Santa Fe Forest Coalition

P.O. Box 1943
Santa Fe, New Mexico 87504
505-577-2944
sam@wildwatershed.org

January 23, 2023

Objection Reviewing Officer
USDA Forest Service, Southwestern Region
333 Broadway SE, Albuquerque, NM 87102
Submitted via email to: objections-southwestern-regional-office@usda.gov

Re: Objection to the Santa Fe Mountains Landscape Resiliency Project Draft Decision Notice and Finding of No Significant Impact

Dear Objection Reviewing Officer;

The Santa Fe Forest Coalition files this formal objection to the U.S. Department of Agriculture, U.S. Forest Service, Santa Fe National Forest's December 2022 draft Decision Notice ("Draft DN") Finding of No Significant Impact ("FONSI") and Final Environmental Assessment ("EA") for the Santa Fe Mountains Landscape Resiliency Project ("SFMLRP" or "project") on the Espanola and Pecos-Las Vegas Ranger Districts. This objection concerns issues raised previously in our July 10, 2019 scoping comments and our October 29, 2021 comments to the draft SFMLRP Environmental Assessment ("EA").

Our objection is to the Santa Fe National Forest's ("SFNF") selection of Alternative 2, the Proposed Action, that calls for expansive alteration of vegetation on 38,680 acres over 10 years, including 18,000 acres of clearing, 38,000 acres of intentional burning (every 5-10 years) and 680 acres of riparian restoration. The responsible official is Acting Santa Fe National Forest Supervisor, James Duran.

This objection has two parts. The first concerns the failure to use the best available scientific information ("BASI") as required by the 2012 Forest Planning Rule ("planning rule") and the inappropriate censoring of contrary scientific information. Second, the failure to respond to substantial public comments concerning white pine conservation, including failure to monitor the project area for white pine blister rust and failure to disclose and analyze the cumulative impacts to white pine genetic diversity resulting from clearing and burning.

The Project Fails to Disclose How the Best Available Scientific Information was Used to Inform the Decision

The planning rule requires the use of BASI to inform forest planning.[1] This means relying on well-developed and appropriate research methods, drawing logical conclusions based on reasonable assumptions, honestly making known information gaps and inconsistencies, ensuring information has been appropriately peer-reviewed and placed in the proper context within the body of knowledge.[2]

Key to meeting these standards is the obligation to disclose how the agency determines the BASI.[3] This goes hand in hand with a commitment to transparency needed to engage the public and other land managers and share information.[4] The essence of transparency is the requirement to document and summarize how the universe of best available scientific information was identified and how it informed the planning process. Transparency includes acknowledging competing scientific perspectives.[5]

Contrary to the planning rule, the SFNF did not disclose to the public how the universe of best available scientific information was determined. Instead, unnamed publications were cited allegedly showing that less intrusive practices did not met

---

[1] 36 C.F.R. § 219.1: 21162 "The planning rule requires the use of best available scientific information to inform planning and plan decisions."

[2] See USDA, A Citizens' Guide to Forest Planning, Overview of the Land Management Planning Process, https://www.fs.usda.gov/Internet/FSE_ DOCUMENTS/fseprd530776.pdf. p. 15

[3] 36 C.F.R. § 219: 21193. ". . . identify what information was determined to be the BASI, explain the basis for that determination, and explain how the information was applied to the issues considered. This requirement will provide both transparency and an explanation to the public as to how BASI was used by responsible officials to arrive at their decisions."

[4] 36 C.F.R. § 219.1: 21162. ". . . providing meaningful opportunities for public participation early and throughout the planning process, increases the transparency of decision-making, and provides a platform for the Agency to work with the public and across boundaries with other land managers to identify and share information and inform planning."

[5] 36 C.F.R. § 219.1: 21193. ". . . BASI may lead a responsible official to a range of possible options. There also may be competing scientific perspectives and uncertainty in the science." The National Environmental Policy Act (NEPA) also requires that the Forest Service disclose and discuss responsible opposing views. See Center for Biological Diversity v. U.S. Forest Serv., 349 F.3d 1157 (9th Cir. 2003). "The Service's failure to disclose and analyze these opposing viewpoints violates NEPA and 40 C.F.R. 1502.9(b) of the implementing regulations."

the minimum BASI standards.[6] A recent study[7] authored by Forest Service personnel and supporting institutions was cited. No mention was made of the responding study[8] authored by independent scientists that called for addressing the root cause of recent fire increases by reducing greenhouse gas emissions across all sectors, including reforming destructive forestry practices.[9]

Explanation is fundamentally different from justification.[10] In this case, the SFNF clearly attempted to justify its proposed action based on selective use of research information.

