Dear Santa Fe National Forest,

I address you with a primary, significant concern: in your plans for the forest, you are ignoring not just the direct impacts of climate change, but the implications severe and accelerated climate change has for the basic assumptions and plans you are making for these forests.

Accelerating climate change makes your plan for ponderosa restoration extremely damaging, if not completely destructive, to ponderosa in these forests.

The protocol you have used for ponderosa restoration will not work under climate change conditions.

How will any new ponderosas be propagated, when your approach is

1. Thinning: removal of 90-95% of all trees. This includes all ponderosas 3-20 ft tall, as well as most if not all pinon/juniper. (do correct me, but this is what your work on the Santa Fe looks like)
2. Prescribed burning: low intensity burn of all understory, presumed to leave remaining ponderosa, both oldest/biggest trees, and ponderosa saplings, relatively unharmed.
3. Repeated burning at roughly 3 year intervals

This normally removes most intermediate-size and age trees, as well as the understory – leaving oldest/best trees, and youngest trees/saplings.

Sounds great, but under accelerating climate change, two additional things happen:

4. 100% of all ponderosa saplings in drought conditions will **die** (Partelli-Feltrin et al, 2020: https://doi.org/10.3390/fire3040056) – even in low fire intensity conditions. While specific conditions in parts of our forest may preserve ponderosa saplings, under maintained drought stress + climate change conditions – there will be no crop of young saplings under this treatment.
5. Further, according to many others as well as Kolb et al, 2007 (https://doi.org/10.1016/j.foreco.2007.06.002) , "stimulation of growth of old trees by thinning can be negated by severe drought... Prescribed, low-intensity burning may attract bark beetles and increase mortality of old trees from beetle attacks" –

So, not only will your treatment NOT provide the desired result, but it is highly likely, under our ongoing drought conditions and your applications of prescribed fire, that our oldest and best ponderosas will die from combined stressors, including fire and its entry to bark beetles.

This would then denude forest of the thinned, younger trees; the saplings providing next generations; and with combined stressors including prescribed fire, older, stressed ponderosas.

What ponderosas does this leave?

Ah yes, new seedlings can start. But – can they survive, with no chance to adapt to untypical and out-of-range temperature changes, intermittent and excessive rains, and competitive invasive species brought by forest roads and created a specific avenue by prescribed fire? Literally, no one knows or can tell how resilient these trees will be to the tremendous stresses brought by accelerating climate change – so we are merely HOPING that even newer ponderosa seeds can sprout and survive. Even then, they will hit your 'every 3 years, prescribed fire' – NEVER the fire return rate in these forests.

If new seedlings arising are still under drought stress when you then burn every 3 years – 100% will burn in low-intensity fire.

How is this a living forest if you cut down the intermediate trees, burn the understory, weakened the biggest trees which will now perish due to some other stress, and killed the saplings? And repeatedly kill new seedlings?

Unless your AIM is to kill the forest and denude it of trees, please reevaluate this entire approach, and consider a pause for the forest over the next 5-10 years while we know and understand more about the conditions these trees will be living under.

For your actions under accelerating climate change will leave only a desert. You will have destroyed the ability of these forests to call the rain, to mitigate erosion and flooding, to maintain soil porosity and moisture, to welcome seeds to a new forest. Please rethink this pattern that used to work – it will no longer.

Please STOP assuming these trees, this forest, is resilient to everything that humans can do – it is not. Even worse, humanity has created ongoing climatological stresses that require every bit of genetic variation and resilience to stressors that that they have – they need the genetics represented by the vast array of ponderosas that currently exist. For you to select out a few, is to damage the mechanism by which these trees and these forests can evolve. Unless you want that section dead, during this transitional climatological time, these NNM forests cannot afford to give more to us, they need their resilience to survive. And by doing so, they will help moderate the climate, temperature, oxygen and water of Northern New Mexico, at a time we need the strongest anchors to the homeostatic norm that we can manage.

For the sake of the science which is clear: these trees, these NNM forests, will undergo tremendous hardship in the next few decades at least, while human action decides the fate of our biosphere. Please rethink all assumptions that you have made regarding these forests and their plan – very few assumptions you have left over from the 1970s, or even the 2000s, will stand.

And whether our forests have the resilience to maintain themselves under current pressures – much less, the additional stressors of prescribed fire and destruction of their mycorhizzal/root/communication networks by 90% thinning – is in your hands.

Do know that we will never forgive you, if you destroy these forests simply to sate the timber and fire industries.

Thank you for reading these comments. I would appreciate direct comments back to me.

Valerie Gremillion, Ph.D