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Title:

Comments:

James Melonas, Forest Supervisor

RE: THIS IS MY SCOPING COMMENT for the SF "Mountains Landscape Resiliency Project"

To James Melonas and the Forest Service of the SFNF:

Please accept these comments on your proposal in the spirit in which they are given, as a call to the Forest Service to renew its commitment to the health of our public forest in a way that respects the latest science and the need for policy decisions to utilize it, as the Forest Service itself claims to do.

While they are lengthy, I apologize for their not being more concise - in fact they are incomplete, and I will be sending references (which I have had no time to document as no one is paying me to do this!) and other resources to you as I hope to discuss alternative and more cost-effective proposals.

The latest years of science are showing multiple findings critical to this Forest Service proposal:

1. prescribed fire may not help in any way to prevent fires, indeed it appears the less forest is touched by humans, the less severe the fire. Alternatively, one can say that when an ecosystem's integrity is high, it is very resilient. When impacted by multiple stressors including humans, responsible for ~90% of fires, it loses resilience and is degraded. The implication of this science is that humans should stop messing so much with wilderness, especially when our scientific view of how that should look has been shaped by the ecosystems which evolved in a previous climatological regime, and may not be at all applicable to the new one which we have entered.
2. We should retain the areas as roadless as possible since roads demonstrably bring the human arson/accident threat deeper into the forest,
3. and most of all we should pause on any irreparable actions - like burning forests to be 'fire-adapted' when there is a 100% requirement that they be extreme-climate-instability-tolerant and generally adaptable instead.

The VERY latest science - July 4, 2019 - finds that reforestation, planting new trees, and active deforestation - is capable of ameliorating 2/3 of climate change, at prices tenable for the world (\$300B). Increasingly, and I list only a few references on this topic below, it is clear that we must weight keeping all forest far more heavily than we did when we were in the previous climate regime. The new one we have just entered (as declared by NOAA and others) is uncertain only in its rate of acceleration, not in its general direction of increasing temperature. Given these scientific certainties, it thus becomes critical on a national and global level as well as a local one that we do everything possible to sustain the forests we have, both for their intrinsic capacities to reclaim CO2 but also to moderate our local temperature, thus allowing the forest itself to maintain its own homeostatic temperatures better.

The Forest Service has changed its mind on how to manage the forests before, especially regarding fire. I ask that they reweight the cost/benefits equation to take extreme climate instability and the new climatological conditions creating change in all aspects of our ecosystems- like an extra 100 inches of snow this winter- and that we strive more to keep all the forest we have, rather than use 'thinning' and fire to try to redesign the layouts of trees to match ideals dating to a century ago, whose conditions no longer exist (these ideal tree distributions take up a few pages of the SFLMRP proposal). We thus have no real data that previously shown patterns of forest distribution will work equally well under climate stress, and in fact our fairly healthy forest has been adapting by itself all along, and may already be creating new viable 'forest distribution' attractors in the

new climate space. I will also add that from a systems science perspective, you cannot go back to a now non-existent system, which is indeed what the historical observed pattern you are trying to replicate, is.

4. As a scientist currently working on large-scale ecological models that include human impacts, and aware of how divorced ecology is from the study of human impacts, I contest this entire proposal on its science. Recently it has become clear that the ecosystems we have been studying are and have been in the midst of tremendous change, driven by new global climate instability and concomitant increase in temperatures. While I have been unable to complete my research into the areas addressed by this proposal as it is impossible to read all of the relevant research in 30 days even for a relative expert, it has become clear in Forest Service doc GTR-310 that the Forest Service formed its thinking and planning on forest treatments before the very recent and current understanding of the unprecedented nature of climate change. Global climatological organizations have even formally declared that we have entered a new climate regime - far less predictable than before and exposing a different set of critical imperatives for the forest.

Given that the FS' thinking is NOT based on the most recent science, which is finding that forests are critical to both mitigation and adaptation to climate instability, and that reforestation and the prevention of all deforestation are paramount, I request that they work with all relevant authorities to establish a new proposal that addresses some of the major resistance to this Project. Convene discussions with local historical communities who have shown different approaches to forest health, as well as all citizens impacted by these massive proposed actions on the SFNF, to rethink their approach to our forests in the light of unprecedented catastrophic climate change and the multi-scale need to keep trees as forest.