Numerous commenters to the project provided a peer-reviewed statistically valid area-based landscape study that was dismissed without providing evidence.[11] It uses linear regression analysis[12] at an appropriate spatial and temporal scale to overcome the bias and inaccuracy of the frequency-based small plot model used at

---

[6] "There are researchers who have published papers suggesting that changes from historical forest conditions are overstated and that historically, high-severity fire was more common. However, the methodologies used in these dissenting papers have multiple biases and errors that have been documented in several peer-reviewed publications and have been determined to not meet minimum standards for "best available science" to inform management decisions (Hagmann et al., 2021). These studies were therefore not used to inform this project." Santa Fe Mountains Landscape Landscape Resiliency Project, Scoping Issues Addressed, September 20, 2021, p.15

[7] Hagmann, R., Hessburg, P.F., Prichard, S.J., Povak, N.A., Sanchez Meador, A.J., Stevens, J.T., Battaglia, M.A., Krawchuk, M.A., Levine, C.R., 2021. Evidence for widespread changes in the structure, composition, and fire regimes of western north American forests. Ecol. Appl., e02431 https://doi.org/10.1002/eap.2431.

[8] DellaSala, D. A., Baker, B. C., Hanson, C. T., Ruediger, L., and Baker, W. (2022). Have western USA fire suppression and megafire active management approaches become a contemporary Sisyphus? Biol. Conserv. 268:109499. doi: 10.1016/j.biocon.2022.109499

[9] *id.* DellaSala, D.A. et al. (2022). "We urge land managers and decision makers to address the root cause of recent fire increases by reducing greenhouse gas emissions across all sectors, reforming industrial forestry and fire suppression practices, protecting carbon stores in large trees and recently burned forests, working with wildfire for ecosystem benefits using minimum suppression tactics when fire is not threatening towns, and surgical application of thinning and prescribed fire nearest homes."

[10] "The term explanation is sometimes used in the context of justification, e.g., the explanation as to why a belief is true. Justification may be understood as the explanation as to why a belief is a true one or an account of how one knows what one knows. <u>It is important to be aware when an explanation is not a justification</u>. One may give a detailed and believable account on something without giving a single proof." https://en.wikipedia.org/wiki/Explanation. Accessed 011723.

[11] Baker, W. L. 2017. Restoring and managing low-severity fire in dry-forest landscapes of the western USA. PLoS ONE 12: e0172288. See S1 Dataset (XLS), S2 Dataset (XLS) and S1 Dataset metadata (PDF).

[12] "In statistical modeling, regression analysis is a set of statistical processes for estimating the relationship between a dependent variable (often called the 'outcome' or 'response' variable, or a 'label' in machine learning parlance) and one or more independent variables (often called 'predictors', 'covariates', 'explanatory variables' or 'features'). The most common form of regression analysis is linear regression, in which one finds the line (or a more complex linear combination) that most closely fits the data according to a specific mathematical criterion." Wikipedia: https://en.wikipedia.org/wiki/Regression_analysis. Accessed 011823

several sites on the SFNF, including the Santa Fe Municipal Watershed, to document fire history.

Regression analysis is consistent with Forest Service directives (the Forest Service Manual and Handbook) which emphasize the use of valid statistical methods. These directives further define the BASI criteria from the planning rule as follows:

> Accurate. To be accurate, the scientific information must estimate, identify, or describe the true condition of its subject matter . . . Statistically accurate information is near to the true value of its subject, quantitatively unbiased, and free of error in its methods . . . The accuracy of scientific information can be more easily evaluated if reliable statistical or other scientific methods have been used to establish the accuracy or uncertainty of any findings relevant to the planning process.
>
> Reliable. Reliability reflects how appropriately the scientific methods have been applied and how consistent the resulting information is with established scientific principles . . . Scientific information that describes statistical or other scientific methods used to determine both its accuracy and uncertainty can be considered to be more reliable.
>
> Relevant. The information must pertain to the issues under consideration at spatial and temporal scales appropriate to the plan area and to a land management plan.

