to the DEIS.

Clearly, the Mid-Swan Plan is programmatic, not a project.

And there are also the uncertainties of funding under this MSPlan: "Implementation of restoration actions, under either action alternative, would be subject to available funding at the time of implementation and do not guarantee full deployment of proposed activities unless specified as necessary mitigation or design criteria." These uncertainties result in an inadequate analysis of the cumulative impacts of the alternatives, because the extent of the negative influences of human actions to be left on the landscape—a major FS justification for the MSPlan—is highly uncertain.

There is also no mechanism in the MSPlan or Forest Plan holding anyone accountable if monitoring is not properly implemented.[4] This is inherent since "Effectiveness Monitoring[5] can be difficult for the Forest Service to fund. Public and other agency help in Effectiveness Monitoring is strongly encouraged."

Also, under the "Mid-Swan Landscape Restoration Plan", actually achieving genuine restoration isn't really the priority: "To fund restoration activities within the Mid-Swan project not associated with a commercial timber sale, the Swan Lake Ranger District will seek appropriate funding, volunteers or grant funding opportunities through partners." In other words, the only "restoration" actions of any real priority to the Forest Service are logging, logging, and more logging.

And although "Monitoring of the Mid-Swan project is necessary to confirm restoration was completed and to build trust in the management of National Forest system lands" the DEIS only guarantees one of the three types of necessary monitoring would actually occur. (DEIS at Appendix A-58.) And that monitoring method would mainly determine—no surprise here—did the FS log he number of acres it proposed to?

THE IGOR APPROACH CIRCUMVENTS THE NATIONAL ENVIRONMENTAL POLICY ACT

As can be understood from the DEIS, the FS proposes to utilize an "Implementation Guide on Restoration," (IGOR) as a set of procedures for assessing existing conditions in the analysis area, and then based upon those conditions deciding what active management actions to apply.

A big problem with this approach is that the public is left out of the process of making these small-scale decisions. There are no legally mandated procedures for involving the public, since all this would happen after the NEPA process has been completed. The administrative review process known as the Objection process would also be in the rear view mirror. If the FS were to err in making these small-scale decisions, such as by implementing management bias based upon its false restoration narrative, there would be no way to hold decisionmakers accountable.

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4 This accountability issue is typical of forest plan implementation monitoring and evaluation throughout the national forest system.

5 One of three types of monitoring the DEIS says is necessary to build trust: "Effectiveness Monitoring …answers the question 'did our work have the effect we anticipated?'"

If this were a project planning process instead of a programmatic plan, these small-scale decisions would be open for public review during the NEPA process, meaning the public (and decisionmaker) would be informed so the analysis of environmental impacts could be understood, and so an informed choice can be made among a reasonable range alternatives in the NEPA document. All this is precluded when IGOR[6] is the mechanism for implementing the MSPlan.

Under normal NEPA procedures the FS would do the field work; gathering the data on existing conditions so that a Purpose and Need can be properly formulated, then designing alternatives to serve the Purpose and Need. Only then can analysis of the impacts be accurately presented and an informed debate invoking best available science ensue. Other government agencies can be properly informed to play their oversight roles, e.g. U.S. Fish & Wildlife Service (USFWS) consultation under the Endangered Species Act. But by running the MSPlan actions by IGOR, this is all flipped on its head. We have data-free analysis, so essentially analysis-free decisionmaking. The NEPA principle of "look before you leap" is subverted—the leap will come first.

The IGOR post-ROD implementation procedures, as described in DEIS Appendix A, are an approximation on how data can be gathered, existing conditions assessed, and management actions proposed *during* the NEPA process, informing the process along the way. We do not take issue with these procedures themselves. But with the MSPlan, the FS rejects a sensible, NEPA-consistent approach by delaying their timing until after the ROD, without providing any rationale for such a radical change.

IGOR would involve on-the-ground data gathering to document conditions, followed by data analysis, coordination among specialists, etc. at explained in Appendix A. Many steps of IGOR assessment, analysis and public involvement[7] would occur before implementation begins. The DEIS doesn't explain how procrastinating all these actions until after the ROD is signed is in anybody's interest. If all those steps are reasonable and mandatory, it is arbitrary to delay the timing until after all regulatory public processes are history. Inherent in a process that minimizes accountability and public scrutiny up front would be a lot of bureaucratic pressure to take shortcuts resulting in uninformed and arbitrary decisionmaking, and ultimately, unanalyzed negative environmental consequences. This runs counter to NEPA.

