October 14, 2019

[redacted]

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15 Burnett Court
Durango, CO 81301

Dear Supervisor Chadwick,

I am writing to object to the Lone Pine Vegetation Management Project Final EA and Draft Decision. I am the "Lead Objector" and only objector represented by this letter. This project is proposed on the Dolores Ranger District of the San Juan National Forest and the responsible official is Derek Padilla, Dolores District Ranger.

Part 1. Scientific issues not adequately addressed in the Final EA.
In formal comments on the revised draft EA for the Lone Pine Vegetation Project, a 27-page explanation of 19 scientific issues in the EA was provided regarding forest ecology that needed to be reviewed, presented and disclosed to the public, and needed to be adequately addressed in a revised proposed action. Little of this was done in the final EA, which remains significantly deficient from a scientific standpoint.

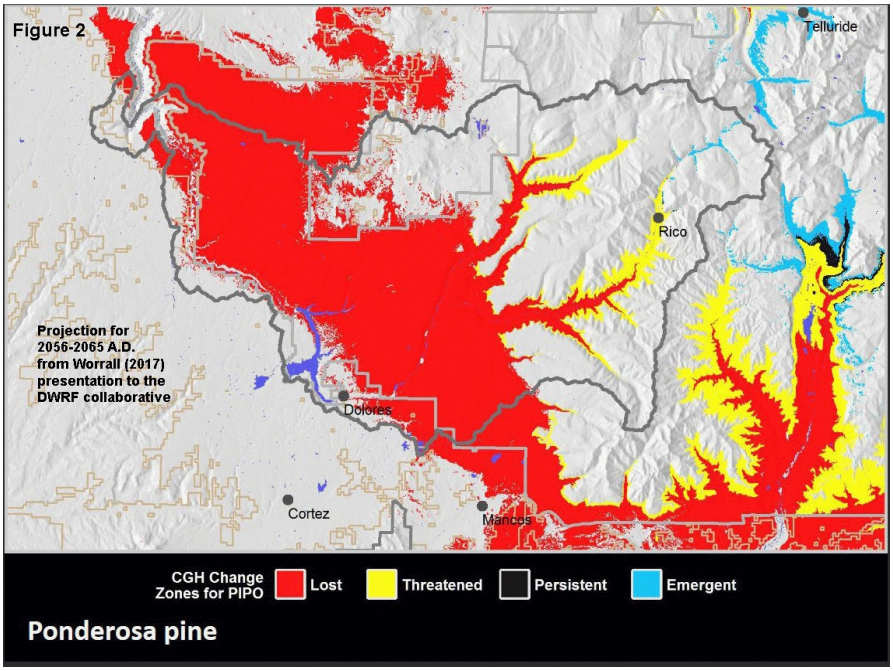
Material below refers to "Comments on Lone Pine Vegetation Project Revised Draft Environmental Assessment" submitted July 15, 2019 as simply "RDEA Comments." Also, this set of comments refers to prior comments provided on the initial draft EA on March 15, 2019 ("Draft Comments") and during Scoping on October 7, 2018 ("Scoping Comments"). All of this prior material is included by reference.

The inadequate analysis of the proposed project relative to the existential risk posed by the projected complete loss of the pine zone is first explained, then why it is that virtually all the other issues show how the proposed project actually contributes to, or fails to avert the projected complete loss of the pine zone.

Scoping comments presented the following introduction to the projected complete loss of the pine zone, which I quote: "I would like to see the EA treat the situation as an ecological emergency for this particular forest, in which the logical focus would be to keep all surviving trees and to enhance natural recovery during the duration of the beetle outbreak. This outbreak can be viewed as potentially one of possibly many disturbances that could potentially ultimately lead to a substantial net decline in ponderosa pine forest area, as has been modeled to be a consequence of global warming if emissions continue at high rates (Rehfeldt et al. 2014)."

Draft Comments provided more detail, also quoted here:
"The Draft EA did not mention or analyze the proposed project relative to the scientific evidence

of the potential nearly complete loss of the pine zone, including across the project area, by 2056-2065, if climate change continues as projected (2017 Worrall presentation to DWRF collaborative; online at http://dwrfcollaborative.org/agendas/). Details of the methodology used in the 2017 Worrall presentation are in Worrall et al. (2016). This potential loss is shown below (Figure 2) from the 2017 Worral presentation to the DWRF collaborative.



This evidence of potential pine-zone loss within 40 years is an essential scientific context within which the proposed project will occur, and it cannot be legitimately omitted from the analysis. Please refocus analysis of the proposed project relative to this projected potential pine-zone loss in the EIS."

Issue 1. **Projected loss of pine zone inadequately addressed**. RDEA Comments (p. 3-4) requested that all the details and evidence regarding this very significant risk of the full loss of the pine zone be presented and highlighted on p. 1 in the final EA as essential background. That was not done. The Final EA does mention it now mildly on p. 28, but that is the end of it. There is no specific attention to this existential risk. Climate change is still dismissed as an issue and relegated to Appendix C. The final EA has only vague mentions of resilience and just thinning, planting some trees etc. relative to climate change. This existential risk is minimized and no coherent set of actions is proposed to address it. There is no hard look at the forest resilience literature. For example, Baker (2018a) which examined forest resilience relative to fire, drought, and beetles and proposed a bet-hedging approach to address these multiple risks was not presented, reviewed, and analyzed. Baker (2018a) was placed in the references list, but never mentioned at all in the text. The Final EA failed to adequately present, analyze, and address the available science relative to this projected existential risk to the project area and its potential to make the proposed project infeasible, futile, damaging, and mis-directed. This failure to present and analyze this science violates the NEPA requirements for the agency to take a hard look at the science, to use the best available science, and to respond to contrary scientific findings.

Suggested remedy: The agency must prepare an EIS or other new or supplementary NEPA analysis that highlights, analyzes, and reviews the best available science and then proposes actions primarily focused on mitigating the projected existential loss of the pine zone in the project area.

Issue 2. **Beetle trajectory minimized, without sufficient documentation by evidence, and thus also inadequately addressed**. RDEA Comments (p. 4) requested that the Final EA present and discuss all the detailed evidence about the full trajectory of the beetle outbreak, because only an analysis of the full trajectory can show whether an exponential increase could be underway even if the present level of mortality is modest. The full trajectory was only mentioned on p. 28, and was not highlighted as essential background for the whole project, when it has the potential to overcome plans for the project area. Language on p. 2 minimizes the situation, since it mentions only current conditions, without revealing that both extent and intensity clearly still continue to increase, potentially at exponential rates. This incomplete review of the beetle trajectory evidence is not adequate, leaving the impression that the beetle outbreak is a minor threat. The public has no way of confirming that the summary is accurate relative to the actual data, since the actual data were not presented and analyzed. The actual data and maps of intensity must be presented and analyzed, not just a summary that appears to minimize the situation. The Final EA fails to adequately present, analyze, and address the beetle trajectory and its already extensive effects on the project area and the proposed action. Relative to the projected existential risk of complete loss of the pine zone, the Final EA failed to present essential data and analysis, that together likely would show there is a need for much different actions (e.g., protect all surviving trees) to avert the projected complete loss of the pine zone.