FSH 1909. 12. sec 07.12 Regression analysis showed that historical fires did not burn across landscapes at 5-15 year intervals in the SFNF's ponderosa and dry mixed conifer forests as this project assumes.[13] Instead, at the landscape scale these forests generally burned at intervals of 55 years or more. For example, estimated fire rotations in the Santa Fe Municipal Watershed were 39.8 years for ponderosa pine and 74.7 years for dry mixed conifer.[14]

The shorter fire estimates, relied upon in this analysis, are often biased because a composite of fire scar samples are taken from older trees in parts of landscapes that have survived many low-intensity fires. For example, the Margolis and Balmat

---

[13] EA, p. 1-5

[14] Baker, W. L. 2017. Restoring and managing low-severity fire in dry-forest landscapes of the western USA. PLoS ONE 12: e0172288. See S1 Dataset (XLS)

(2009) study in the Santa Fe watershed sampled large scarred trees on relatively flat ridges where scars were abundant.[15]

Targeting mature trees with a history of frequent fires gives an incomplete fire history because it excludes younger trees which make up the the majority of dry western forest landscapes.[16] Bias also results from targeting multi-scarred trees, not trees with single scars indicating long fire rotations. Targeting only old trees with multi-scars misses 66 percent of the dry forest landscape[17] and, most importantly, misses the large fires that shape most landscapes in the Rockies.[18]

Statistically valid sampling, as required by the planning rule, is essential to reconstruct fire regimes at the landscape scale.[19] To understand fire regimes, area based measures (fire rotations, area burned) used by landscape ecologists is preferable to frequency based measures (counting fires).[20] Patches of high severity fire cannot be detected when fire-scar and age-structure data are pooled (mean composite fire intervals) as was done to justify this large-scale alteration.[21]

Pooled data is created by sampling many trees that experienced small fires, each typically representing a new fire year. As more sampled trees are added it appears

---

[15] "In the MC forest, fire-scarred trees were most abundant on the relatively flat ridges, apparently because of lower fire severity that allowed trees to survive fires that were otherwise stand-replacing on the adjacent steep slopes . . . The final spatial distribution of the fire scar sample plots was ultimately determined by the location of fire-scarred trees, in part determined by topography and chance, and therefore is not evenly distributed in space. Margolis EQ, Balmat J. Fire history and fire–climate relationships along a fire regime gradient in the Santa Fe Municipal Watershed, NM, USA. Forest Ecology and Management. 2009; 258: 2419.

[16] "In Rocky Mountain ponderosa pine–Douglas fir forests, most of the apparent increase in tree density over the last century is not in undisturbed mature forests, but in the younger forests that predominate today that may not be overly dense for their age . . ." Baker, W.L., Veblen, T.T. & Sherriff, R.L. (2007) Fire, fuels and restoration of ponderosa pine–Douglas fir forests in the Rocky Mountains, USA. Journal of Biogeography, 34, p. 13.

[17] *Op. Cit.,* Baker (2017). Restoring and managing low-severity fire in dry-forest landscapes of the western USA. S1, pp. 5-6.

[18] Baker, W.L. 2009. Fire Ecology in Rocky Mountain Landscapes, Island Press, Washington D.C. p. 142. ". . . all Rockies fire regimes are likely characterized by infrequent large fires that do most of the work." pp. 164-165. "A fluctuating pattern of large infrequent fires followed by recovery and aging characterizes landscapes subject to fire and other disturbances." p. 91. "Long interludes with small, less severe fires followed by episodes of large, severe fires are normal in all fire regimes." p. 93. "Fires that burn large land areas play an important evolutionary role." p. 94

[19] *Ibid.,* Baker, W.L. 2009. "It is time for small-plot studies and frequency-based measures, along with the idea of frequent fire, to be replaced by area-based measures and methods." p. 456

[20] *Ibid.,* Baker, W.L. 2009. pp. 141-142.