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[6]The acronym IGOR is disturbingly appropriate. IGOR is a stock character lab assistant to many types of Gothic villains, (especially mad scientists) familiar from many horror movies and horror movie parodies. https://en.wikipedia.org/wiki/Igor_(character)

[7] The DEIS says, "Continued public engagement is essential to successful Mid-Swan project implementation." Still, "Public feedback …will be considered informal in that **there are no regulations requiring comment during Mid-Swan project implementation."** (Emphasis added.)

ISSUES FROM FOREST PLAN PARTICIPATION WHICH APPLY TO THE MID-SWAN PLAN

As we stated earlier, we incorporate the documentation of AWR's participation in the Revised Forest Plan public processes within these comments on the Mid-Swan DEIS. Below, we list headings from the Objection in **red text** and—although we don't repeat the text from the objection—explain why the objection statements and issues apply to the Mid-Swan Plan.

GRIZZLY BEAR
The grizzly bear is a native species, listed under the ESA, and the MSPlan would be implemented within the Recovery Zone. Logging and roadbuilding adversely affect grizzly bears.

CANADA LYNX
The Canada lynx is a native species, listed under the ESA, and would be adversely affected by actions implemented under the MSPlan.

CONSISTENCY WITH NFMA AND PLANNING REGULATION REQUIREMENTS
This was originally written as a critique of the revised Forest Plan, but given the programmatic nature of the MSPlan, it applies here.

WILDERNESS AND ROADLESS AREAS
The Mission Mountains Wilderness would be directly affected by the MSPlan. Also, inventoried and uninventoried roadless areas occur in the analysis area.

The Forest Service's first responsibility is to protect the wild character of the Mission Mountains Wilderness.

Helicopter-ignited fires in the Mission Mountains Wilderness would violate the Wilderness Act. Helicopter use is incompatible with Wilderness, harasses wildlife, and destroys the experience for Wilderness visitors.

Planting whitebark pine would significantly manipulate the wild character of the Mission Mountains Wilderness. The Forest Service needs to instead protect the Wilderness by leaving it wild.

Please scrap your plans to use helicopters to ignite fire in the Mission Mountains Wilderness and plant whitebark pine, and instead let the Wilderness be wild, as the Wilderness Act requires.

SCIENTIFIC INTEGRITY: BEST AVAILABLE SCIENCE, DATA RELIABILITY, AND MODELING VALIDITY
These topics are obviously an issue at every level of Forest Service planning.

Also, the MSPlan deficiencies in regards to validation prove our point. The DEIS states:

> Validation Monitoring …answers the question "were we correct in our assumptions?" …Validation Monitoring is challenging to implement due to large sample sizes and long timeframe to achieve sufficient scientific rigor. This work is typically performed by

graduate students and research entities. The only Validation Monitoring proposed is baseline physical and biological monitoring as described in the Forest Plan. This monitoring will take place regardless of the Mid-Swan project. No other Validation Monitoring is proposed but interested parties may certainly contribute.

In other words, timely validation of MSPlan (and Forest Plan) assumptions might never occur, and certainly not before the expected lifetime of the Forest Plan expires.

The DEIS states, "To move existing conditions towards desired conditions, we compared the photo-interpreted existing conditions with desired conditions derived from integrated objectives and themes and assigned an initial level-of-change (LOC) category." Where has the FS validated this process as proper for "the first planning effort in the Southwestern Crown to look at this large of a project area and determine management needs across multiple watersheds"? (Emphasis added.) Please disclose the results of all procedures the FS has utilized to demonstrate the "photo-interpreted existing conditions" reflect conditions found by actually gathering data out in the Forest. How accurate and reliable is the IGOR data?

The MSPlan targets "over-represented forest cover type and structural stages for conversion…" What is the scientific information the FS relies upon for your belief that your "conversion" would be ecologically beneficial?

TERRESTRIAL SPECIES DIVERSITY AND VIABILITY, TERRESTRIAL WILDLIFE HABITAT

The MSPlan would adversely impact terrestrial species habitat including old growth, and individuals of the various species of concern.

SPECIES OF CONSERVATION CONCERN

Since the revised Forest Plan includes severely inadequate protections for SCC, actions such as this Mid-Swan Plan would adversely affect diversity.