While the FS continues to proclaim the validity of and necessity for prescribed burns, there is definitely not a scientific consensus on this issue, especially going by the most recent research of the last 5 years. Moreover, as they have already engaged in exactly the proposed work in La Cueva outside of Glorieta, I can report that many unintended and unforeseen consequences of the FS' large-scale treatments of thin-and-burn are negative. They have disrupted forest ecosystem's integrity, for example trees that had grown tightly together as supportive infrastructure are now, without support, being blown down by winds. In addition the Forest Service has done no monitoring to oversee the results of their actions there, but these areas are showing no signs of recovery after 8 years, and instead show many patches of dead trees on denuded mineral soil or bedrock.

Because I and all who live here have seen this time and time again in 'treated' areas, it is clear that not only does the Forest Service's thinning and burning cause loss of soil integrity, loss of soil ecosystems, and soil erosion, but that it has the capacity to alter the hydrogeography, both small scale - around small stands of trees, for instance- and large-scale, up to and including what were originally rough dirt roads becoming akin to carved-in-stone structures at bedrock, capable of channeling vast amounts of water flow with little-to-no water absorption throughout the journey. In other words, the slow snow melt and monsoon rains that descend on the mountains are channeled by human impacts through roads, prescribed burns, and the use of other heavy mechanized machines, into destructive and unsustainable waters flowing swiftly down and away from the mountains. I charge that the resulting changes in aquifer recharge due to hydrogeographic changes are substantial, and could potentially alter the future of the SFNF and thus the region due to this change in functional hydrogeographic infrastructure.

I thus request that the FS assess and analyze the impacts of the proposed plan on the hydrogeographical structure of the SFNF.

I further request that you formally assess, evaluate and analyze all of the following issues and topics and make your findings directly accessible to the public:

"-all impacts on water, hydrology, and hydrogeology from this project or anything connected with it and both surface water quality and non-surface water quality;

-all impacts on air quality, including readings of radionuclides we would be exposed to by the burning of old growth forest that you intend, and data from the DOE which monitors such radioactive hazards - what are the increased likelihoods of cancer, respiratory diseases, or other diseases and health toxicity from the smoke? Is the Forest liable for these increased risks that can be correlated and for which they may be sued, along with other hazards, such as

-all impacts from any additional chemicals or treatments used, whether herbicides or the potassium permanganate/antifreeze combination used for aerial ignition. What studies document their safety?

-all impacts on soil and other measures of forest viability. For instance, large masticators and other machinery used by the FS in any of its treatments can cause soil compaction, hydrological runoff issues and induce sedimentation in our surface water flows.

-all impacts on wildlife, including all listed species; how will the frequent presence of fire across the SFNF impact the mating, breeding, and thriving of these species?

-all impacts on habitat for such species, on biodiversity in general, and on the integrity of the ecological network of these forests."

I AND the Forest Service needs this information before they make huge decisions that could generate huge negative impacts on every scale, including climatological disaster for the Santa Fe region.

## FURTHER COMMENTS

Part of the problem seems to be what the Forest Service regards as 'acceptable' and what we who live here, consider acceptable. Despite their mandate to remediate and occasionally stated plans to 'restore' thinned and burned acres, our actual experience (for instance recently and over the past eight years in La Cueva) is that the Forest Service will not be monitoring the health of the forest or the areas they have burned, for remediation if necessary - instead they have left thinned and burned areas to 'recover' naturally - and they have not, and are not doing so. It is not clear we will have the environmental and weather conditions to regrow our forest; under new climate regime conditions we are unlikely to see pinon-juniper forest or ponderosa forest recover or regenerate if our west-facing slopes have been disrupted and the integrity of their ecosystems breached, by these levels of inadvertent, and even if short term, destruction.

