

Data Submitted (UTC 11): 6/2/2026 2:17:56 AM

First name: Jesse

Last name: Logan

Organization:

Title:

Comments: To: Custer Gallatin National Forest Supervisor, Matthew Jedra

From: Dr. Jesse A. Logan, USDA Forest Service , Rocky Mountain Research Station (retired)

Date: June 1, 2026

Subject: Comments on the Bear Palmer Forest Health Project Preliminary Effects Document

Relevant background: From 1992 to 2006 I was a Research Scientist and Project Leader for the Forest Service, Rocky Mountain Research Station. During that time, my primary research interest and expertise was the disturbance ecology of whitebark pine. I have published extensively in the peer-reviewed literature regarding whitebark pine decline in the Greater Yellowstone Ecosystem (GYE). Since retiring from Forest Service Research in 2006, I have remained active in advocacy for high-elevation forests of the Greater Yellowstone Ecosystem (GYE) and have maintained familiarity with the current whitebark literature.

I have hiked, backpacked, cross country and backcountry skied in the Jardine, MT area. I am familiar with the unique attributes of the proposed project area.

INTRODUCTION

I will first make some general comments, and then follow with more detailed comments regarding whitebark pine.

I. GENERAL COMMENTS

*Inadequate project description and justification

The emergence action designation for this project has resulted in a fast-track designation that completely disregards public input and/or concern. The comment period is purely perfunctory with no accountability to the community that this project would supposedly benefit. It is unconscionable that the Forest Service is planning such an impactful project in a highly sensitive area with only superficial analysis of what will be done and how it will be carried out. This document completely lacks accountability, and instead, is a case of "Trust Us, We Know Best." A project of this magnitude in such a sensitive area requires, at the least, a full Environmental Impact Statement. Anything less is a violation of both public trust and is also in violation of the NEPA best science principle. Sweeping generalizations are made without literature citations or other supporting evidence. The superficial nature of this document makes it impossible for a rational response. How can you evaluate a proposed project without knowing the details of what is being proposed?

The supposed objective of this project is, "using a variety of vegetation treatments to reduce the risk, and extent of insect and disease outbreaks, enhance landscape resilience, and to reduce hazardous fuels surrounding the community of Jardine in Park County, Montana." There is no mention of commercial objectives, yet there are more "Commercial Harvest treatments" (72) than "Non-Commercial Harvest treatments" (71). Is this an example of an artificial, manufactured justification for Emergency designation, or is it simply greenwashing a commercial timber sale. Either is dishonest and an unacceptable violation of public trust.

*Unique importance of project area

The proposed project area is among the most unique in the entire United States with incalculable cultural, environmental and ecological value. It is bounded on the north and east by the Absaroka-Beartooth Wilderness

Area, the south by Yellowstone National Park, and includes Inventoried Roadless Areas (Attachment, Figure 1). Not only is this primary habitat for a variety of wildlife including the full suite of predator and prey species that characterize the unique attributes of Yellowstone National Park, but it also includes wildlife migration corridors that provide critical connection between the Absaroka-Beartooth Wilderness Area and Yellowstone National Park.

The recreation and conservation value of this area is fundamental to both the community values and economic survival of Gardiner, and Mammoth, yet this document lacks detailed analysis of these values.

II. WHITEBARK PINE COMMENTS

Whitebark pine is a highly sensitive species that was listed as Threatened in 2022 by the US Fish and Wildlife Service (FWS 2022) due to the combined impacts of increased mountain pine beetle activity, white pine blister rust, and a warming climate. The impacts of these threats have been widely expressed across the entire Greater Yellowstone Ecosystem (Macfarlane et al. 2013), and a long-term monitoring project has documented their continuing impact (Shanahan 2019).

The proposed project is within an area highly impacted by the massive 2003 - 2007 bark beetle outbreak that included 80 to 90% of Greater Yellowstone's whitebark stands (Buotte et al 2016) and resulted in the mortality of over 70% of Greater Yellowstone's cone-bearing whitebark pine (Thoma et al. 2019). Any remaining whitebark pine within the proposed project area are highly valuable, both intrinsically and as seed source for Clark's nutcracker to plant in the reforestation of this Threatened species.

*Clearcut Treatments of a designated Threatened Species.