[21] *Ibid.,* Baker, W.L. 2009. p. 149.

to show that the interval between fires decreases. This makes little sense.[22] The targeted data produced is almost useless.[23] These errors produce mean composite fire intervals that are too low by a factor of 3.6 to 16.0.[24] Thus the landscape characterized in this analysis as having frequent fire may actually have mean composite fire intervals that are moderate to long.

The environmental consequences of too frequent intentional burning is not disclosed or analyzed in this analysis. Instead, it calls for frequent intentional burning (every 5-10 years) in the mistaken belief that such action is restorative.

However, fires that are too frequent can: 1) reduce the ecological roles of the forest floor in replenishing soil nutrients and organic matter, enhancing absorption of water and nutrients, and providing habitat for microbial communities thereby potentially reducing long-term forest productivity; 2) habitat for wildlife that use snags or down wood could be adversely affected by fire that is too frequent, which can also reduce understory plant species richness, possibly due to depletion of soil nitrogen; and 3) native shrubs, historically abundant in some dry forests, may also be reduced by fire at intervals less than about 20–30 years.[25] Too frequent fires may also prevent tree regeneration needed to replenish forests after fire and beetle outbreaks.[26] One prescribed fire should suffice in a restorative program such as proposed in this case.[27]

---

[22] *Ibid.,* Baker, W.L. 2009. p. 154 "Imagine if the estimated mean length of noses in a population of people declined rapidly as more noses are measured."

[23] *Ibid.,* Baker, W.L. 2009. p. 149 "Statistically invalid sampling has persisted even though identified as a serious problem 20 years ago (Lorimer 1985) and again about a decade ago (Johnson and Gutsell 1994)." Currently the running total for persistence of this "serious problem" is 37 and 28 years respectfully.

[24] *Ibid.,* Baker, W.L. 2009. pp. 155-156

[25] *Op. Cit.,* Baker (2017). Restoring and managing low-severity fire in dry-forest landscapes of the western USA. p. 2

[26] *Op. Cit.,* Baker (2017). Restoring and managing low-severity fire in dry-forest landscapes of the western USA. p. 3

[27] "A need for less low-severity fire in restoration and management of dry forests is good news, because costs of prescribed burning and other restoration treatments are high, effects on invasive species, ecosystem processes, and biological diversity are a concern, and the feasibility of restoring and managing low-severity fire is higher with longer rates . . . Where initial treatment is incomplete, one prescribed fire should suffice before a managed-fire program can begin." *Op. Cit.,* Baker (2017). Restoring and managing low-severity fire in dry-forest landscapes of the western USA. p. 23

The Project Inappropriately Censored Contrary Scientific Information

The attached Literature Review[28] was received in response to our FOIA request.[29] This document provided seven reasons for excluding Baker (2017) from the SFNF Land Management Plan project record.

We asked Dr. Baker to address the SFNF's rational for censoring his peer reviewed study that recalculated the fire history of several research sites on the SFNF.[30] His rebuttal is attached.[31] None of the reasons presented for censoring was supported by evidence.[32] Dr. Baker's responses to each of the seven reasons are below:

> 1) The claim of few "calibration sites" and "prediction sites" in the plan area is unsupported. Equations to estimate mean fire interval/fire rotation have very high accuracy (R2=0.972) across 96 calibration sites well spread across the western USA; 2) No evidence was presented to substantiate the claim that Baker (2017) had "biased and selective use of citations and studies used in dataset." Since the paper cites nearly all scientific studies of low-severity fire in western USA dry forests, "biased and selective use" did not occur; 3) No evidence was presented to support the erroneous claim that "conclusions made that are beyond the inferential space of the study results." The inferential space of the study includes five sites in northern New Mexico; 4) No evidence is presented to substantiate the claim that Baker (2017) used "unaccepted fire terminology definitions (e.g., low severity fire)". Baker (2017) used standard definitions and presented citations to its sources; 5) No evidence is presented to support the claim that Baker (2017) demonstrates "lack of familiarity with data sets analyzed"; 6) No evidence was presented to support the claim that Baker (2017) did not provide sufficient information "to determine whether linear

---

[28] USDA, Forest Service, SFNF Literature Review Master, undated

[29] Our FOIA request was made on July 25, 2022 for "Best Available Scientific Information (BASI) Literature Review" as referenced in the Santa Fe National Forest Plan Revision Objection Response, May 18, 2022, p. 118.