Destruction of the SFNF's ecological integrity is clearly a consequence of actions of the proposed magnitude. At the least the road-building, clearing and thinning, mastication, and burning change the working structure of an actively adapting forest, one that received an astonishing and record 100" extra snow this year. To be blunt, highly complex processes are happening in this gigantic forest as all aspects and species within are forced to exist and adapt within this new climate regime - and too often humans are the monkey wrench in larger scale processes that we cannot see or do not value. It was, for instance, once so with fire - fire was a devalued ecological process. And while the correction towards prescribed fire was highly appropriate in the 70s 80s and 90s when we had predictable amounts of monsoon and winter moisture, our entrance to the new climate regime requires FAR more caution.

Given that trees are the wonderful active CO2 capturers that they are, the most recent science, indeed an increasing amount of science in this arena worldwide, finds that retaining our forests, reforestation, and planting new trees, is our best chance for massively putting the breaks on climate change. This makes it impossible not to see our existing forests as far more valuable as viable carbon sinks and carbon storage, than 'restoring health to the forest' by releasing all that carbon in burned trees just to supposedly optimize for their distribution patterns. Given the state of our climate uncertainty, we need to leave the forests alone to adapt as they can while mitigating climate change and actively adapting to changes in temperature by replanting appropriate forests to replace vanishing pinon-juniper. In fact I wish the Forest Service would engage in more 'restoration' in the customary sense of the word, and replant areas they have burned.

This proposal gives no reasoning for your tiny amount of road decommissioning and relatively large amount of road-building/repair/surfacing. The Forest Service says, it is only 94 miles. Yet even this degree of roadwork is one of the most costly and destructive things that can be done to the forest. Moreover, roads are a primary cause of the most expensive and largest forest fires because they enable humans, the primary starter of all fire on the forest (84%-90% are started by humans and their stuff - 15-25% due to suspended electrical lines), to get deeper into the forest more easily.

Therefore I argue that the Forest Service has it exactly backwards - you are building roads so you can go deeper into the forest to 'fix' forest structure back to what you think it should be 'for the health of the forest' -

despite 1. what 'the health of the forest shall be, is highly uncertain due to extreme climate instability, and 2. your enabling of fire deeper in the forest through road surfacing surely counters 'forest health'. Meanwhile your actions have the unintended consequence of sacrificing actual forest health in order to restore your idea of what forest health was- which may no longer be applicable.

I therefore request a cost/benefit analysis of your surfacing of roads, especially those assisted in order to support heavy machinery you wish to take into the forest; and of prescribed fire itself, in terms of short and long-term impacts on species viability, habitat sufficiency, interference with breeding, mating, and migrating seasons, all other impacts on species distribution in the forest and resulting unintended consequences.

Yet because roads are highly destructive in themselves, and bring pests, invasive species, hydrogeographic changes, and increase the risks of FIRE, you should not build them, surface them, but decommission them. Please examine the relevant costs, benefits and risks, as they are clearly not incorporated into your current analysis.

I request that you assess and analyze this system for metrics on the quality of ecosystem services provided by the forest, and how they are disrupted or impacted by the proposed actions, for costs to intrinsic ecological infrastructure such as hydrogeography, and discussion of what real resilience looks like on this landscape across our relevant species, habitat, soil, air and water. In addition,

-A multitude of risk assessment models should be used to assess the many ignitions required to do prescribed burns, which intrinsically and as proven by our own experience on the west side of the SFNF are dangerous - in order to analyze and assess the risks of any prescribed burn done by the Forest Service.

-what cost/benefit analysis or models have been done to various aspects of your treatment plan, e.g. costs/benefits of prescribed burning, riparian restoration, road building and resurfacing.

I request that you assess, evaluate, and analyze all of the matters below, and respond to these concerns with data and scientific references. I request that you analyze all scientific data - epidemiological, biochemical, ecological, climatological and all other relevant data -and assess the impacts to not just the forest, but all forest inhabitants including humans.