AQUATIC SPECIES DIVERSITY AND VIABILITY, WATER QUALITY, AQUATIC AND RIPARIAN HABITAT

Since the revised Forest Plan includes severely inadequate protections for riparian areas, aquatic features, hydrological processes, actions such as this Mid-Swan Plan would adversely affect water quality and components of diversity which would be directly or indirectly affected by impacts to water.

"Not every implementation unit needs every possible aquatic restoration treatment. For example, relatively few road-stream crossings are currently blocking fish and therefore only a few implementation units need barrier removals." How can the DEIS state this as a fact, if the FS is also admitting that comprehensive surveys have not been conducted?

EXCESSIVE ROAD NETWORK, COMPLIANCE WITH THE TRAVEL MANAGEMENT RULE, AND MINIMIZATION CRITERIA

MSPlan implementation would rely upon an ecologically and uneconomically unsustainable road network.

FOREST PLAN DIRECTION IS TOO DISCRETIONARY

The revised Forest Plan includes severely inadequate plan elements, resulting in actions (such as MSPlan) that will adversely affect values represented by fully functioning ecosystems, and in actions that won't prioritize genuine restoration activities.

UNSCIENTIFIC DESIRED CONDITIONS

The MSPlan exemplifies the skewed, biased, unscientific decisionmaking resulting from improper prioritization and implementation of Forest Plan Desired Conditions.

The Forest Plan states, "Trechsel (2016) provides a detailed explanation of how plan components for the desired conditions were developed; Trechsel (2017b) provides the results of the natural range of variation as modeled for vegetation characteristics and their relationship to the desired conditions." How does the MSPlan validate the assumptions inherent in those Trechsel analyses?

The DEIS includes little in the way of metrics to actually define current or management-influenced conditions reflecting movement toward achieving Desired Conditions.

Referring to Table 49 [Estimated changes in forest composition, alternative B (acreage and % of analysis area)], the analysis for each "Dominant tree species" reveals the arbitrariness and futility of this chasing Desired Conditions exercise.

For example, "Restoration activities under alternative B would increase the presence of whitebark pine in the analysis area by up to 9,323 acres to 3.7% of the cool moist and 24.3% of the cold potential vegetation type. This is still below the Forest Plan desired range for whitebark pine presence in the cool-moist and cold habitat types, but it would contribute to meeting Forest Plan desired conditions (Table 69). … Whitebark pine presence in the Mid-Swan would trend toward Forest Plan desired conditions." What would be the trend post-project? Please describe this trajectory in quantitative terms, for intervals every few years throughout the expected lifetime/duration of the Forest Plan.

Examination of the numbers in Table 123 (Proposed treatments of the IRMZ under alternative B, by HUC12 Watershed) also reveals the futility of chasing Desired Conditions as per the Forest Plan.

The non-attainment of most of the few Desired Conditions actually quantified in the DEIS—over the life of the MSPlan and therefore of the Forest Plan itself—fully justifies the critiques written in AWR's Forest Plan Objection.

And there is no analysis in the DEIS of the current values or trends for most Forest Plan desired conditions. The MSPlan selects certain Desired Conditions for emphasis—mainly those that "drive" the process toward logging.

FIRE SUPPRESSION

The Forest Plan and MSPlan DEIS fail to analyze and disclose the cumulative impacts of the manipulate-and-control management regime, of which fire suppression is a major component.

FAILURE TO UTILIZE BEST AVAILABLE SCIENCE

Since the MSPLan is a programmatic process, best available science is automatically invoked as an important issue.

TRANSPORATION AND ACCESS

MSPlan implementation would rely upon and increase an ecologically and uneconomically unsustainable road network.

CARBON SEQUESTRATION AND CLIMATE CHANGE

Implementation of the MSPlan would worsen climate change. Forest Service logging is a crime against future generations—really against all of humanity and the natural world.

We incorporate the Battle Creek Alliance et al., 2017 comments on the January 20, 2017 Draft California Forest Carbon Plan within these comments. (Attachment 1.) It contains headings such as "The …assertion that increased thinning/logging will increase carbon storage in forests is unsupported by the best available science."

SOIL PRODUCTIVITY

The proposed MSPLan activities would cumulatively increase soil damage and harm the long-term productivity of the land.