Suggested remedy: The agency must either: (1) withdraw the Final EA and the Draft Decision and await the end of the beetle outbreak, which cannot be stopped, before proposing any actions in the project area, or (2) prepare an EIS or other new or supplementary NEPA analysis that presents and analyzes all the available data regarding the full trajectory of the beetle outbreak through the date of the NEPA analysis and into the future. This should include tables and maps showing both extent and intensity each year and regression of all aspects of the beetle trajectory versus time (e.g., extent versus year, intensity versus year), along with quantitative projections of the extent and intensity of the outbreak through the end of the project period, assuming that an adequate model can be fit, as demonstrated in previous comments (Draft Comments Appendix 2). This analysis should be accompanied by a revised set of alternatives, that span a broad spectrum of responses and methods of adaptive management, that are congruent with the current and projected trajectory of the outbreak.

Issue 3. **Scientific evidence that recovery from surviving trees is the main natural source of forest recovery after beetle outbreaks, was never presented, reviewed, or analyzed, even though it was presented three times to the agency: (1) at scoping, (2) on the initial draft EA, and (3) on the revised draft EA. The Final EA proceeded to argue that thinning is needed to increase forest resilience without analyzing thinning's impact on natural recovery.** On p. 4-5 of Scoping Comments, scientific evidence was presented and analyzed from several peer-reviewed scientific studies that show that surviving trees, not regeneration by seed, are the primary source of recovery of forests after beetle outbreaks, so that protecting surviving trees is an essential action during and after beetle outbreaks. In Draft Comments and RDEA Comments

(p. 4-5) it was requested that the Final EA review all the scientific evidence presented in Scoping Comments (p. 4-5), and change proposed actions "to instead protecting as many surviving live trees as possible where there is mortality from beetles" (RDEA Comments p. 5).

Indeed the Final EA (p. 8) said: "A primary purpose of the proposed treatments is to promote the recovery of forest vegetation through natural regeneration," but did not mention "through surviving trees," which is the well-documented way that natural forests recover from beetle outbreaks, as shown by the studies cited in Scoping Comments.

No attention at all was given to natural recovery from survivors in the Final EA, and almost none of the science in Scoping Comments and RDEA Comments about this topic was presented in detail or reviewed in any NEPA document. The proposed actions in the Final EA thus are based on analysis that ignored extensive scientific evidence that the best way to ensure forest recovery after a beetle outbreak is to not log surviving trees, especially during an ongoing beetle outbreak. Ignoring this scientific evidence violates NEPA's requirement to take a hard look at this science.

The Final EA did not propose any response to the science that showed that logging survivors further reduces the potential for natural recovery well beyond the impacts of the beetle alone. Six et al. (2014) raised the concern that thinning live green trees during a beetle outbreak is likely to reduce survivors below their residual density after being affected by beetles alone, thus logging has significant adverse impacts on natural recovery after a beetle outbreak. The Final EA does repeat this concern on p. 8: "Concerns were raised that there is no scientific basis for logging any live trees when a bark beetle outbreak is underway, and that doing so can cause additional mortality above levels that occur from just the beetle alone." The Final EA thus does not appear to contest the conclusion of Six et al. that logging surviving trees can reduce their density beyond what would occur from beetles alone, adversely reducing the potential for natural forest recovery.

The Final EA, however, abandoned this concern about natural recovery, and cited Gillette et al. as calling for silviculture anyhow: "In the case of bark beetles and many other stressors, this calls for greater, science-based use of silvicultural treatments that, paradoxically, require some tree mortality for the greater resilience of the entire forest." Thus, the argument in the Final EA appears to be that logging is essential even though it substantially reduces natural recovery from surviving trees. And, apparently to further support this idea, the Final EA cites (p. 9) ten old studies, published from 1968-2010, that purportedly show that thinning reduces mortality caused by mountain pine beetles. Six et al. (2014) explained that it is total mortality (thinning + beetles vs. just beetles) that must be compared. Could it be that thinned stands resist beetles a little better but at high cost to natural recovery, or perhaps the thinning gain is high and the cost is low?

Do the studies cited in the Final EA as support for proceeding with thinning show the gain is high and the cost is low? Egan et al. (2010) was cited in the Final EA (p. 9) as evidence that "thinning can significantly reduce mountain pine beetle-caused tree mortality," but their non-thinned mixed conifer controls had a mean of 546.6 trees/ha, the commercially thinned stands had 356.3 trees/ha, thus mortality from thinning was 190.3 trees/ha (546.6-356.3). Non-thinned had 40.8 trees/ha and thinned had 14.3 trees/ha killed by bark beetles. Total mortality in thinned stands (thinning + beetles) was thus 204.6 trees/ha about 5 times total mortality in non-thinned controls, which was 40.8 trees/ha. Thinning thus reduced percent mortality by beetles from 7.5%

of the 546.6 trees/ha in unthinned stands to 4.0% of the 356.3 trees/ha in thinned stands, which is a real but fairly small effect, but at the cost of 5 times as much total mortality in the thinned stands. Other studies cited in the Final EA (e.g., Fiddler and Fiddler 1989) show the same pattern, much higher mortality from thinning + beetles than from just beetles, with only a little net reduction in the percentage of trees killed by beetles. These two examples support Six et al. (2014)–the impact of beetles alone on forests was relatively small compared to the impact of thinning + beetles, and thinning had only a small effect on reducing percent mortality from beetles. When a beetle outbreak is underway as is the case here, if this same relative effect occurred, then the number of trees available for natural recovery would be reduced by a large percentage to gain only a small reduction in the percentage of trees killed by beetles. The gain is low, the cost is high. The proposed thinning in the Final EA thus has a high likelihood, based on studies that the Final EA itself cited to support thinning, to very substantially adversely affect the "Promote recovery of forest vegetation" purpose and need, with only a small positive effect on the "Increase forest resiliency" purpose and need, which is a substantial net loss for the forest. The Final EA presented nothing at all to address this adverse impact on natural recovery Six et al. documented, and instead proceeded as though this adverse impact did not exist. Ignoring these core findings violates NEPA's requirement to take a hard look at the science.

Indeed, the agency said in the Final EA (p. 9) that it created a "no-action alternative" and an alternative that "would prohibit the removal of green trees in the analysis area" to address the scientific presentation about logging green trees, but these alternatives do NOT represent the proposed alternative or the scientific issues in the proposed alternative, which are now quoted from RDEA Comments p. 11:

> "Not logging green trees <u>during</u> an outbreak is <u>not</u> a no-action alternative at all, it is simply waiting to make sure that there is still a need for restoration logging and, if there is, then to enact it well <u>after</u> the beetle outbreak has finished. This obvious alternative of delayed action using indirect control was not analyzed at all."