Health impacts - aside from smoke, which warrants its own discussion and investigation by the city and county -the "aerial ignition" that you mention is bombing our forests from the air with neurotoxin and chemical-filled ping-pong balls that combust on impact with both organics (plants, trees, your dog, your hand) and METALS. But metals are one way people on the WUI have been advised by the Forest Service to use in defending themselves against fire. It seems to me one of the most predictable risky ventures is to use any such form of aerial ignition near the Woodland Urban Interface, as you have a HEIGHTENED LIKELIHOOD of causing undesired fire. The combination in these golf balls is potassium permanganate plus antifreeze; what are the current risks of using both of these chemicals, given that they are toxic and KMNO4 is a neurotoxin? What is the effect on our rivers and their aquatic life? On the soil and its life? What happens to their residues and what metabolites are left? How toxic are these materials considered now, and how much of it and where would you be using it? What other health and safety issues are involved with any other chemical treatments on the forest, including pesticides, slurry, or anything else?

**EXTREME CLIMATE INSTABILITY AND LAST COMMENTS (FOR NOW, references and more to follow)**

From a complex systems perspective, the Forest Service is trying to reach what it believes is the 'ideal' state - but that is not necessarily any longer an attractor in this or any other system given the increasing temperatures. Or if I put it in layman's terms, you are going to burn lots of the forest to rearrange some trees, in the hopes that what is left will survive through any further fires? This is trying to rearrange your clothes when you are falling off a cliff, we have virtual certainty that our temperatures will continue rising throughout the next century, so shouldn't we be first selecting for climate and drought-tolerant trees by allowing them to go through this transition period, and see where our ecosystem is headed?

We do not even know if these patterns of trees and other ecosystem 'standards' the FS seems to be trying to achieve, are any longer at all achievable, given warming and other new climactic patterns. What is clear is that Santa Fe's trend and changing climate may not be towards what the Forest Service assumes - or at least

when asked if they believe Santa Fe will become like Albuquerque's ecosystems, they agree and say 'or even more like El Paso' - a far lower, completely desert??, when it could instead tend toward temperate rainforest

Genetically speaking, resilience with respect to temperature - so that the forest can keep existing! - is far more important than resilience to wildfire, which is far more probabilistic than the certainty of increased temperatures.

As the world struggles to find ways of slowing global warming, there are few that are less costly than NOT spending millions of dollars to release carbon via purposely burned forests! It is virtually insane to do the opposite of preventing climate change.

Rather than burn +40,000 acres and make lots of surfaced roads for giant trucks which we DO NOT WANT and DO NOT BELONG on the SFNF, we suggest the more current scientific approach of defending the perimeter of homes that are in the WUI, and otherwise seeking to prevent fires starting nearby.

## THE FOREST YOU BURN IS IRREPLACEABLE

The FS' basic assumption is that recovery of these areas will happen. Current evidence is to the contrary - 'thinning' in La Cueva has not recovered, nor has there been any remediation by the FS. The pinon-juniper forest will not recover, as it is slow growing and seeding to higher altitudes given increasing temperatures, if at all. Yet the FS is not claiming it will really 'restore' forest - they mean something different, restore it to an idea of the forest that they have, or that USED TO BE.

In fact, it is unlikely that slow-growing pinon (at 3 inches a year) will replace itself at all in many of the places fire has already been used, yet much of the forest in the plan is pinon that is not fire-adapted yet is thriving better at altitudes of 7500 than much lower in Santa Fe proper.

In other words, entire ecosystems are shifting under the dual pressures of humans themselves, and the changing weather and climate we have created. Another example of this is in GTR-310 itself which gives the altitude of ponderosa forest

When systems are already under stress because they are shifting, is NOT the time for us to interfere in them, for humans are a massive and horrendous, the worst, in fact, stressor to the forest.