ADAPTIVE MANAGEMENT IN FOREST PLAN REVISION; ALSO MONITORING

The MSPLan is severely deficient in vital steps such as learning from past (and proposed) management misdirection.

CUMULATIVE EFFECTS

The massive scale of the proposal complicates and frustrates cumulative effects analyses. The DEIS cannot properly analyze direct and indirect impacts of the proposal because of the use of the LOC/IGOR approach, as we discuss above in these comments.

The DEIS fails to include analysis of monitoring of past projects carried out in the analysis area, which are needed to inform cumulative effects analyses. The DEIS omits from its analysis:

- A list of all past projects (completed or ongoing) implemented in the analysis area.
- A list of the monitoring commitments made in all previous NEPA documents covering the analysis area.
- The results of all that monitoring.
- A description of any monitoring, specified in those past project NEPA for the analysis area, which has yet to be gathered and/or reported.
- A summary of all monitoring of resources and conditions relevant to the proposal or analysis area as a part of Forest Plan monitoring and evaluation efforts.

The DEIS includes no analysis of how well those past FS projects met the goals, objectives, desired conditions, etc. stated in those project NEPA documents, and how well the projects conformed to forest plan standards and guidelines. There is no analysis of how well the statements of Purpose and Need in those NEPA documents were served.

Such items are a critical part of a NEPA analysis. Without this critical link the validity of many FS assumptions are baseless. Without analyzing the accuracy and validity of the assumptions used in previous NEPA processes one has no way to judge the accuracy and validity of the current proposal. The predictions made in previous NEPA processes also need to be disclosed and analyzed because if these were inaccurate, and the agency is making similar predictions, then the process will fail. For instance, if for previous projects the FS said they were going to reduce fuels for similar reasons as expressed in the MSPlan, or implement some other type of management, and these were never effectively implemented or monitored, it is important for the public and the decision maker to know. If there have been problems with FS implementation or monitoring in the past, it is not logical to assume that implementation will now be appropriate. If prior logging, prescribed fire and other "forest health" or "fuel" treatments have not been monitored appropriately, then the basis for this latest proposal becomes highly questionable.

FIRE POLICY AND FIRE ECOLOGY

One of the two purposes of the Mid-Swan Plan is "to reduce fire behavior in the WUI and in areas that have influence on fire behavior within the WUI." The DEIS implies that forest conditions are threatening private property and human safety, and that logging would correct the situation. The FS thus perpetuates myths and propaganda which serve private timber interests, and results in a MSPlan that won't protect property or improve safety.

The mistaken notion driving the FS strategy to replicate historic vegetative conditions (i.e. "Desired Conditions") is that emulation of the results o**f** disturbance processes would conserve 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 DEIS 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.

Typically, attempts to control or resist the natural process of fire have been a contributor to deviations from Desired Conditions. The DEIS analyses skew toward considering fire as well as native insects and other natural pathogens as threats to the ecosystem rather than rejuvenating natural processes. It seems to need the obsolete viewpoint in order to justify and prioritize the proposed vegetation manipulations, tacitly for replacing natural processes with “treatments” and “prescriptions.” However the scientific support for assuming that ecosystems can be restored or continuously maintained by such manipulative actions is entirely lacking.

Biologist Roger Payne has the following to say about the same kind of hubris represented by the FS’s view that it can manipulate and control its way to a restored forest by more intensive management:

> One often hears that because humanity’s impact has become so great, the rest of life on this planet now relies on us for its succession and that we are going to have to get used to managing natural systems in the future—the idea being that since we now threaten everything on earth we must take responsibility for holding the fate of everything in our hands. This bespeaks a form of unreality that takes my breath away… The cost of just finding out enough about the environment to become proper stewards of it—to say nothing of the costs of acting in such a way as to ameliorate serious problems we already understand, as well as problems about which we haven’t a clue—is utterly prohibitive. And the fact that monitoring must proceed indefinitely means that on economic grounds alone the only possible way to proceed is to face the fact that by far the cheapest means of continuing life on earth as we know it is to **curb ourselves instead of trying to take on the proper management of the ecosystems we have so entirely disrupted.**

(Payne 1995, emphasis added.) Karr (1991) cites a definition of ecological integrity as “the ability to support and maintain "a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Karr (1991) also cites a definition of ecological health: “a biological system ... can be considered healthy when its inherent potential is realized, its condition is stable, its capacity for self-repair when perturbed is preserved, and **minimal external support for management is needed**.” (Emphasis added.) The DEIS definition of resilience misses that last aspect of ecological health—specifically that it doesn’t need management meddling.