[30] *Op. Cit.,* Baker (2017). Restoring and managing low-severity fire in dry-forest landscapes of the western USA. The Literature Review censored a total of seven studies authored by Dr. Baker and colleagues. We asked Dr. Baker to respond to just Baker (2017).

[31] Baker, W.L. 2022. Regarding the SFNF Literature Review's Rationale for Excluding Baker (2017), Rebuttal by Dr. William L. Baker, September 25, 2022

[32] In addition, the Literature Review provided no explanation why non-independently peer-reviewed scientific literature produced by the Forest Service (i.e. Reynolds et al. 2013) was included in this analysis while independently peer-reviewed scientific studies were censored. Reynolds et al. (2013) is consider gray literature (Farace & Schöpfel 2010) because it is is peer-reviewed in-house by Forest Service personnel but not independent experts.

regression analysis was appropriate". Sufficient data was clearly presented to show that linear regression models are appropriate; and 7) No evidence was provided to support the claim that the study made "inappropriate conclusions based on a new and untested analytical approach that is not placed in proper context". Baker (2017) cited a host of peer-reviewed studies to support its conclusions concerning historical fire in ponderosa pine and dry mixed conifer forests in western forests.

Since the SFNF Literature Review is not in the project record, the public was not informed of the unsupported rational for excluding Baker (2017). This violates the transparency requirements of the planning rule and fails to inform the public of the Literature Review's largely empty claims. It also fails to inform the public and decision-makers about potentially significant environmental consequences that require disclosure and analysis in an Environmental Impact Statement.[33]

Conclusion and Suggested Improvement

Determining what is "best" requires evaluating and comparing options. The universe of available scientific information must first be identified, ranked in a consistent and logical fashion, biases and uncertainties disclosed and a valid rational provided for choices. Transparency requires that this process be disclosed to inform the public and decision-makers. Otherwise, BASI become an arbitrary determination, cloaked in secrecy, and contrary to the requirement of the planning rule that BASI be used to inform decisions.[34] Suggested improvement is to disclose the process for determining BASI as described above.

The Project Fails to Respond to Substantive Public Comments Concerning White Pine Conservation

The National Environmental Policy Act's (NEPA) implementing regulations impose a material duty on the Forest Service to respond to substantive comments from the general public and other federal and state agencies. 40 CFR § 1503.4.

---

[33] The censored studies in general show that historical ponderosa pine and dry mixed conifer forests in the Southwest and other areas of the western United States were strongly shaped by historical high-severity fires and mixed-severity fires with high-severity components. Reducing these fires is fire suppression, which is identified in the analysis as being the source of adverse ecological changes that the proposed project ironically seeks to remedy.

[34] ". . . the Department's stated intent for this requirement was that the best available science would be used to inform decisions." National Forest System Land Management Planning Rule Final Programmatic Environmental Impact Statement (USDA Forest Service, 2011), p. 105

In particular, the Forest Service "shall respond by one or more" of the following: 1) modify alternatives including the proposed action; 2) develop and evaluate alternatives not previously given serious consideration by the agency; 3) supplement, improve, or modify its analyses; 4) make factual corrections and 5) explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. 40 CFR § 1503.4 (a)(1)-(5).

In this case, the Forest Service failed to respond to substantive detailed comments and concerns related to white pine conservation raised by objectors (see pp. 29-34 of objectors' comments to the draft EA). Table 1.6, Issues Addressed in EA, does not mention white pine conservation.[35]

White pine conservation is mentioned in passing only twice in the voluminous project record. In neither case did the agency employ the means detailed above to respond to a host of issues concerning white pine conservation raised by the objectors.

The first mention of white pine is in relation to white pine blister:

> White pine blister rust (*Cronartium ribicola*) is an introduced fungal disease that can affect the southwestern white pine within the project area. The fungus can cause top kill or tree mortality by girdling the stem and can affect pine of any size. Management of natural white pine in mixed forest stands includes the retention of white pine for the purposes of maintaining genetic diversity and for retention of blister rust resistant stock (Schwandt et al. 2013).

