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Comments: Following are comments in response to the Buckhorn Scoping document, dated November 1, 2019.

This proposed project, covering approximately 1,300 acres, is to be located on the Darby Ranger District.

In the Buckhorn Scoping Document, the Forest Service states that the goal for this project in MA2 and MA 3A is to:

[middot] To optimize elk winter range using timber management practices;

[middot] To emphasize access for mineral exploration and roaded dispersed recreational activities;

[middot] Provide (retain) moderate (partial) levels of visual quality, old growth habitat for other wildlife species and livestock forage;

[middot] To manage timber; and

[middot] To provide moderate levels of timber, livestock forage, big game forage, and access for mineral exploration.

The scoping document, dated November 1, 2019, states that, "Vegetation management activities on Forest Service lands would improve forest health and resilience to insects, diseases and fire."

The Purpose (goal) of the project is purported to be an improvement of landscape resilience to disturbances (fire, insects, and diseases) by diversifying the structure and composition of the forest and reducing fuels.

To reach that goal, the Needs were identified in the Scoping Letter.

"There is a need to reduce vegetative susceptibility to subsequent insect and disease activity to minimize tree mortality that would contribute to surface fuel loadings, as well as a need to maintain fuel loadings at levels that are not conducive to active, crown independent wildland fires during severe weather conditions. The objective of this project is to reduce the risk or extent of, or increase resilience to, insect or disease infestations in the project area by improving resilience of stand structure, function and composition.

"Our initial proposal is to implement vegetation treatments to improve stand resistance and resilience to disturbances. Most treatment units would use an improvement harvest to remove diseased and unnaturally high tree densities of shade-tolerant species, such as Douglas-fir, while retaining ponderosa pine trees and old growth characteristics. Our intent is to break up the homogeneous and continuous horizontal and vertical structure and create non-uniform stand structure and a diverse array of clumps and openings.

"Two units (one predominantly lodgepole pine, one predominantly Douglas-fir) would be treated with an even-aged regeneration harvest where all lodgepole pine and Douglas-fir would be commercially removed. We anticipate regeneration harvest in both units to be greater than 40 acres, exceeding the Regional 40-acre opening size limitation (Forest Service Manual 2470, Supplement No. : RI 2470-20 16-2). To exceed this size, a 60-day

public review and Regional Forester approval will be required. This scoping letter initiates the 60-day public review."

After declaring that clear-cuts over 40 acres in size require a 60-day comment period, the scoping letter ends by stating that, "Comments must be received or postmarked by December 3, 2019." Those two statements, one stating a 60-day comment period is required and the other declaring a 30-day period, are clearly contradictory. Because a specific regulation is cited which requires a 60-day period, I must assume the 60-day comment period is valid and not the 30-day period specified at the end of the scoping letter.

Following is a discussion of the validity of the above-listed Needs and how each correlates to cause-effect relationships revealed by the most current research.

1. The reduction of flame length and crown-fire hazard in the WUI.

Unfortunately, for at least 100 years, the Forest Service has used humans' natural fear of fire, especially wildfire, to drastically suppress forest fire. Recently, the Agency has admitted that such suppression hurt the health of the Nation's forests. Now, however, with the exception of extremely remote fires, the Forest Service continues to suppress most wildfire, claiming that the "social cost" of not containing wildfire is so high, it must continue suppression.

It is ironic that the social cost (fear) was inserted into the public consciousness by decades of Forest Service claims. But rather than confront that (currently) unrestrained fear by explaining the necessity of wildfire for forest health, the Agency uses it to persuade the public that more "thinning/logging" is required to protect the forest and the public from wildfire.

The Bitterroot Forest landscape is vast. Efforts to spend millions of dollars on thinning are unlikely to be effective and will not make anyone safer. It can't be predicted exactly where wildfire will occur and "thinned" forests will simply grow back (seldom, if ever, are "thinning projects revisited). As paradoxical as it seems to some people, recent research (2016) by C.M. Bradley, et al., has clearly shown that forests with the most active "management" produce the highest severity wildfires.¹

And, activities such as logging, thinning, and road building (even temporary roads), each of which is likely to be part of this project, have been shown by H.S.J. Zald et al., to increase and not reduce the severity of subsequent

1 Bradley, C.M., et al. 2016. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States? <https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.1492>

2 H. S. J. Zald, and C. Dunn. 2018. Severe fire weather and intense forest management increase fire severity in a multi-ownership landscape.