On page 16 of the Preliminary Effects document, "Whitebark is known to occur in roughly 40% of units across the project but that number is likely higher." No indication is made for the location of these greater than 40% of units containing whitebark. Whitebark is a high elevation species with critical habitat for climax whitebark forests in the subalpine zone where growing conditions are generally too harsh for competing conifers. In the Greater Yellowstone Ecosystem, elevations above 8,500' and extending to and above treeline (as Krumholz) to around 12,500' are climax whitebark forests. Whitebark also exists as a subdominant component extending into lower elevations mixing in with other conifers like lodgepole pine. Whitebark does not occur as "DominantVegetation" anywhere in the treatment Attribute Table. It is, therefore, assumed that 'the greater than 40% whitebark' occurs as a subdominant at elevations greater than 8,000' in elevation. Clear-cut Treatment polygons : 15, 16, 34, 41, 44, 51, 52, 56, 65, 69, 108, 109, 126, 132, 145, and 147 fall, at least partially, within this zone (Attachment, Figure 2). All of these identified polygons have Lodgepole Pine as the "DominantVeitation" attribute. The Project Proposed action is therefore to remove a critical seed source for a designated Threatened species. With an abundant source for the wind-distributed lodgepole pine seeds, and the aggressive nature of lodgepole recruitment in disturbed/open habitat, these clearcut treatments will result in the transition of a mixed conifer stand containing cone-bearing whitebark to a disturbance regenerated lodgepole pine monoculture (Maher 2018a, b). The result will be reduced forest diversity and resilience to disturbance, in direct opposition to Forest Service policy.

There is no indication of which treatment polygons contain whitebark, much less an inventory of age distribution within each, ie. seedlings, saplings, or cone-bearing trees. It is, therefore, reasonable to assume that all of these treatments contain whitebark seed source for Clark's nutcrackers to plant. Whitebark recruitment results almost exclusively from overprovisioned or neglected nutcracker caches (cite). Clark's nutcrackers typically disperse seeds within a 10 to 20 Km. range of the seed source, but occasionally much further (Lorenz et al. 2009). As clear from Fig. 3, this range includes a significant area of whitebark devastated in the 2003 - 2009 mountain pine beetle outbreak (Attachment Fig. 3 and Mcfarlane et al. 2013.) The importance of individual seed-bearing whitebark that will be lost to clear-cut treatments, therefore, includes not only the polygons being clearcut, but has a much wider impact for a Threatened species.

*Other Treatments in elevational zone greater than 8,000'

Polygons with proposed treatment other than clearcut with at least some portion greater than 8,000' are: 3, 17, 34, 51, 52, 54, 55, 56, 126,, 147, 149, 71, 93, 103, 104, 105, 106, 107, 108, 109, 116, 129 130, 131, 132, 133, 145 162 (partial) (Attachment, Fig. 4). The "DominantVegetation" in these polygons is predominantly lodgepole pine but includes some Spruce Fir and Douglas Fir. Likewise, a variety of "System", "Method", and "Harvest" are proposed. No inventory of occurrence or stage of whitebark has been made in these polygons. It must be assumed that, as acknowledged on page 16 of the Preliminary Effects document, "Project activities may directly affect whitebark pine through damage or destruction." Agreed, the "Non-commercial Harvest" will result in an unknown amount of damage to whitebark. Collateral damage is well-documented in the peer-reviewed literature, including increased temperature (Hao et al., 2024), soil disturbance (Bolding et al., 2009), and damage to seedlings and saplings (Surakka et al., 2010). The claim is made that these activities fall within the sideboards of the Range-wide Whitebark pine Programmatic for Forest Management Activities. No evidence is presented in the Preliminary Effects document of any whitebark stand surveys of these treatment polygons. How can anyone be convinced that these guidelines will be adhered to without characterizing the stand conditions where treatments will occur? Once again, lack of credibility in this document and a case of 'trust us, we know best.' That is not enough for this high conservation/recreation value forest proposed for treatment.

The assertions is made that, "... follow-up non-mechanical thinning treatments are planned to remove competing vegetation greater than one foot tall and up to seven inches in diameter to release advanced regeneration of whitebark pine." Contrary to this unsupported claim, the scientific evidence is, at best, ambiguous. There is only one referred publication that evaluates the efficacy of non-commercial treatments similar to those proposed in this project, Maher et al. (2018b). They conclude, "While some management goals were achieved, many were not, and there were some unintended consequences."

Further, on page 10 of the Preliminary effect document, "Effects from forested vegetation treatments are expected to reduce mountain pine beetle hazard levels to a more sustainable level and increase the long-term health, productivity and sustainability of these forest cover types." These claims are made without citing scientific literature or other supporting documentation. The scientific literature offers little support for this wishful thinking (Six et al., 2014), and in fact, thinning may increase the vulnerability to mountain pine beetle. Six et al. 2021 concluded that, "In our study, as well as in that of Kichas et al. (2020), faster overall growth was the strongest predictor of mortality due to *D. ponderosae* indicating that such treatments will not have their intended effect in *P. albicaulis* and may even be detrimental."

*No assessment of the 1964 - 2006 regeneration harvest.