1. The case for a serious EIS and even beyond that, additional risk assessment and cost/benefit analysis for the people, the forest, the city and the county is also the case for waiting to burn our forests: things are changing drastically and we cannot predict how. This Project plan is based on 20th century science and pre-climate change assumptions of ecosystem and other behavior. We need 21st century science - which finds that the so-called megafires are more a function of 'fire weather' including Santa Ana winds and extremely high temperatures that generate cyclonic fires and heat- than of the actual fuels available do. Conflating this with biomass-density risk is problematic and unproven for our high altitude temperatures.
2. The FS seems to be of the idea that we must have an all or nothing approach to prescribed fire, that you are either for its use as a tool or not. I would instead say that most people believe that prescribed fire should be the tool of LAST APPROACH, not a no-fire policy - but that any such fire be examined in the light that it is burning irreplaceable forest under climate change condition.
3. You have not had a discussion with our community about this level of burning (see section 1: DISPUTE YOUR INVOLVEMENT OF THE PUBLIC), certainly not to the extent where we could discuss alternatives with you.
4. The most recent science - which finds that deforestation is a huge problem and climate change - and the threat of mega-fires, I might add - is best dealt with by keeping our forests and planting new trees. If the Forest Service wants to rely on the science to determine and justify its actions, then it should revisit its use of 20th century science, and use both the latest scientific approaches to our worst and most certain enemy, climate change and inevitable temperature rise.
5. In other words, we have far bigger problems than rearranging tree stands, building unneeded roads to suit, and burning thousands of acres to suit the Forest Service's belief about what is best for this forest, when

we have provable and certain threats to the SFNF as a whole in climate change and extreme climate instability that is already occurring. Please reprioritize accordingly!

Additional important notes for the SFNF Forest Service:

I. Your process: first, your public involvement process does not reflect the desired transparency and public engagement, and betrays instead an unwillingness to inform the public. Two public meetings 14 and 19 days in to the 30 day period, NOT located in the Project area, not posted in any of the project area neighborhoods, and a truly insignificant amount of PR activity around any of this. You actually listed in a handout how you have gone 'over and beyond' requirements for public involvement but not even those four events were public; two were requested by individuals.

II. Further, I complain that this is an unwarrantably short deadline, first because it is virtually impossible to complete reading of all of the relevant scientific literature in 30 days, and second, I need to do that myself if only because the Forest Service was highly UNRESPONSIVE to questions about recent research that does not support their claims of the necessity to use so much prescribed fire.

III. At the Canada de los Alamos meeting referred to as 'public' by the Forest Service, we were in fact told that we would have 60 days to do scoping comments. Even that is inadequate for a real review of this huge project directly abutting the capitol city of Santa Fe, one of the largest projects ever proposed on this forest. Yet the Forest Service claims, without justification, that the SFMLRP does not deserve a full Environmental Impact Statement, despite clear risks to one of the largest populations in New Mexico, despite clear risks to the air quality that supports our tourism, wilderness, art, and film markets, not to mention the health impacts on both residents, visitors, and animals? I object to this and request a full environmental impact statement (EIS) which is justified by both the letter and the spirit of the law.

IV. A further general comment on the Project proposal itself: it is far too vague about what is important, and far too specific in laying out particular ways the Forest Service believes they need to reorganize trees and other ecosystem components in the landscape. Their description is however, undocumented by any attached scientific references, and without those I cannot comment on the appropriateness of major aspects of the project plan. In fact, the 'conditions-based' approach it employs, with no locations set forth for us to be able to consider actual sites near our homes, businesses, neighborhood, makes it impossible for me to comment on the scientific or any other basis for the actions they propose. This fact makes a mockery of the public involvement process, and requires the scoping comment period be extended to after you present us with the site-specific data, which was promised to us BEFORE the scoping letter, at the Forest Service's December 2018 pre-scoping meeting.

V. Therefore I formally request this plan be amended with site-specific data and RE- presented to the public as well as the city, county and state for scoping comments. Only with site-specific proposals can they consider the associated risk and cost-benefit calculations (will insurance increase, KNOWING the Forest Service plans to burn near many of the most expensive homes in Santa Fe county?).

However, despite your imposed restrictions on our knowledge of your actual project plan, I make these additional scoping comments in an attempt to address relevant and known concerns, often ones you have glossed over or not made clear in the proposal. There are valid concerns that merit much further discussion and not a drive-by 30 day comment period that includes summer vacation AND the 4th of July holiday. It almost looks like you are trying to minimize opinion!

So please re-open this project, discuss it with THE PUBLIC including neighborhoods affected, and let us work together with our local governments to keep us all safe AND the forest healthy in the new world system in which we find ourselves.