The Final EA's no-action alternative thus was not the original proposal (Scoping Comments p. 6-7) or the later proposal. The proposed alternative was not no green-tree logging at all, as comments say clearly "This obvious alternative of delayed action using indirect control was not analyzed at all" and "Please now analyze and adopt this alternative of delayed live-tree logging" (RDEA Comments p. 11). The Final EA thus definitely enabled the proposed logging of live green trees to further contribute to the projected complete loss of the pine zone, by not at all analyzing a reasonable science-based alternative of delayed live-tree logging.

> <u>*Suggested remedy*</u>: The agency must either: (1) issue a final Record of Decision that prevents any logging of live green trees in the project area, or (2) prepare an EIS or other new or supplementary NEPA analysis that adequately presents, reviews, and addresses the omitted scientific evidence, discussed above, that documents that surviving green trees are the primary source of natural recovery after beetle outbreaks and that proposed thinning will significantly adversely affect natural recovery with little benefit for forest resiliency. The agency must include in this an analysis of an alternative that delays logging of live green trees until the beetle outbreak is over.

Issue 4. **Mortality/survival from plots not addressed in Final EA**. RDEA Comments (p. 5) requested that plot data on mortality/survival be obtained, presented, and analyzed in the Final

EA. No attention at all was given to this concern, beyond a brief mention, and essential available data were not presented or analyzed. It is essential to present and analyze available plot data so that the agency and the public clearly understand and can agree what the impacts of the beetle outbreak are on the forest, since the proposed action is dependent on what the beetle effects are. Failure to analyze these essential data contributes to a failure to avert the projected complete loss of the pine zone, by leaving in doubt what impacts beetles are having relative to the projected complete loss of the pine zone.

> *Suggested remedy*: The agency must present new or supplementary NEPA analysis that presents, reviews, and analyzes all plot data available from other sources (e.g., Colorado State Forest Service, Mountain Studies Institute), so that the public can see what the impacts of the beetle outbreak are in the project area, and so that the proposed actions are clearly based on scientific understanding about the impacts of the beetles.

Issue 5. **Tree regeneration by seed is chancy, but scientific evidence not reviewed in Final EA**. RDEA Comments (p. 5-6) requested that the scientific evidence presented in Scoping Comments (p. 4-6) relative to tree regeneration by seed be presented, reviewed, and analyzed in the Final EA. This request was repeated (RDEA Comments p. 5-6, 9). None of the scientific literature cited and explained at scoping and in RDEA comments was presented or analyzed in the draft EA or revised draft EA. A very significant consequence is that the proposed action still relies on tree regeneration by seed, which the science presented shows is a poor choice, given documented poor regeneration by seed in ponderosa pine in this area and recent scientific evidence that regeneration by seed is declining with climate change. This mis-directed focus on regeneration by seed ignores science and most certainly will add to the risk, rather than reduce the risk, that the projected complete loss of the pine zone will occur.

> *Suggested remedy*: The agency must either: (1) issue a final Decision that does not rely upon regeneration by seed, but instead focuses on natural recovery by prohibiting logging of any surviving trees, at least until the outbreak is over and adequate recovery can be shown to be ensured, or (2) present new or supplementary NEPA analysis that presents, reviews, and analyzes the substantial scientific evidence presented at Scoping and in RDEA Comments (p. 5-6, 9) that together show that relying on regeneration by seed is chancy and relying on recovery by surviving trees is a much better choice.

Issue 6. **Salvage logging is well documented to be ecologically damaging, known adverse effects were not sufficiently disclosed and not at all reviewed in Final EA, and proposed mitigation was inadequate. The agency also did not present and analyze the positive effects of beetle outbreaks on forest resiliency, which show that their reasons were invalid for rejecting an alternative that would have more adequately mitigated the known adverse impacts of salvage logging.** RDEA Comments (p. 6-7) explained that Scoping Comments presented scientific evidence of 17 significant adverse effects from salvage logging, that were reviewed in Lindenmayer et al. (2008), and requested the Final EA cite this book, present and review the evidence about the 17 adverse effects, and then propose adequate mitigation for the 17 impacts. The Final EA cited the book, but only presented a single sentence abbreviating the 17 known adverse effects documented in this book. This single summary sentence does not demonstrate that the agency took a hard look at Lindenmayer et al. (2008). This is a very

significant ecological issue, which is why the book was created. The disclosure, review and analysis of the 17 known adverse ecological impacts is inadequate relative to this science and the magnitude of the adverse impacts that it shows. Each of the 17 impacts needed to be addressed, with a specific explanation of what would be done to mitigate it. The Final EA added only a single design element (p. 23) of 10-15% retention of material in salvage-logged areas. This is a positive step, but it is small and inadequate. This amounts to 85-90% reduction in the energy, nutrients, and structures essential to forest recovery, which remains a very significant adverse impact on the forest ecosystem, particularly at a time of high stress when the complete loss of the pine zone has already been projected. Imagine a human trying to recover from a disease with only 10-15% of an adult's daily food requirement, especially if placed in a stressful environment. The scientific basis for choosing 10-15% is not supported by presentation or analysis of scientific evidence–it appears to be arbitrary, and is very likely to be deficient for natural recovery of an ecosystem after extensive tree mortality, that is facing a projected complete loss of the pine zone.

There was no presentation, review, or analysis in the Final EA of a reasonable alternative presented to provide wood products during the time that the beetle outbreak remains active. Scoping Comments (p. 6) requested that an "enhanced natural recovery/partial salvage alternative" be analyzed. RDEA Comments (p. 8) presented this alternative again. In the Final EA, the agency still did not analyze this alternative, arguing (Final EA p. 24) that this precluded applying treatments to increase forest resiliency. However, this alternative is meant for the period while the beetle outbreak remains active, during which thinning/logging reduces genetic adaptation and the potential for natural recovery after the outbreak. This is not a time to log green trees, so of course some logging of dead trees is needed to provide wood products for local industry. This alternative remains a reasonable alternative to accomplish this purpose without extensively damaging the forest's potential to adapt and recover.

Moreover, the agency did not adequately review and incorporate the well-documented positive effects that a beetle outbreak itself provides for forest resiliency. The agency rejected the proposed alternative because they thought it did not allow treatments to increase forest resiliency, but the agency did not report that while the beetle outbreak is underway, the beetles themselves are increasing forest resiliency, so intentional treatments are unnecessary. The Final EA cited Gillette et al. (2014) to support their proposal for thinning, but neglected to consider the other scientific evidence in Gillette et al. (2014), which documents that the effects of the beetles themselves can increase forest resiliency. Gillette et al. cite several studies that together show:

> "...thinning of stands by prescribed fire, beetles, or both may benefit our forests if it reduces the susceptibility of residual stands to future bark beetle outbreaks and catastrophic wildfire. Certainly increasing stand structural and species diversity may help mitigate the more catastrophic effects of climate change on western North American forests, in particular the effects on insect populations...Collectively, this evidence suggests that some beetle-caused mortality may be a positive outcome because it can lower the risk of future outbreaks." (Gillette et al. 2014 p. 528).

The Final EA did not present and review any of these known, well-documented positive effects of a beetle outbreak on forest resiliency. Some benefits are mentioned, in passing, regarding the no-action alternative on p. 29, but benefits are not considered regarding the proposed alternative.