Likewise Angermeier and Karr (1994) describe biological integrity as referring to “conditions under little or no influence from human actions; a biota with high integrity reflects natural evolutionary and biogeographic processes.”

In their conclusion, Hessburg and Agee, 2003 state “Desired future conditions will only be realized by planning for and creating the desired ecosystem dynamics represented by ranges of conditions, set initially in strategic locations with minimal risks to species and processes.”

The FS’s foreseeable budget for the Flathead NF would not allow enough vegetation management under the agency’s paradigm to “fix” the problems the FS says would be perpetuated by fire suppression. The DEIS does not cite evidence to prove otherwise. The FS did not conduct any analysis that faces up to any **likely** budget scenario, in regards to the overall management emphasis to “move towards” vegetation Desired Conditions using active management—mostly logging. The implication is 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.

Also in describing what it claims to be landscape departures from the NRV, the DEIS does not provide a spatial analysis, either for the true reference conditions or of current analysis area conditions. The DEIS has no scientifically defensible analysis of the analysis area **landscape pattern** departure from HRV/NRV.

The DEIS assumes that natural fire regimes operating here would maintain practically all the low and mid-elevation forests in open conditions with widely spaced mature and old trees. The FS fails to acknowledge that mixed-severity and even low-severity fire regimes result in much more variable stand conditions across the landscape through time. Assumptions that drier forests did not experience stand-replacing fires, that fire regimes were frequent and nonlethal, that these stands were open and dominated by large well-spaced trees, and that fuel amounts determine fire severity (the false thinning hypothesis that fails to recognize climate as the overwhelming main driver of fire intensity) are not supported by science (see for example Baker and Williams 2015, Williams and Baker 2014, Baker et al. 2006, Pierce et al. 2004, Baker and Ehle 2001, Sherriff et al. 2014). Even research that has uncritically accepted the questionable ponderosa pine model that may only apply to the Mogollon Rim of Arizona and New Mexico (and perhaps in similar dry-forest types in California), notes the inappropriateness of applying that model to elsewhere (see Schoennagel et al. 2004). DEIS assertions that the proposed treatments will result in likely or predictable later wildland fire effects is of considerable scientific doubt (Rhodes and Baker, 2008).

Large fires are weather-driven events, 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. 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.**

If the predictions of uncharacteristically severe fire attributed to the No-action alternative were accurate, one might think that the results of scientific validation of such assumptions would have been conducted by now. We find no data or scientific analysis of those fires’ effects validating DEIS predictions of uncharacteristically severe fire effects if the logging is not conducted.

The DEIS does not provide a genuine analysis and disclosure of the varying amounts and levels of effectiveness of fuel changes attributable to: the varying ages of the past cuts, the varying forest types, the varying slash treatments, etc.

See: "'Blatant manipulation': Trump administration exploited wildfire science to promote logging" as just one more reason the executive branch cannot be trusted in regards to scientific issues, especially fire.

We incorporate "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 Forest Service fire policies on display in the Flathead NF. 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 an eye-opening analysis of the Camp Fire, which destroyed the town of Paradise.

We also incorporate the John Muir Project document "Forest Thinning to Prevent Wildland Fire …vigorously contradicted by current Science" (Attachment 2).

We likewise incorporate "Open Letter to Decision Makers Concerning Wildfires in the West" signed by over 200 scientists (Attachment 3).

And also see "Land Use Planning More Effective Than Logging to Reduce Wildfire Risk" (Attachment 4).

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."

Baker, 2015 concluded: "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."

Baker, 2015 writes: "**Management issues…** The evidence presented here shows that efforts to generally lower fire severity in dry forests for ecological restoration are not supported."

In his book, "Fire Ecology in Rocky Mountain Landscapes" William Baker writes on page 435, "…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)." And on page 436: "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)."

Baker estimates the high severity fire rotation to be 135 - 280 years for lodgepole pine forests. (See page 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."

Schoennagel et al., 2004 state:

> (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.
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> 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.
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> 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.
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> 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.
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> 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.