EA at p. 6. The second mention suggests vague and conditional reasons for retaining white pine genetic diversity:

> Given the philosophy of retaining all Southwestern white pine for the purpose of retaining genetic diversity, removal of Southwestern white pine is to be explicitly avoided. However, situations may arise; such as safety, operational necessity, or for the overall improvement of stand health; where removal may be required.

[35] EA p. 26

Vegetation Report at p. 19. For the following reasons, these references do not respond to the substantive comments of the objectors.

<u>First</u>, the information presented is inaccurate. White pine blister rust (*Cronartium ribicola*) is a devastating fungal disease of not only Southwestern white pine (*Pinus strobiformis*) but also limber pine (*Pinus flexilis*) populations found in the project area. The disease also likely impacts the hybrids resulting from the overlapping populations of Southwestern white pine and limber pine in northern New Mexico.[36] A major omission in this analysis is the failure to disclose and analyze the impacts of clearing and burning in this genetically unique hybrid zone. (see objectors' comments pp. 30-31).

<u>Second</u>, the management of white pine, according to Forest Service pathologists, includes retention of genetic diversity. This is the best available scientific information and not an undefined "philosophy." This failure to distinguish between fact and opinion allows exemptions that permit cutting and burning at the discretion of project managers. Together with the unjustified presumption of scientific uncertainty, this undercuts meaningful conservation of white pine populations in violation of the National Forest Management Act mandating "steps to be taken to preserve the diversity of tree species." 16 U.S.C. §1604(g)(3)(B).

<u>Third</u>, there is no connection between the stated need to retain white pine genetic diversity and the integrated design features (IDFs) listed in Appendix C of the EA. IDFs are critically important for they determine "how project activities under the proposed action alternative would be implemented" (App. C-1). There are no design features, mitigation measures or best management practices proposed to retain and preserve white pine genetic diversity in the project record. Therefore, there is no way, for example, a manager could rationally determine how to resolve a conflict between preservation of white pine diversity and "overall improvement of stand health" (Vegetation Report, p. 19). The vague language about retaining white pine genetic diversity clearly lacks regulatory authority.[37]

<u>Fourth</u>, the Forest Service typically characterizes "overly dense forests (as) particularly vulnerable to the spread of insect and disease outbreaks".[38] Regardless

---

[36] See attached Critchfield and Little hybrid zone map from Critchfield and Little Jr. Geographic Distribution of the Pines of the World. Misc. Pub. 991. USDA. 1966. (*P. flexilis* and *P. strobiformis*: 6, 7; maps: 39, 40)

[37] Vague, voluntary, speculative and unenforceable measures are not considered sufficient regulatory mechanisms. See, e.g., Oregon Natural Resources Council v Daley, 6. F Supp. 2d. 139, 1153-56, 29 ELR. 20514 (D. Ore 1998)

[38] SFMLR Project Scoping issues addressed, p. 15

of the problem, the remedy is always clearing and burning. However, extensive clearing and burning encourages the growth of *Ribes* species which is an alternative host for white pine blister rust (see objectors' comments, p. 33). Dense forest conditions limit not only the spread of *Ribes*, but also dispersal of rust spores. Therefore generic measures that may be effective in controlling other insect and disease outbreaks have the opposite effect with white pines. This concern was ignored in response to our comments.

The Project fails to monitor white pine blister rust

Forest Service pathologists strongly recommend monitoring for white pine blister trust. However, both the SFNF and multi-party monitoring plans are silent on the necessity of white pine blister rust monitoring in the project area. Absent from the project record is documentation of how the best available scientific information was used to inform the monitoring program, including justification for not monitoring for the presence of white pine blister rust, as required by the planning rule.[39]

A Forest Service Pathologist is not listed as being a member of either monitoring effort. Detection of an early white pine blister infection is not possible via the annual Forest Health Protection aerial surveys. White pine blister rust monitoring requires specialized knowledge and on-the-ground experience of a qualified professional.

The Project fails to disclose and analyze significant impacts to white pine genetic diversity

There are no protection standards to preserve white pine genetic diversity from the cumulative impacts of clearing and burning in the eleven projects totaling 34,491 acres surrounding the project area. For example, the work order for the Hyde Park Wildland Urban Interface Project specifically targets southwestern white pines for removal:

> <u>Cut all ponderosa pine and southwestern white pine that are less than or equal to 9 inches DBH and taller than 3 feet</u>. Cut all white fir and Douglas-fir trees that are less than or equal to 11 inches DBH and taller than 3 feet.