The Final EA thus falsely dismissed a reasonable science-based alternative that could have provided some wood products during an ongoing beetle outbreak, while also enabling some, albeit reduced forest recovery, and some possible benefits for future forest resiliency. Failure lo analyze this reasonable alternative certainly contributes to the projected complete loss of the pine zone. The proposed alternative would also have contributed, but much less so.

> *Suggested remedy*: I suggest that the agency must either: (1) increase the proposed 10-15% level of retention up to 50%, so there is effectively half the material for nature and half for use in wood products, which is at least an equitable solution that has a better chance of allowing both to persist, or (2) propose other similarly equitable mitigation of the known adverse effects of salvage logging, or (3) present new or supplementary NEPA analysis that (a) presents, reviews, and analyzes the substantial scientific evidence presented in Scoping Comments and RDEA Comments (p. 6-8), (b) includes an analysis of the proposed enhanced natural recovery/partial salvage alternative presented in Scoping Comments, (c) proposes adequate science-based mitigation of the 17 known adverse effects of salvage logging, and (d) reviews and incorporates the scientific evidence that shows that beetle outbreaks can increase forest resiliency, so there is no need to log/thin to increase forest resiliency during a beetle outbreak.

Issue 7. **No valid evidence was presented in the Final EA that counters the scientific evidence that the need for genetic adaptation means that logging live green trees should be prevented until the beetle outbreak is over, if the goal is preventing complete loss of the pine zone**. RDEA Comments (p. 9) show that it is essential to retain all surviving trees until the beetle outbreak is over to avoid reducing genetic adaptation, which could be increased by trees that manage to survive. We now have two events, the ongoing beetle outbreak and the 2018 severe drought in the Four Corners, that together likely are providing very strong selection for trees that have genetic adaptations that might allow them to survive these stresses. Note that as of October 8, 2019, the project area is now classified as under "Severe Drought" (U.S. Drought Monitor-https://droughtmonitor.unl.edu/). The Final EA did mention the importance of focusing on genetic adaptation and cited the Six et al. study on p. 8. However, the Final EA proposed nothing to address this genetic issue, and instead used incorrect evidence to suggest there was no clear answer about what to do.

To defend the Final EA's focus on thinning/logging, the Final EA first suggested that Gillette et al. (2014) offered an alternative viewpoint about this genetic concern. However, Gillette et al. offered no alternative viewpoint or evidence at all about the specific matter of adverse genetic consequences from logging live green trees while a beetle outbreak is underway; Gillette et al. is all about thinning for long-term indirect control, to create future forests that are more resilient, and provides no evidence at all about whether logging live green trees during an outbreak reduces genetic adaptation. There is actually no disagreement between Six et al. and Gillette et al. or many other recent studies about the importance of focusing on creating more resilient future forests, via indirect control. But, Six et al. is a key study that documented significant adverse genetic consequences from thinning/logging during an active beetle outbreak. There is no scientific counter-evidence presented in the Final EA that this is not the case; there likely is no counter-evidence. The scientific evidence remains that logging during a beetle outbreak reduces genetic adaptation to beetles, which is likely to reduce, not increase, resistance to future

outbreaks. Thus, logging live trees during a beetle outbreak increases the likelihood of a future outbreak in two ways–it reduces genetic adaptation to beetles, and it increases the rate of growth of the residual trees. When the next outbreak comes, the trees are growing fast, which beetles favor (de la Mata et al. 2017), and the trees will have reduced genetic ability to resist the beetles. The Final EA will make the probability of complete loss of the pine zone more likely.

It is thus definitely not a correct interpretation of the evidence, when the Final EA says in summary (p. 9): "...it does not appear that there is a clear, science-based answer related to what the 'correct' treatment is, including whether or not green trees 'should' be cut." (Issue 5). First, the only study, cited in the Final EA, that presents evidence about this issue is Six et al. (2014). Six et al. is very clear that logging live green trees while an outbreak is underway is likely to reduce genetic adaptation and the number of survivors that are essential for natural recovery. Second, after the incorrect summary statement, the Final EA (p. 9) then cites a series of old studies that have nothing to do with whether logging live green trees reduces genetic adaptation. These studies were published between 1968-2010, well before Six et al. (2014) first found that thinning during a beetle outbreak reduces genetic adaptation. It is not surprising that these old studies, which were published before Six et al. (2014), did not address genetic adaptation as a concern, and provided no evidence at all about whether genetic adaptation is or is not reduced by logging live green trees during an outbreak.

Thus, the essential scientific matter about genetic adaptation was not heeded, a publication that did not address genetic adaptation (Gillette et al. 2014) was incorrectly cited in the Final EA as evidence against addressing this issue, old thinning studies that have nothing to do with genetic adaptation were also incorrectly cited as evidence against addressing this issue in the Final EA. The Final EA thus drew an incorrect conclusion that the science was unclear. The Final EA's failure to base its conclusion on valid scientific evidence violates NEPA's hard look requirement. The net result was that the proposed project would still log live green trees that have survived, definitely reducing potential genetic adaptation and natural recovery, while also increasing the risk of the complete loss of the pine zone as temperatures rise further.

I covered the natural-recovery component of this under Issue 3.

> *Suggested remedy*: The agency must either: (1) in the Final Decision, prohibit logging of any live green trees, at least until the beetle outbreak is over, or (2) present new or supplementary NEPA analysis that adequately presents, reviews, and addresses the scientific evidence about genetic adaptation presented in RDEA Comments, then propose new actions that will not reduce natural genetic adaptation. An obvious solution, likely the only feasible solution, is to delay logging of any live green trees until the outbreak is over.

Issue 8. **Ponderosa regeneration by seed–scientific information incomplete, incorrect**. None of the scientific literature provided on this issue (RDEA Comments p. 9-10) was reviewed or presented. The final EA thus did not reveal how chancy the focus on regeneration by seed really is (Issue 5), that fire is not the only trigger, that initial regeneration seldom survives, and that successful regeneration is typically episodic in ponderosa pine. The final EA thus demonstrates that its unwarranted optimistic focus on regeneration by seed is uninformed by an understanding of the science. This unwise and unnecessary focus, uninformed by science, also increases the

likelihood of complete loss of the pine zone as temperatures continue to rise.

> *Suggested remedy*: The agency must either: (1) in the Final Decision, change the focus in recovering the post-beetle forest by retaining all surviving trees, only secondarily supplementing survivors with regeneration by seed, or (2) present new or supplementary NEPA analysis that presents, reviews, and incorporates the scientific evidence in RDEA Comments, and revises the focus of the RDEA to be on retaining all surviving trees, with only a supporting role from regeneration by seed.

Issue 9. **Logging live green trees during a beetle outbreak is likely to have significant adverse ecological effects, that are not prevented by proposed adaptive management triggers or any other mandates in the Final EA**. RDEA Comments (p. 10-12) explain that the agency mis-interpreted the science presented in earlier comments, which was to delay any harvesting of surviving green trees until the beetle outbreak is over. The Final EA did not review or heed scientific evidence on genetic and ecological reasons to delay live-tree harvesting until beetle outbreaks are over, and instead just proposed live-tree harvesting during an ongoing beetle outbreak without providing scientific counter-evidence about why this is OK in spite of peer-reviewed scientific evidence that shows there are clear adverse ecological effects.