Whereas the DEIS claims to be reducing risk of wildfire by reducing forest canopy density—particularly (but not exclusively) in old growth—the proposed action will result in increased fire severity and more rapid fire spread. This common sense is recognized in a news media discussion of the 2017 Eagle Creek fire in Oregon:

> **Old growth not so easy to burn:**
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> Officials said the fire spread so rapidly on the third and fourth days because it was traveling across lower elevations.
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> The forests there aren't as thick and as dense as the older growth the fire's edge is encountering now - much of it in the Mark O. Hatfield Wilderness, Whittington said.
>
> Whittington said because **there's more cover from the tree canopy, the ground is moister -- and that's caused the fire to slow. Also, bigger trees don't catch fire as easily**, he said.

(Emphasis added.) The FS also likes to trot out the 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, S.H. 2005 (Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests." A Synthesis of Independently Reviewed Research) and Black, et al., 2010 (Insects and Roadless Forests: A Scientific Review of Causes, Consequences and Management Alternatives) as well as DellaSala (undated), Kulakowski (2013), Hanson et al., 2010, and 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.)

McClelland (undated) criticizes the aim to achieve desired conditions by the use of mitigation measures calling for retention of specific numbers of certain habitat structures:

> The snags per acre approach is not a long-term answer because it **concentrates on the <u>products</u> of ecosystem processes rather than the processes themselves**. It does not address the most critical issue—long-term perpetuation of diverse forest habitats, a mosaic pattern which includes stands of old-growth larch. **The processes that produce suitable habitat must be retained or reinstated by managers. Snags are the result of these processes** (fire, insects, disease, flooding, lightning, etc.).

The FS seems institutionally incapable of recognizing the highly restorative and beneficial effects of wildland fire, managing to prevent the effects of severe fire and irrationally maintaining a position that management alone restores forests.

Implicit in the DEIS is an assumption that fire risk can be mitigated to a significant degree by reacting in opposition to natural processes—namely the growth of various species of native vegetation (misleadingly referred to as "fuels). We believe the FS 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 is likely to occur more frequently. Other likely scenarios include situations where firefighting might be feasible but resources are stretched thin because of priorities elsewhere.

We strongly support government actions facilitating cultural change towards private landowners taking the primary responsibility for mitigating the safety and property risks from fire, by implementing firewise activities on their property. Indeed, the best available science supports such a prioritization. (Kulakowski, 2013; Cohen, 1999a) Also, see Firewise Landscaping[8] as recommended by Utah State University, and the Firewise USA website by the National Fire Protection Association[9] for examples of educational materials.

We want the FS and the public to be comfortable with unplanned wildland fires under some weather conditions in sensible locations, so that the ecosystem benefits can be realized. Simply stated, at the time that response to any given fire is contemplated, we want decision makers to have publicly vetted documentation—for that specific fire area—of the benefits of the process

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8 https://extension.usu.edu/ueden/ou-files/Firewise-Landscaping-for-Utah.pdf

9 http://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA/The-ember-threat-and-the-home-ignition-zone

that helps create habitat conditions for wildlife, restores forest composition, recycles soil nutrients, creates large dead logs that fall into streams forming native fish habitat, as well as many others. That will provide the public, the news media, and politicians with a fully vetted set of justifications for managing with—rather than against—the native ecosystem process of fire. We believe that such planning can and must be undertaken for sustainable forest management to evolve away from the unacceptable present situation. If the FS is unwilling to perform such an analysis, then it must undergo programmatic analysis of its fire suppression policies, disclosing the impacts and ecological harm that the agency will subsequently claim must be later addressed by vegetation management and fuel treatment projects across the landscape. Not to mention the enormous financial costs—also never analyzed or disclosed at any planning level.

The DEIS fails to disclose that most wildland fire ignitions are human-caused, and occur near roads.

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.

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.

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."

Also see DellaSala et al., 2018 who summarize some of the latest science around top-line wildfire issues, including areas of scientific agreement, disagreement, and ways to coexist with wildfire. It is a synopsis of current literature written for a lay audience and focused on six major fire topics:

1. Are wildfires ecological catastrophes?
2. Are acres burning increasing in forested areas?
3. Is high severity fire within large fire complexes (so called "mega-fires") increasing?
4. What's driving the recent increase in burned acres?
5. Does "active management" reduce wildfire occurrence or intensity?
6. Will more wildfire suppression spending make us safer?