Indeed, that same study by Zald and Dunn (2018) indicates that severe weather is the major influence on the wildfire intensity.

Based upon recent scientific research (and not that typically cited by the Agency, all of which is more than two decades old), it seems highly likely that the result of this project, as proposed, will be the opposite of that being currently claimed by the Forest Service.

More intense wildfire (effect) with longer flame lengths is likely to result from thinning and logging (cause).

The project goal of reducing flame length and crown fire in the WUI is problematic in at least two areas.

First, the definition of WUI seems to be fluid and not fixed. What exactly is the Wild Land Interface (WUI)? There is no "urban area" in the area of the Buckhorn project. The few structures (fewer than a dozen) in that area are widely spaced, typically separated by acres of forest or grassland. That is not "urban" by any normally understood definition. It is "rural."

The Agency is implying that any forest within a mile or so of a structure needs to be thinned/logged in order for structures to be safe from wildfire.

This is direct conflict with the findings of J.D. Cohen, a research scientist at Missoula's Fire Science Laboratory. His research indicates that a structure and its immediate surroundings within 100- 200 feet (30-60 meters) principally determine the structure's ignition potential during severe wildland fires. His research creates a compelling argument for "structure compatibility" with wildfire rather than attempting to prevent the encroachment of wildfire.³

In the unlikely event that a wildfire should occur in the area of the project, structures will still be likely to suffer damage (effect) if the project area treatment includes thinning and logging (cause) without structure-hardening.

It is impossible to "manage" (thin/log) our way out of wildfires, especially in a rapidly warming climate. Instead, durable solutions such as home-hardening should be encouraged and pursued.

Given the overwhelming results of recent research which show the opposite, it is disingenuous for the Forest Service to continue claiming that the size of large fires is increasing as a way to persuade the public that logging and thinning the Forest (especially in the WUI) will reduce risk.⁴

If the Forest Service truly has the desire to protect structures in the project area from wildfire, it should educate property owners about the benefits of a structure's compatibility

<https://emwh.org/issues/habitat/Severe%20fire%20weather%20and%20intensive%20forest%20management%20increase%20fire%20severity%20in%20a%20multi-ownership%20landscape.pdf>

3 Wildland-Urban Fire—A different approach, Jack D. Cohen.

<http://www.forevergreenforestry.com/documents/Wildlandurbanfire-approach.pdf>

4 DellaSala, D.A. and C.T. Hanson. 2019. Are wildland fires increasing large patches of complex early

seral forest habitat? <https://www.mdpi.com/1424-2818/11/9/157/htm>

to wildfire and that of its nearby surroundings (30-60 meters). All attempts to thin/log the WUI should be abandoned.

2. The restoration of fire to the ecosystem.

The extrapolation of data from the fire-history study performed by Arno (1976) on an extremely small portion of the Bitterroot Forest to the entire Forest is not logical or statistically sound. The assumption made, based on an extrapolation, that only ~9% of the Forest, which should have experienced multiple fires over the past 129 years, has even burned once, is simply irrational. Arno's sample was simply too small for such an assumption to be made.

The fact, that over the past 129 years only ~9% of the Forest burned one or more times was determined by climatic conditions which existed during that period. Claiming that more of the Forest "should have burned one or more times" during that period is subjective, based upon a silviculturist-imagined "perfect world" Forest which supplies an endless supply of readily marketable timber.

Omitting careful statistical analysis of his study, the use of Arno's old (1976) research seems to support the P&N for this project. But, more recent research of Baker & Ehle (2001) indicates longer fire intervals (FI) of up to 308 years were more likely and that an assumption that only low-density forests (with no dense patches or trees) existed in the pre-Euro-American landscape is simply unlikely and not supported by their results.⁵

And as shown by numerous, even more recent, research, the frequency and severity of wildfire is, and will continue to be, driven mostly by climate (high temperature, drought, and wind) and not by the availability of fuels.⁶

The wide scale introduction of prescribed burns (cause) is unlikely to restore the Forest to its historical state (effect).