The only potential limitation on logging of live green trees is in the Final EA's newly presented adaptive-management triggers (Table 8 on p. 63 in Final EA). But these, as currently worded, do not prevent logging of live green trees during the outbreak, and one even triggers continued logging of live green trees when beetles have already reduced basal area to 31-50 ft^2/acre, well below the project's general targets.

If the adaptive-management triggers are not reworded to prevent logging of live green trees, or logging of live green trees is not simply prohibited until the beetle outbreak is over, then the proposed action will likely have significant adverse ecological impacts by eliminating substantial fractions of surviving trees that may be more genetically adapted to resist beetles and to survive hotter droughts that are emerging, and will likely significantly reduce the live surviving trees that are the key natural source of forest recovery after beetle outbreaks. If the stand is harvested down to the 50-60 ft^2/acre target before the beetle outbreak has run its course, then many of the live green trees, that could possibly have survived the beetle outbreak, will likely already have been removed. The beetles could kill additional trees within the residual stand left after harvesting, and these effects together could greatly reduce the pool of surviving trees with genetic adaptation to beetles as well as lower the density and basal area of the residual stand below the project's 50-60 ft^2/acre target, substantially reducing its potential to recover.

In contrast, if harvesting is delayed until the outbreak is over, then remaining stands will have the highest possible probability of having genetic adaptations to resist beetles and the highest possible number of surviving trees that are the primary natural source of post-outbreak forest recovery. If logging does not then take stands below the 50-60 ft^2/acre target, then the residual stands have a much better chance of preserving genetic adaptation and potential for natural recovery after the outbreak. Note that the amount of harvested timber is likely not going to be much different, only the timing of the harvest, thus there is an opportunity to have a significant positive effect on the future forest at minimal cost to wood production.

Yet, the agency did not consider this scientific evidence at all in developing the adaptive management triggers, which as a result means that the risk of the projected complete loss of the pine zone is increased by USFS failure to delay logging. It must be acknowledged that no logging at all would be the best option to reduce the chance of complete loss of the pine zone. Delaying logging is a compromise that might allow local wood products to continue to be produced.

> *Suggested remedy:* The agency must either: (1) In the Final Decision, explicitly prohibit logging of live green trees in the project area until the beetle outbreak is determined to be over, based on an evaluation by a qualified entomologist with experience regarding beetle outbreaks, or (2) develop and use adaptive-management triggers to effectively prohibit any logging of live green trees until the outbreak is over, or (3) prepare new or supplementary NEPA analysis that sufficiently evaluates the proposed alternative, which is to delay harvesting of live green trees until the outbreak is over, relative to a range of other alternatives, in all cases evaluating the protection and perpetuation of genetic adaptations to resist beetles and future droughts and the probability of effectively recovering beetle-affected forests from survivors, as is well established by science to be the normal natural recovery process.

Issue 10. **Ponderosa pine partnership prescription not used; Lone Pine is not restoration.** RDEA Comments (p. 15-16) provided a detailed comparison (RDEA Comments Table 1) that the Lone Pine harvesting prescriptions do not represent the Ponderosa Pine Partnership prescription. The final EA still implies Lone Pine is restoration by presenting the Ponderosa Pine Partnership (PPP) on p. 2, but it is not using their prescription and is not restoration. Admitting this only in replies to comments does not fix this implied equivalence, which must be clearly clarified. The proposed logging, since it aims to increase future tree growth through commercial logging and commercial thinning, is highly likely to also increase the risk of future beetle outbreaks, by providing more rapidly growing trees that are preferred by beetles (de la Mata et al. 2017). Thus, the proposed project is likely to increase the risk of complete loss of the pine zone.

> *Suggested remedy*: The agency must either: (1) clearly state in the Final Decision that the proposed project does not use the Ponderosa Pine Partnership harvesting prescription of Lynch et al. (2000), is not ecological restoration, and is aiming to increase future tree growth, which is likely to increase the risk of future beetle outbreaks and the projected complete loss of the pine zone, or (2) in the Final Decision, explicitly adopt the Ponderosa Pine Partnership harvesting prescription and eliminate commercial thinning, since both increase future risk of the projected complete loss of the pine zone.

Issue 11. **The "Increase forest resiliency" purpose and need is not demonstrated to be increased by the proposed project.** RDEA Comments (p. 16-18) requested the Final EA review the scientific literature about resistance and resilience, distinguish them, and provide specific details about how the proposed actions would increase resistance and resilience to beetles, fires, and droughts at both stand- and landscape scales (Baker 2018a), since "Increase forest resiliency" is a purpose and need. The Final EA presented no review or analysis at all of the science on resistance and resilience to droughts or fire, or about resistance/resilience at the landscape scale, and no specific analysis was presented showing how resistance/resilience overall will be increased. The final EA cited old thinning studies about beetles at the stand scale as a basis for

proposed thinning to increase forest resistance to beetles, but thinning actually has little net effect at a large cost of reduced recovery potential (See Issue 3). The known reduction in forest resiliency to fire that comes from logging large trees, that are most resistant and provide most resilience to fires, was not disclosed. It was cheeky, in general, to put Baker (2018a), which is peer-reviewed science that addresses resistance and resilience in detail, into the References and Literature Cited section, but then never use anything at all from it in the Final EA. This is a clear demonstration of the inadequate use of science in the Final EA, particularly since this is a key purpose and need. See also related Issue 16. The proposed project was not shown to definitively increase forest resiliency, and definitely did not adopt known measures (e.g., bet-hedging, protecting large trees from logging) that have been shown by science to increase resiliency, thus the proposed project definitely contributes to the projected complete loss of the pine zone.

> *Suggested remedy:* The agency must prepare new or supplementary NEPA analysis that reviews the scientific literature about resistance and resilience to beetles, fires, and droughts at both stand and landscape scales, then explicitly shows the details of how the proposed action will "increase forest resiliency," relative to the present landscape, since that is a purpose and need.

Issue 12. **The "Promote recovery of forest vegetation" purpose and need is still not adequately explained, measured, or demonstrated to be promoted.** RDEA Comments (p. 18) requested that this purpose and need be explained in more detail, including how it would be measured, and how success would be determined. The term recovery is still not explained in the main text, only in a reply to comments, which suggests it is about maintaining a forested landscape, including tree regeneration. The purpose and need now is rephrased as "Promote recovery of forest vegetation," which is an improvement, but still insufficiently clear. Is it just the trees or are the shrubs, grasses, forbs also part of recovery? How is its success or failure to be measured? Since it is a key purpose and need, these kind of details must be explained in the document. Moreover, the document does not review and adequately evaluate, using science, the two main possibilities for recovery of the forest's trees, which certainly are a key part of recovering forest vegetation. The two main possibilities are: (1) surviving green trees and (2) regeneration by seed. Deficiencies are addressed under Issues 3, 5, and 7-9 above, but the primary deficiency is that natural recovery from surviving green trees is not understood to be the main source of recovery in forests after a beetle outbreak, and is not understood to be the most reliable source of recovery. This, too, is a clear demonstration of the inadequate use of science in the Final EA, particularly since this is a key purpose and need. The failure of the proposed project to protect live green trees essential to forest recovery is compelling evidence that the proposed project will contribute to the projected complete loss of the pine zone.