The premise that thinning and other mechanical treatments replicate natural fire is contradicted by science (for example see Rhodes and Baker 2008, McRae et al 2001, and Rhodes 2007).

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."

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 makes "recommendations for moving forward based on best available science."

Please analyze and disclose the varying amounts and levels of effectiveness of fuel changes attributable to: the varying ages of the past cuts, the varying forest types, the varying slash treatments, etc. This is true for land of other ownerships also. The FS must disclose how the vegetation patterns that have resulted from past logging and other management actions would influence future fire behavior.

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).

Kauffman (2004) suggests that current FS fire suppression policies are what is catastrophic, and that fires are beneficial:

> 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.)

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 fisheries 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." They point out that logging, thinning and fire suppression can have harmful effects on watersheds (Id.).

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.

Baker et al., 2006 state:

> Because multiple explanations exist for the presence and abundance of young, shade-tolerant trees, these trees need to be dated and linked definitively to a particular land use (e.g. livestock grazing, logging, fire exclusion) before their removal is ecologically appropriate in restoration, and so that the correct land use, as discussed later, can be modified.
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> …Identification of which land uses affected a stand proposed for restoration is essential. Fire exclusion, logging and livestock grazing do not have the same effects on these forests, their effects vary with environment, and they require different restoration actions. Before restoration begins, it makes sense to modify or minimize the particular land uses that led to the need for restoration, to avoid repeating degradation and ongoing, periodic subsidies that merely maintain land uses at non-sustainable levels (Hobbs & Norton, 1996). For example, thinning an overgrazed forest, without restoring native bunchgrasses lost to grazing, may simply lead to a new pulse of tree regeneration that will have to be thinned again.

To us, this means making a firm commitment to allowing wildland fire to play its natural role on the landscape, avoiding the knee-jerk firefighting and fire suppression actions that are all too commonly applied as soon as a fire is detected.

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 publishing giant Elsevier published a four hundred 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). This book includes research documenting the benefits of high-intensity wildfire patches for wildlife species, as well as a discussion of mechanical "thinning" logging, approved here, 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).

Mixed-severity fires, and in particular patches of high-severity fire, benefit grizzly bears by increasing cover of berry producing shrubs (such as huckleberry) that the bears rely upon to get fat before winter, and promoting regeneration of whitebark pine— the seeds of which are an important food source for the bears (DellaSala and Hanson, 2015, Ch. 4, pp. 89, 101).

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.

Bradley et al., 2016 found that areas of more intensive management tend to burn more severely than unmanaged forests:

> There is a widespread view among land managers and others that the protected status of many forestlands in the western United States corresponds with higher fire severity levels due to historical restrictions on logging that contribute to greater amounts of biomass and fuel loading in less intensively managed areas, particularly after decades of fire suppression.
>
> … On the contrary, using over three decades of fire severity data from relatively frequent-fire pine and mixed-conifer forests throughout the western United States, we found support for the opposite conclusion—burn severity tended to be higher in areas with lower levels of protection status (more intense management)… Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management and policy.

The DEIS fails to reconcile this scientific perspective with the FS's own.

The DEIS also fails to deal with the fuels issue on the appropriate <u>temporal</u> scale. How landscape-level fire behavior at any period except for very shortly after treatment would be changed or improved is ignored.

Rhodes (2007) states: “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.” (Internal citations omitted.) And Rhodes 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 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.)

Our take from Finney and Cohen (2003) is that there is much uncertainty over effects of fuel reduction. 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.

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.)

Then there are logging impacts affecting the rate of fire spread. Graham, et al., 1999a point out that fire modeling indicates:

For example, the 20-foot wind speed[10] 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 DEIS doesn't included a sufficient analysis regarding the implications of how the fire regime is changing due to climate change.

Many direct and indirect effects of fire suppression are must be analyzed and disclosed at the project level and as well as in the programmatic context. 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

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

> 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 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 vast majority of acres burn under weather conditions that make control impossible, and that result in fires burning through treated areas as well as untreated. The FS must recognize the temporal gradients in vegetative recovery following treatments, which are the natural processes acting to regrow the components of natural vegetation the FS calls "fuel."

In conclusion, we appreciate the opportunity to comment on the Mid-Swan Plan. We intend that literature cited as listed below and in AWR's incorporated Objection to be included in the formal project record. Please request a copy of these documents if you are having difficulty obtaining them.

Sincerely submitted,

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