From the Preliminary Effects document, "During the period of 1964-2006, regeneration harvests were conducted in high elevation forest cover types with whitebark pine codominant within the project area. In order to enhance the potential of whitebark pine regeneration and dominance within these past treatment areas, follow-up non-mechanical thinning treatments are planned to remove competing vegetation greater than one foot tall and up to seven inches in diameter to release advanced regeneration of whitebark pine." What was the extent of these regeneration harvests? No map is included in the Preliminary Effects document. Did these harvests in fact result in enhanced regeneration? As typical with Forest Service forest management projects, claims are made to justify the project with no follow-up to determine if in fact the stated objectives were met. Did these harvests result in the increased regeneration of whitebark? Without subsequent evaluation of previous treatments, what is the rationale supporting more of the same? Note my comments above regarding the Six and Kichas peer reviewed articles.

.

"Forest Health" as a disingenuous project objective

"Greenwashing" is prevalent throughout the document, justifying timber management treatments by confounding timber objectives with forest health objectives. Claims of whitebark enhancement are made without a clear statement of what these treatment objectives are (see above comments.). Recovery from the proposed treatments in recent clear-cuts (1964 - 2006) will be retarded due to soil compaction and other artificial disturbances, particularly with the proposed mechanical treatments. Active management, like that proposed, has

the potential to lead to significant degradation of ecological integrity. Treatment so soon following commercial harvest interrupts the cyclical nature of forest succession, reducing forest diversity and resilience (Lindenmayer et al., 2025.) At the very least, a stand examination is needed for all treatment units greater than 8,000' in elevation.

*Fails to address the major threats of a warming climate

No mention of a warming climate is made in the Preliminary Effects document. With a warming climate, the loss of whitebark seed source with a shift from a codominant in lodgepole stands to a lodgepole regeneration monoculture will result in a permanent loss of this important seed source. Recent research projects an 80% loss of climatically suitable area by mid-21st century (Parks et al. 2025). This referred publication includes nine Forest Service Scientists, and one US Fish & Wildlife ecologist. The implications for this specific project are clear, the protection of an existing source of seeds for reforestation of existing whitebark habitat, and planting whitebark in new emerging habitat from a warming climate. An adaptive strategy of whitebark has been to migrate to higher elevation in past times of climate warming. Pederson et al. (2024) documented a mature stand of whitebark exposed by ice patch melting in the nearby Beartooth mountains to be well above current treeline (by at least 600 ft. Continued warming will likely expose higher whitebark as ice patches continue to melt). Tree-ring analysis dated this stand to the mid-Holocene (5,950 to 5,440 cal y), "With recent warming (c. 2000-2020 CE), warm-season temperatures now equal and will soon exceed those of the mid-Holocene period of high treeline." Current treeline varies depending on micro-climate, but for the project area 9,200 ft. is a reasonable estimate. As shown in Attachment, Figure 5, significant future habitat above this elevation occurs within the range of Clark's nutcracker seed dispersal. Maher et al (2021) found that mortality was nearly absent in krumholz whitebark above treeline, further indicating the importance of an existing whitebark seed source within the proposed treatments as a source for future whitebark forests.

ACTION REQUIRED FOR RELIEF FROM WHITEBARK CONCERNS

- (1) Comprehensive stand evaluation of all treatments above 8,000' in elevation. What is the current stand condition of whitebark in these treatments? How can an effective treatment prescription be made without characterizing the forest type and condition?
- (2) Eliminate Commercial Harvest for all polygons above 8,000' in elevation.
- (3) Conduct Full EIS. The Bear Palmer Forest Health Project Preliminary Effects Document is grossly deficient. The significant implications of this project for an incomparable area are far-reaching enough to warrant a full EIS.
- (4) Carefully evaluate and analyze all the direct, indirect, and cumulative effects of treatments in the whitebark containing units of the proposed project.
- (5) Disclose and evaluate the best available science on the supposed benefits of project treatments.
- (6) Conduct a comprehensive ecological as well as economic cost/benefit analysis. Both the environmental costs and benefits of treatments in this high-conservation-value forest need to be considered. Considering the ambiguous nature of the Primary Assessment, a thorough ecological cost-benefit analysis, including future projections of climate warming-induced shifts in habitat, is a necessary component of a future EIS.
- (7) Adopt a Climate Smart evaluation of whitebark treatments. Critical habitat in a rapidly warming world needs to be included in a future EIS, and in determining appropriate treatment for whitebark containing polygons.
- (8) A clear, unambiguous statement of any forest health objectives that is consistent with the conservation value of these forests needs to be made.

LITERATURE CITED

Bolding, M. C., Kellogg, L. D., & Davis, C. T. 2009. Soil Compaction and Visual Disturbance Following an Integrated Mechanical Forest Fuel Reduction Operation in Southwest Oregon. *International Journal of Forest Engineering*, 20(2), 47-56. <https://doi.org/10.1080/14942119.2009.10702582>

FWS. 2022. Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Whitebark Pine (*Pinus albicaulis*). *Fed. Reg.* 87(240) 76882-76917.