> *Suggested remedy:* The agency must prepare new or supplementary NEPA analysis that reviews the scientific literature about the two main methods to promote recovery of forest vegetation after a beetle outbreak, then explicitly shows the details of how the proposed action will "promote recovery of forest vegetation," since that is a key purpose and need.

Issue 13. **The "Reduce the risk of high-severity wildfires" purpose and need is not shown to need reduction in the project area**. RDEA Comments (p. 18) requested the agency "gather and present the actual fire evidence, and actual stand and landscape evidence, so that it is clear that

the purpose and need is appropriate, based on evidence, and we have a measurable way to tell if the purpose and need is or is not met before and after the project. In each case, we need evidence of the specific indicators of resilience or lack of resilience...in the structure of stands and landscapes plus specific indicators in the actual recent fire behavior."

However, no specific evidence was presented in the Final EA that shows that the risk of high-severity fires is abnormally high in the project area. Baker (2018b) showed that some high-severity fire occurred historically in ponderosa pine forests in the area, thus it was essential to show that too much is occurring relative to published rates of historical high-severity fires. This was not done. Suppressing moderate- to high-severity fires likely has contributed to reduced stand-scale and landscape-scale heterogeneity that historically provided bet-hedging resistance and resilience (Baker 2018a, b). If current moderate- and high-severity fires are burning at less than historical rates, as is likely, then reducing the risk of high-severity wildfires is likely reducing resistance and resilience, thus is contributing to the projected potential complete loss of the pine zone.

> *Suggested remedy:* The agency must either: (1) in the final Decision, agree to not suppress future unplanned ignitions, or (2) prepare new or supplementary NEPA analysis that reviews the scientific literature and local evidence about high-severity fire risk, including the recent rates of high-severity fire, relative to historical rates, and evidence about current stand conditions in the project area, since this is a purpose and need.

Issues 14-15. **The "Increase age class diversity" purpose and need is not shown to be increased by the proposed project.** Developmental stages in Table 3 p. 26 in the RDEA are not age-classes, but also are not shown to be increased by the proposed project. RDEA Comments (p. 19) show that the proposed project would likely actually produce too much "mature-open" forest, reducing overall diversity of the developmental stages. The project needed to be changed so this diversity would actually be increased, and a table needed to be presented that showed how, but the EA did nothing to address this, and provided no table. This failure of the proposed project to show valid evidence that age class diversity will be increased means that landscape-scale resistance and resilience is likely not going to be increased. This means that the proposed project is likely going to contribute to the projected complete loss of the pine zone.

> *Suggested remedy:* The agency must prepare new or supplementary NEPA analysis that does the requested analysis, showing how the proposed project would affect the diversity of developmental stages, and must change the project if this diversity will not be increased, so that diversity actually is increased, since this is a key purpose and need.

Issue 16. **Related explicit analysis of heterogeneity of the current and proposed landscape not done.** Increasing age-class diversity at the landscape scale is also an essential method for indirect beetle control. RDEA Comments (p. 20) requested explicit analysis of landscape heterogeneity before and after the proposed project, but nothing at all was done to provide the initial analysis of landscape heterogeneity in the Final EA, even though RDEA Comments explained how to do this. The Final EA thus provided no evidence that the proposed project is scientifically sound regarding increasing forest resilience, which is a purpose and need. Thus, the proposed project will not clearly avert the projected complete loss of the pine zone.

Suggested remedy: The agency must prepare new or supplementary NEPA analysis that does the requested analysis, showing how the proposed project would affect landscape heterogeneity. This can be done at the same time as the remedy for Issues 14-15.

Issue 17. **Basal-area goal too low relative to best available science & not supported by stakeholders.** RDEA Comments (p. 20) showed that there was an important opportunity for consensus and also congruence with science if the Graham et al. (2016) conclusion about how to indirectly control beetles was adopted directly. The Graham et al. study was cited in the final EA, but Graham et al.'s proposed essential structure for indirect beetle control was not presented or used: "heterogeneous landscapes composed of stands with heterogeneous structures and containing densities in the neighborhood of 80 feet^2 of basal area" (Graham et al. 2016 p. 157). Many stakeholders, including representatives of industry, also expressed that the basal-area goal of 55 feet^2 is too low. However, the final EA did not raise the basal area goal to 80 feet^2/acre to be congruent with Graham et al., yet offered no scientific basis for the agency's decision to lower the basal-area goal to 55 feet^2/acre, and provided no response to the apparent consensus either.

This was a missed opportunity to show good faith by modifying the project so it is consistent with a major scientific study by USFS scientists and also satisfies multiple public interests. Since the proposed project will reduce basal area well below the necessary basal area recommended by Graham et al., the project will likely have to log large trees that provide essential resistance and resilience to fire (Issue 20), thus the low basal area target is likely to reduce resistance and resilience to fire, even though lowering basal area may increase resistance to future beetle outbreaks. Since both fire and beetle resilience could be achieved at a higher basal area target, the project, on balance, will likely increase resistance to beetles, but likely reduce resilience to fire, not fully averting the projected complete loss of the pine zone.

Suggested remedy: The agency must either: (1) in the Final Decision, adopt the Graham et al. recommendation to indirectly control beetles exactly as quoted above, or (2) prepare new or supplementary NEPA analysis that reviews the scientific literature and shows that the Graham et al. study is wrong or incomplete and another target is warranted by more recent scientific research. I doubt that (2) can be done. Graham et al. is an incredibly evidence-rich, landmark, multi-author scientific study by the agency itself, and it is quite discouraging to see a Final EA that did not review it carefully and directly adopt its recommendations.

Issue 18. **History of the project area may be incorrect, leaving the basis for the project in question.** RDEA Comments (p. 21) questioned whether the purported extensive early logging in the project area occurred, raising the possibility that a large, severe fire instead burned the project area, leaving a recovering middle-aged forest. The final EA presented no evidence that substantiates the claim of extensive early logging. However, since that time the District Ranger has sent several photographs from 1942 that show logging of large trees in the area of the Glade. No timber sale records could be located, so it is uncertain that the logging extended far south of the actual Glade area, and there is no counter-evidence to the hypothesis that a large, severe fire burned the project area. There is some additional evidence of early logging, which is added to evidence provided in RDEA Comments (p. 21). This is not enough evidence to resolve this issue.