---

[39] 36 C.F.R.§ 219.14(a)(4). "The responsible official shall record approval of a new plan, plan amendment, or revision in a decision document prepared according to Forest Service NEPA procedures (36 CFR 220). <u>The documentation of how the best available scientific information was used to inform planning, the plan components, and other plan content, including the plan monitoring program</u> (§ 219.3)."

Hyde Park WUI Project work order, p. 1, Ex. 10 in objectors' comments. The direct, indirect and cumulative impacts of unregulated clearing and burning on white pine genetic diversity, coupled with vague and discretionary language in this analysis, are plainly significant and therefore require disclosure and analysis in a comprehensive Environmental Impact Statement. 40 C.F.R. 1508.27(b)(7).

Summary and Conclusions

The project fails to respond in a meaningful way to detailed and substantive comments concerning threats to vulnerable white pine populations. The project has no requirement to monitor for deadly white pine blister rust and there is no disclosure or analysis of the cumulative impacts of the loss of genetic diversity in the larger landscape. Suggested improvements are to establish a system of refugia for white pine allowing populations to adapt and thrive in a warming world.

Literature Attachments

Baker, W.L., Veblen, T.T. & Sherriff, R.L. 2007. Fire, fuels and restoration of ponderosa pine–Douglas fir forests in the Rocky Mountains, USA. Journal of Biogeography, 34

Baker, W.L. 2009. Fire Ecology in Rocky Mountain Landscapes, Island Press, Washington D.C. 605 pages

Baker, W. L. 2017. Restoring and managing low-severity fire in dry-forest landscapes of the western USA. PLoS ONE 12: e0172288. S1 Dataset (XLS), S2 Dataset (XLS) and S1 Dataset metadata (PDF)

Baker, W.L. 2022. Regarding the SFNF Literature Review's Rationale for Excluding Baker (2017), Rebuttal by Dr. William L. Baker, September 25, 2022

Critchfield and Little Jr. Geographic Distribution of the Pines of the World. Misc. Pub. 991. USDA. 1966. (*P. flexilis* and *P. strobiformis*: 6, 7; maps: 39, 40)

DellaSala, D. A., Baker, B. C., Hanson, C. T., Ruediger, L., and Baker, W. 2022. Have western USA fire suppression and megafire active management approaches become a contemporary Sisyphus? Biol. Conserv. 268:109499. doi: 10.1016/j.biocon.2022.109499

Farace, D.J., and J. Schöpfel (eds.). 2010. Grey literature in library and information sciences. De Gruyter Saur, Berlin. ISBN 9783598117930.

Hagmann, R., Hessburg, P.F., Prichard, S.J., Povak, N.A., Sanchez Meador, A.J., Stevens, J.T., Battaglia, M.A., Krawchuk, M.A., Levine, C.R., 2021. Evidence for widespread changes in the structure, composition, and fire regimes of western north American forests. Ecol. Appl., e02431 https://doi.org/10.1002/eap.2431.

Johnson EA and Gutsell SL. 1994. Fire frequency models, methods and interpretations. Advances in Ecological Research; 25: 239–287

Lorimer CG. 1985. Methodological considerations in the analysis of forest disturbance history. Canadian Journal of Forest Research.; 15: 200–213

Margolis EQ, Balmat J. 2009. Fire history and fire–climate relationships along a fire regime gradient in the Santa Fe Municipal Watershed, NM, USA. Forest Ecology and Management; 258: 2419

USDA Forest Service. undated. SFNF Literature Review Master

USDA Forest Service. 2011. National Forest System Land Management Planning Rule, Final Programmatic Environmental Impact Statement

USDA Forest Service. 2016. A Citizens' Guide to Forest Planning: Overview of the Land Management Planning Process, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd530776.pdf.

Map Attachment

Critchfield and Little hybrid zone map

Respectfully Submitted,

/s/ Sam Hitt

Sam Hitt, President
Santa Fe Forest Coalition
P.O. Box 1943
Santa Fe, N.M 87504
sam@wildwatershed.org