Recent studies show that what are assumed by land managers to have been historic conditions are in fact incorrect.⁷ Therefore, one might easily presume that the claimed historical state is, in fact, a silviculturist "desired state."

Left alone, the Forest is much more likely to find an ecologically resilient equilibrium able to cope with normal disturbances (fire, insects, and diseases) than any amount of active management can achieve.

3. The reduction of stand densities.

The Purpose of this action is supposedly to increase age class diversity and favor shade- intolerant species to promote resilience to stressors (drought, insects, and diseases).

5 Uncertainty in surface-fire history - the case of ponderosa pine forests in the western United States - 16feb01 [http://gaiavisions.org/deiSHerb/FOIA-comments/Public%20Comment%20809%20Attachment/Fire/Baker%20and%20Ehle%20\(2001\)%20Uncertainty%20in%20surface-fire%20history-.pdf](http://gaiavisions.org/deiSHerb/FOIA-comments/Public%20Comment%20809%20Attachment/Fire/Baker%20and%20Ehle%20(2001)%20Uncertainty%20in%20surface-fire%20history-.pdf)

6 Abatzoglou, J.T., and A.P. Williams. 2016. Impact of anthropogenic climate change on wildfire across western US forests. PNAS <https://www.pnas.org/content/113/42/11770>

7 DellaSala, D.A. and C.T. Hanson. 2019

The Forest Service claims that a reduction of stand densities will decrease the mortality of remaining trees. However, a recent study by Berner, et al. determined that timber harvesting accounted for the largest portion of

tree mortality (~50%), followed by beetles (32%), and fires (~18%).⁸

Claiming that insects and disease contribute to high-risk fires is not based on fact. Risk assessment mapping provides a false sense of comfort that communities will be safer and the Forest more resilient. Overwhelming scientific evidence from multiple studies in the Pacific Northwest, Pacific Southwest, and the Rockies shows that, after the first year following the infestation, forests which have recently experienced large insect outbreaks are less susceptible to subsequent fires due to the reduction of fuels in the canopy for crown fires.⁹

The Agency recommends the removal of mistletoe-infested trees in the project area, especially (shade-tolerant) Douglas-fir, trees that it claims are a ladder fuel which interferes with the growth of "preferred" Ponderosa Pine. Unfortunately, by promoting the removal of mistletoe, the Forest Service ignores the importance of mistletoe to wildlife both as habitat and a food source.¹¹

Researchers C.T. Hanson, et al., suggest that, "Historical forest structure and fire regimes in mixed-conifer and ponderosa pine forests of western North America were far more variable than current management regimes assume, and mixed- and high-severity fires are a natural and ecologically beneficial part of many forests and shrublands. Yet the unique and ecologically rich habitat created by such fire remains demonized and, in nearly all places, is a habitat threatened by fire suppression, postfire logging, and prefire management designed to reduce further the creation of postfire habitat. Ecologists are increasingly urging a shift in policies that would allow more mixed- and high-severity fire in the wildlands away from homes, while focusing on fuel reduction and fire suppression activities adjacent to homes to provide for public safety. A paradigm shift in land management policies is needed to restore mixed-severity fire by allowing wildland fires to burn safely in the backcountry while protecting postfire habitat from the ecologically damaging practices of postfire logging, shrub removal, and artificial plantation establishment."¹²

The reduction of stand densities (cause) is unlikely to reduce the severity of naturally occurring wildfire or infestations of insects and disease (effect).