Issue 19**. Proposed adaptive management insufficient to avoid adverse outcomes in a landscape subject to an ongoing beetle outbreak consistent with projected complete pine-zone loss**. RDEA Comments (p. 21-22) requested that adaptive management criteria be turned into measurable criteria that trigger specific actions, that a check of the trigger occurs every 2 years, and that four specific and measurable criteria be applied. None of these was analyzed or adopted. Proposed triggers in Appendix B Table 8 of the Final EA do not even span the possible outcomes, are vague and not measurable (e.g., "small" and "only minimal" mortality), do not address the need to delay logging until the outbreak is over, and even allow harvesting to take basal area below levels otherwise proposed. The Final EA failed to analyze four suggested reasonable alternative criteria. This is inadequate analysis of adaptive management, and it most certainly will not avert, and likely contributes to the projected complete loss of the pine zone.

> *Suggested remedy:* The agency must either: (1) adopt the four adaptive management criteria provided in RDEA Comments (p. 22), or (2) prepare new or supplementary NEPA analysis that analyzes improved alternative adaptive management criteria that overcome the limitations identified in RDEA Comments (p. 22), including analyzing the four criteria.

Issue 20. **Diameter limits are needed for single tree selection to offset the adverse impact of logging that led to a documented severe deficiency of old-growth trees in the project area**. New material presented in the Final EA on p. 13 regarding "Removal preference for Single Tree Selection..." and the new citation in this Final EA of three studies of the use of diameter caps (Abella et al. 2006, Triepke et al. 2011, and Sanchez-Meador et al. 2015) document that the agency added the harvesting of large trees and the possible use of diameter caps as an issue in the Final EA. The text did not cite these three studies, but revised its harvesting proposals relative to tree diameters, presumably based in part on these sources and public comments. This new, unused scientific evidence from three studies of diameter limits and omission of key scientific evidence from Romme et al. (2009) leaves this issue insufficiently addressed in the Final EA.

The agency must address the potential adverse ecological impacts of a commercial timber sale on large, old trees. Photographs provided to me by the Dolores District document that large, likely old trees were removed in or near the project area in the 1940s (Figure 1 below), which certainly contributed to the current deficiency of large, old trees in the project area. Romme et al. (2009 p. 43) documented the loss of old-growth trees across the San Juan Mountains due to high-grade logging: "...it appears that nearly all of the accessible ponderosa pine forests were affected by the logging operations of the late 1800s and the first half of the 20th century. This early logging usually involved 'high-grading', i.e., selectively removing the highest quality trees (generally the large, old-growth trees) and leaving the smaller individuals or species of lesser monetary value. Consequently, unlogged, old-growth ponderosa pine stands today are very few in number, and nearly all are in locations where it was physically impossible or uneconomic to log."

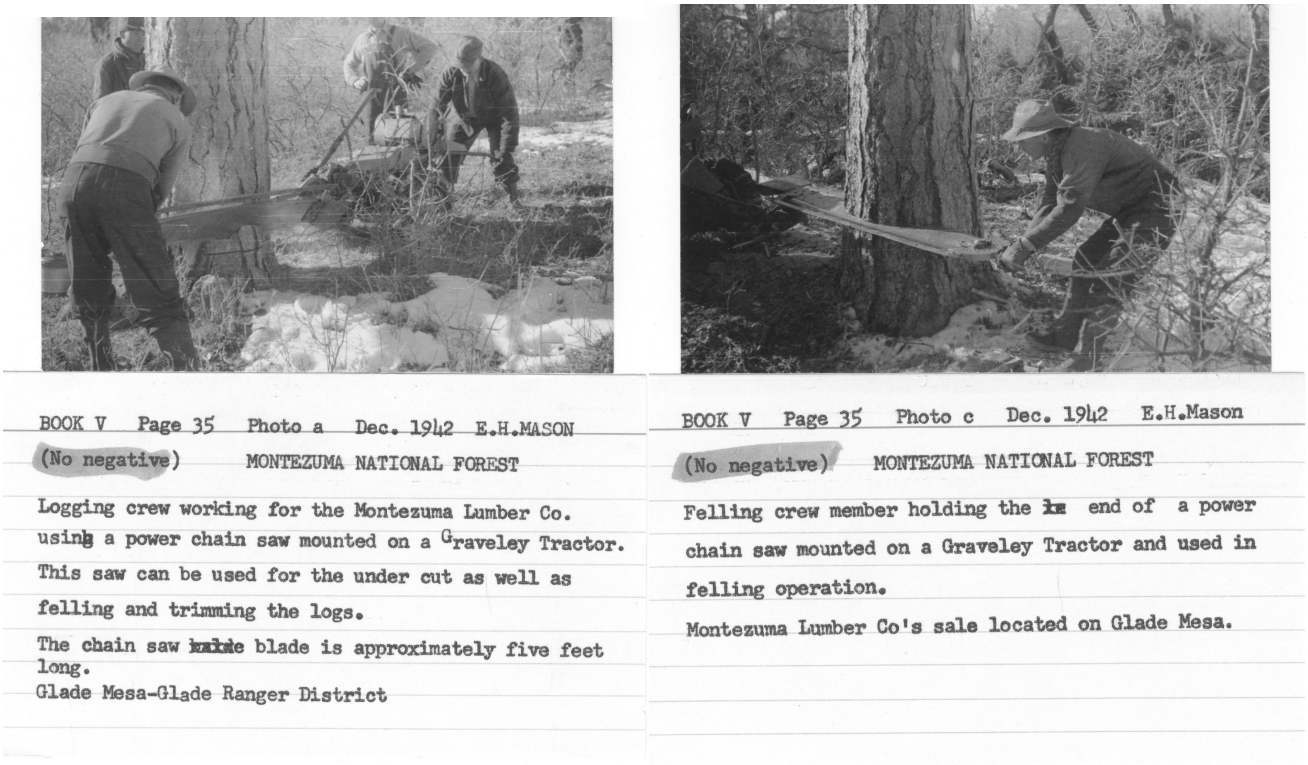
Scientific research using the original land-survey records (Baker, in prep.) shows that about 53% of ponderosa pine and dry mixed-conifer forests in the San Juan National Forest would historically have generally qualified as old growth using the scientific criteria of Mehl (1992) for ponderosa pine and Popp et al. (1992) for mixed-conifer forests, both of which designate trees ≥18" dbh as old growth. Romme et al. (2009) indicates that very little, if any old growth remains.

Romme et al. (2009 p. 47) explained what is needed to restore the old growth: "The legacy of

early high-grade logging will be with us for a long time. One cannot quickly re-grow large, old trees and snags. The best means now available for increasing the availability of suitable nesting cavities for birds and bats probably is to (i) protect existing snags and large trees from damage by fire, logging and firewood gathering, and (ii) increase the numbers of very large trees."