Hao, Z., Le, Q., Song, J. et al. 2024. Forest thinning increases surface soil temperature in *Larix principis-rupprechtii* (Pinaceae) plantations. *J Soils Sediments* 24, 793-807. <https://doi.org/10.1007/s11368-023-03640-6>

Kichas, N.E., E. K. Shanahan, and S. M. Hood. 2024. Thinning enhances whitebark pine (*Pinus albicaulis*) growth and resin duct defenses. *Ecosphere*, 15(12), p.e70099.
<https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.70099>

Lindenmayer D., Zylstra P., Hanson C. T., Six, D. and Dellasala D. A. 2025. When active management of high conservation value forests may erode biodiversity and damage ecosystems. *Biological Conservation* 305 11107. <https://www.sciencedirect.com/science/article/pii/S0006320725001089?via%3Dihub>

Lorenz, T and K. A. Sullivan. 2009. Seasonal Differences in Space Use by Clark's Nutcrackers In the Cascade Range. *The Condor* 111:326-340. <https://research.fs.usda.gov/treesearch/34965>

Macfarlane W. W., J. A. Logan, and W. R. Kern. 2013. An innovative aerial assessment of Greater Yellowstone Ecosystem mountain pine beetle-caused whitebark pine mortality. *Ecol. Appl.* 23:421-437
<https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/11-1982.1>

Maher, C. T. 2018a. Global change and whitebark pine restoration, refugia, and alpine treelines. Ph.D. dissertation, U. Montana 175 p. <https://scholarworks.umt.edu/etd/11300/>

Maher, C.T., Nelson, C.R., Larson, A.J. and Sala, A., 2018b. Ecological effects and effectiveness of silvicultural restoration treatments in whitebark pine forests. *Forest Ecology and Management*,

Maher, C. T., C. I. Millar, D. L. R. Affleck, R. E. Keane, A. Sala, C. Tobalske, A. J. Larson, and C. R. Nelson. 2021. Alpine treeline ecotones are potential refugia for a montane pine species threatened by bark beetle outbreaks. *Ecological Applications* 31(3)

Parks S. A., K. L. Hefty, J. F. Rushing, S. A. Goeking, D. F. Tomback, S. M. Hood, J. C. Toney, D. L. Harrell, J. Lindstrom, C. E. Naficy, M. R. Slaton, B. S. Soderquist, and E J Taylor. 2025. Whitebark pine in the United States projected to experience an 80% reduction in climatically suitable area by the mid-21st Century. *Environmental Research Letters*. 20: 104012. <https://research.fs.usda.gov/treesearch/69685>

Pederson, G. T., D. Stahle, D B. McWethy and C. Whitlock. 2024. Dynamic treeline and cryosphere response to pronounced mid-Holocene climatic variability in the US Rocky Mountains. *PNAS* 122 e2412162121. <https://www.pnas.org/doi/full/10.1073/pnas.2412162121>

Schrag, A.M.; Bunn, A.G.; Graumlich, L.J. 2008. Influence of bioclimatic variables on treeline conifer distribution in the Greater Yellowstone Ecosystem: Implications for species of conservation concern. *J. Biogeogr.*, 35, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2699.2007.01815.x>

Shanahan, Erin. 2019. An Uncertain Future: the Persistence of Whitebark Pine in the Greater Yellowstone Ecosystem. *Yellowstone Science* 27:

Six D., Biber E., and E. Long. 2014. Management of mountain pine beetle outbreak suppression: does relevant science support current policy? *Forest* 5: 103 - 133. <https://www.mdpi.com/1999-4907/5/1/103>

Six, D., A. Towbridge, M. Howe, D. Perkins, E. Berglund, P. Brown, J. Hicke, and G. Balasubramanian. 2021. Growth, chemistry and genetic profiles of whitebark pine forests affected by climate-driven mountain pine beetle outbreaks. *Frontiers in Forests and Global Change*. 671510. <https://www.frontiersin.org/journals/forests-and->

global-change/articles/10.3389/ffgc.2021.671510/full

Surakka, H., Sirén, M., Heikkinen, J., & Valkonen, S. 2011. Damage to saplings in mechanized selection cutting in uneven-aged Norway spruce stands. *Scandinavian Journal of Forest Research*, 26(3), 232-244. <https://doi.org/10.1080/02827581.2011.552518>

Thoma, D.P., E. K. Shanahan, and K. M. Irvine. 2019. Climatic Correlates of White Pine Blister Rust Infection in Whitebark Pine in the Greater Yellowstone Ecosystem. *Forests*, 10(8):p.666. <https://www.mdpi.com/1999-4907/10/8/666>