⁸ Tree mortality from fires, bark beetles, and timber harvest during a hot and dry decade in the western United States (2003-2012), Logan T Berner, et al., <https://iopscience.iop.org/article/10.1088/1748-9326/aa6f94/meta>

⁹ Area burned in the western United States is unaffected by recent mountain pine beetle outbreaks (2015), Sarah J. Hart, et al., <https://www.pnas.org/content/112/14/4375>

¹⁰ Do insect outbreaks reduce the severity of subsequent forest fires (2016), Garrett W Meigs, et al.,

<https://iopscience.iop.org/article/10.1088/1748-9326/11/4/045008/meta>

11 Mistletoe as a keystone resource - an experimental test, David M. Watson and Matthew Herring, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3415901/>

12 Setting the Stage for Mixed- and High-Severity Fire, Chad T. Hanson, et al., 2015,

<http://hs.umn.edu/dbs/labs/hutto/documents/pubs-pdfs/Hansonetal2015.pdf>

However, reducing stand density (cause) will certainly have detrimental consequences for wildlife and ecological diversity in the Forest (effect).

While there are certain risks to people from wildfires, the vast majority of scientific studies show that forests most often benefit ecologically from mixed-severity wildfires.¹³ Using "catastrophic" rhetoric to describe wildfire, insect activity, and disease in order to gain support for management activities (logging) on the Forest is destructive in the long term. Fires, insect activity, and disease ARE NOT ecologically destructive. It is logging and suppression before, during, and after such natural occurrences that have the biggest impact on water quality and quantity, wildlife, and natural processes.

4. The improvement of habitat diversity.

The Forest Service claims there is a need to improve habitat diversity, forage quality and quantity for elk.

Being dynamic, on-the-ground conditions change over time. One obvious fact being disregarded by the Agency is that, wild animals are nomadic. To survive, they transplant to new locations as conditions require. The only places that wildfires are not currently being suppressed lie in Wilderness and lack easy access (by humans). It should come as no surprise that many ungulates, and yes, even songbirds, move away from areas close to humanity and seek those remote, recently burned areas for access to food. That does not necessarily mean their populations have diminished, simply that those who have relocated are not as easily accessible.

If the Forest Service, by the actions proposed by this project (cause), creates more places attractive to certain wildlife, there is little doubt that, in time, wildlife will inhabit the newly created spots (effect).

The question is, "Should the Agency initiate certain actions simply to make specific species of wildlife (those sought after by hunters) easily accessible, especially if such actions are detrimental to other wildlife species (non-game animals)?"¹⁴

To perform actions which show preference for some wildlife species over others seems presumptuous and displays overconfidence which the history of past Agency actions does not support.

Climate and Global Warming

The earth's climate is warming, substantially. Recent research suggests that, no matter what mitigation actions are initiated, human activity has already increased greenhouse gas enough to warm the planet by at least 2 - 2.5 degrees Celsius (3.6 - 4.5 Fahrenheit). But nowhere in the scoping document, is there any indication that the IDT

has performed in- depth research into the impact a much warmer climate will have on the Bitterroot Forest.

13 DellaSala, D.A., and C.T. Hanson. 2015

14 Reconciling wildlife conservation to forest restoration in moist mixed-conifer forests of the inland northwest, Larry L.Irwin, et al., <https://www.sciencedirect.com/science/article/abs/pii/S0378112718303268>

That is particularly disturbing given recent research which clearly indicates that the total greenhouse gas emissions from logging are at least three times the levels produced during an average wildfire season.¹⁵

To anyone paying close attention, it looks as if the stated Purpose and Need of the Buckhorn GNA Project is not based upon the most recent scientific research and studies. Rather, it appears as if the P&N is based upon a politically motivated desire for an increase in logging activities. This Agency's continual use of the same Purpose and Need for every project is misleading and deceitful. Worse, executing the activities likely to be contained in this project not only contribute to global warming and harm existing ecological stability but drastically reduce the Forest's capacity to reestablish the resilience needed to cope with scientifically projected future conditions.

I do not agree with the stated Purpose and Need for this project which uses scare tactics related to wildfire, insects, and disease to garner public support for logging activities. If the Forest Service wants a logging project, it should say so in clear, unambiguous language which anyone can understand. Anything else is fraudulent.

Below are comments related to the Buckhorn Project document dated, November 1, 2019.