What should the diameter limits be that limit logging in the project area? The three scientific studies that were listed in the references in the Final EA mostly discuss the strengths and limitations of using diameter limits, but there is some concern that using diameter limits may preclude adequate restoration of historical openings and other aspects of the historical forest (Abella et al. 2006, Triepke et al. 2011, and Sanchez-Meador et al. 2015), but there is no general

Figure 1. Historical photographs from 1942 documenting the logging of large ponderosa pines in or near the project area. These photographs were sent to me by the Dolores District.



rejection of diameter limits as a means to ensure that large trees are not logged, as is reported by Romme et al. (2009) to be an ecological need. Diameter limits have been employed successfully in CFLR programs (e.g., 4FRI). Because of the fact that Mehl (1992) and Popp et al. (1992) designated trees ≥18" dbh as old growth, and large, old trees are ecologically deficient, this offers a compelling scientific basis for first restricting diameter limits for harvesting in the Lone Pine project area to trees < 18" dbh. This would ensure all existing old-growth trees would not be harvested. The proposed limits on p. 14 in the Final EA are clearly inadequate to protect these ecologically deficient large, old trees. The logging that would be allowed using the criteria on p. 14 would adversely reduce the already deficient existing old-growth trees in the project area.

Romme et al. (2009), however, indicate two other criteria are needed:
(1) Clearly it is not just living large, old-growth trees that must be protected, but <u>all</u> large, old

trees, specifically including snags, as specified in the Romme et al. quote above. Thus no exemption is scientifically warranted to allow logging of trees ≥18" dbh that are infected or recently killed by beetles, as was proposed on p. 14 in the Final EA.
(2) Romme et al. (2009) also indicate in the quote above that there is a need to "increase the numbers of very large trees." This cannot be achieved without also protecting mid-sized trees that are not quite large enough to be designated as old-growth under the Mehl (1992) and Popp et al. (1992) criteria. This means that to address the extreme deficiency in old-growth trees in the project area it is essential to protect extant old-growth trees from harvesting and also to protect somewhat smaller trees that are the best means to increase future old growth.

Based on these criteria, it is clear that a 16" diameter limit, or even smaller, is essential to protect and increase the old-growth trees in the project area. This ecological need for diameter limits was also emphasized in comments by others, but this subject was not analyzed in the revised draft EA or Final EA. There was no mention of the three diameter-limit papers listed in the references. This coverage of a major ecological issue, the deficiency of old-growth trees in the project area, is inadequate, as the science was not reviewed, analyzed, and addressed in the Final EA. Because large trees offer irreplaceable resistance to fire and resilience after fire, this is clear evidence that the proposed project will contribute to the projected complete loss of the pine zone.

> *Suggested remedy:* The agency must either (1) in the final Decision, impose a strict limit that prevents harvesting/salvaging of any trees ≥16" dbh in the project area, or (2) provide new or supplementary NEPA analysis that thoroughly reviews, analyzes, and substantiates the rationale for using a different diameter limit to prevent logging of large trees in the project area.

Part 2. Inadequate use of science and the need for a full environmental impact statement
Does the Final EA document that the best available science was used? The Draft Decision Notice and FONSI says (p. 10): "The environmental analyses shows [sic] a thorough review using the best available science." and (p. 13): "Best available science was used to inform the effects analysis in Chapter 3 of the EA."

Are these two statements about best available science supported by the evidence in the Final EA? In this set of comments and in previous comments many cases have been documented where, for key matters, the relevant and essential science was not presented, reviewed, or incorporated. Also, a scan of the references cited section beginning on p. 47 in the Final EA shows that it contains mostly science that was never presented, reviewed, or incorporated into the Final EA. For example, Baker (2018) was placed into the list of references but was never mentioned in the text. The three studies of diameter limits were placed into the references but never mentioned in the text. Brown and Wu (2005) was placed into the reference but never mentioned in the text. The major synthesis of the ecology of forests in and near the project area, which is Romme et al. (2009) was placed into the list of references, but was only used in the text in one unimportant case on p. 65 in the Appendix: "For example, the period from 1976 through 1995 was one of the wettest in the southwestern United States in the last thousand years (Romme et al. 2009)." Was there really nothing else in Romme et al. (2009), a 186 page scientific synthesis about the project area's forests, that was relevant to the proposed project? Of the first 10 peer-reviewed and/or agency scientific publications listed in the References only 3 (30%) were actually cited and used in the Final EA. Most of the relevant science was not presented, reviewed, or incorporated into

the Final EA, and the list of references is estimated to be ~70% sources not used in the Final EA. Together the evidence shows that the two statements from the Draft Decision Notice and FONSI, quoted to begin Part 2, are both false. The best available science was definitely not used.

Does the Final EA show that the four key Purposes and Needs will be met using best available science? In these comments and previous comments (Scoping Comments, RDEA Comments), the first four purposes and needs (Final EA p. 4), which are the key purposes and needs for the proposed project, were shown to be not documented in the Final EA to have been met. The first four purposes and needs, and the corresponding analysis here of issues that documents the problems, are: (1) increase forest resilience (Issue 11), (2) increase age class diversity (Issues 14-16), (3) promote recovery of forest vegetation (Issue 12), and (4) reduce the risk of high severity wildfires (Issue 13). These four purposes and needs unfortunately show a consistent pattern: (1) No measures were proposed or implemented for showing exactly how the purpose and need would be met or not met, (2) no analysis was completed that showed evidence that the purpose and need would be met with the specific proposed action or actions, and (3) insufficient coverage of the essential science was presented, analyzed, or used in any of the parts of these necessary steps. There is thus little or no evidence, or incorrect evidence, that shows that any of these key purposes and needs will be met.

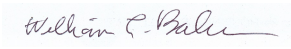
The documents improved only a little, regarding science, in response to submitted comments and explanations. Of the 19 issues raised, 12 received no discernable attention (Issues 1, 3-5, 8, 11-17), as none of the science that explained in comments was presented, analyzed, or incorporated into any NEPA documents, including the Final EA. Of the 19 issues raised, 7 received minor attention (Issues 2, 6, 7, 9, 10, 18, 19), including some small adjustments in the proposed actions, but in most cases the science itself was still not at all, or barely presented, reviewed, and incorporated, and in some cases the science that was presented was incorrect or incomplete (Issues 6, 7, 9). This is a violation of the NEPA requirement to take a hard look at the science.

These comments show that what is presented in the Final EA is a major proposed project that is seriously deficient in its scientific basis. All four of the purposes and needs have little or no sound scientific basis and about 2/3 of the scientific issues and evidence raised in Comments about fundamental forest processes (e.g., natural recovery, tree regeneration) were never presented, analyzed, or addressed after repeated requests and presentation of evidence throughout the NEPA process. The net result is substantial evidence that not only was the existential risk of the projected complete loss of the pine zone not analyzed, the proposed project is shown here to be highly likely to contribute to this projected complete loss of the pine zone. The comes largely from failure to address the science and make suggested modifications that could actually help avert the loss of the pine zone. This too is a violation of the NEPA hard look requirement.

Since the proposed project is so devoid of the essential use of best available science, it is difficult to see how this project could proceed without further NEPA analysis. The scope and scale of the issues are so large, and the projected complete loss of the pine zone so significant, that a full Environmental Impact Statement (EIS) is essential.

I hereby request a formal meeting with the Forest Service to discuss this objection, with the hope that we might jointly navigate a path to success. I am open to meeting with a representative group of other objectors, if the agency and others would prefer this approach.

Sincerely,



Dr. William L. Baker

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