[middot] This project appears to limit input from those outside the Agency because it includes little or no specifics related to the proposed activities on individual treatment units. The scoping comment period is requesting pre-approval remarks for activities for which no information is offered. The recent court injunction on a similar (condition-based analysis) project in Alaska's Tongass National Forest suggests that such a project format is likely to be ruled illegal. It would be sensible for the Bitterroot Forest to redesign this project to fall in line with the format of previous projects.

[middot] Perform all ground-disturbing management activities during the winter months to reduce the spread of invasive weeds. In spite of the current politically motivated mandate to produce timber, restrict commercial logging to areas designated for such activities and emphasize forest ecology (as opposed to silviculture) in all areas.

[middot] Because humans are unable to select the most genetically fit and adaptive trees, allow insect and disease infestations to run their natural course. This provides natural thinning, increased species diversity, and is much more likely to provide a Forest more adaptive to climate change than any possible Forest Service management activities.¹⁶

[middot] Cease the practice of cherry-picking outdated science to support the pre-determined, desired treatments which are proposed as part of this project. The IDT should be using

15 Attribution of net carbon change by disturbance type across forest lands of the conterminous United States, N. L. Harris et al., <https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-016-0066-5> 16 The rise of the mediocre forest - why chronically stressed trees may better survive extreme episodic climate variability, Steven G. McNulty, Johnny L. Boggs, Ge Sun, https://www.srs.fs.usda.gov/pubs/ja/2014/ja_2014_mcnulty_001.pdf

the most up-to-date research and studies to determine treatments on the Forest. Agency management should support the findings of the specialists, not politically motivated "directives."

[middot] The project should be designed so that no new roads are required (this includes temporary roads, undetermined roads, and/or system roads). Roads have been repeatedly shown to have the most detrimental effect on forest ecology, wildlife, and water (both quality and quantity). If a management activity cannot be performed without the addition of roads, it should be deleted from the project.

[middot] No management activities should be implemented in old growth. Recent studies have shown that old growth ecological systems (not just the trees) are the most complex and important feature of a forest. Areas of old growth should not be disturbed.

[middot] Actually collaborate with the public. Make meaningful changes to the project based upon public

comments (centered on science not politics).

[middot] The project should budget (and include) the funds required for post-project monitoring. Without monitoring, it is impossible to know whether management activities actually accomplish project goals. Information gathered during monitoring can and should be used to help in the design of future projects.

[middot] The economic analysis of the project should include project preparation costs, post- project monitoring, and the costs associated with reclamation and future maintenance.

[middot] The project should include a thorough, in-depth analysis of its effects on the earth's climate. Management activities associated with this project will require large amounts of fossil fuel. Recent research indicates that, on an annual basis, logging and thinning emit far more carbon than wildfire. Other research shows that logged forests sequester less carbon than untreated forests. Any and all management activities which exacerbate climate change should be removed from the project unless they can be completely offset by including other activities which have been scientifically shown to mitigate global warming.

[middot] The Agency's continued use of the Categorical Exclusion Authority (CE) to bypass NEPA requirements is deceitful. The CE was intended for activities which have little or no impact on the environment, such as the installation of an outhouse or the placement of a trailhead sign. It was never intended to be used for projects which have an obvious impact on the environment. A CE should not be used for this project. The Buckhorn Project obviously requires a more thorough EA or EIS. The circumstances which require an EA or EIS are typical for a project such as this and are in no sense extraordinary.

It must be stated that, with this project, the Forest Service continues to perform "business as usual," only more quickly and forcefully. This in spite of the fact that continuing to perform actions which are now understood to be detrimental to the forest and the ecology of the lands overseen by the Agency is not a prescription for positive, long-term results. The rapidly warming Earth is already causing injurious effects to all fauna and flora which inhabit the planet. All species, including humans, are already feeling the effects of ill-advised human activities. All of us, especially governmental agencies like the Forest Service, must change, now. Global Warming has reached crisis stage and must be dealt with at every level to forestall a catastrophe of global proportions which will affect every one of us and the lifeforms with whom we share the planet.

Sincerely, Michael Hoyt