14 September 2025

Brooke Rollins
U.S. Agriculture Secretary,

Secretary Rollins,

On behalf of the undersigned organizations, we write to strongly oppose the Trump Administration's proposal to rescind the 2001 Roadless Rule. Based on the following, this proposal should be withdrawn.

The August 29, 2025 proposal in the Federal Register claims that the Roadless Rule must be rescinded to allow road building and logging, which includes thinning and post-fire logging, ostensibly to curb wildfires, protect communities from wildfires, improve the ecological health of forests, and reduce tree mortality. The proposal, among other things, claims the following:

> The proposed rule responds to the need for national forests to take swift and immediate action to reduce wildfire risk and help protect surrounding communities and infrastructure. It would allow local managers, as deemed appropriate and consistent with land management plans, to build roads and implement active forest management practices (for example, timber sales and thinning) in inventoried roadless areas.
>
> (Federal Register, Volume 90, page 42181).

However, the proposal to rescind the Roadless Rule is based on a series of flawed and inaccurate assumptions about wildfire, forest ecosystems, community protection, and the influence of forest management activities like road building and logging, as discussed in detail below.

<u>Inadequate Range of Alternatives</u>

The Federal Register notice for this proposal states an intention to analyze the proposal to rescind the Roadless Rule, and no action (retaining the Roadless Rule as is), as the only alternatives that would be analyzed in the Environmental Impact Statement (EIS). This would be an inadequate range of alternatives under the National Environmental Policy Act (NEPA). Based on the information and evidence discussed in the following sections of these comments, we request that you also fully analyze the following additional alternative:

- An action alternative that would (a) eliminate the current loopholes in the Roadless Rule that allow logging in Roadless Areas, (b) prohibit all thinning, post-fire logging, and any other form of logging and tree removal in Roadless Areas, regardless of the claimed rationale for such logging by the U.S. Forest Service, (c) prohibit livestock grazing, mining, and oil and gas drilling and extraction in Roadless Areas, and (d) with regard to fire, prioritize managed wildfire in Roadless Areas, as well as Indigenous cultural burning in Roadless Areas or portions of Roadless Areas in which there was a history of such cultural burning.

Are forests in Roadless Areas more likely to burn than forests in roaded, managed forests?

No. In fact, a three-decade analysis of wildfires found that fires are 2 to 4 times more likely to occur in roaded areas (generally, the managed forest landscape) than in Roadless Areas (Aplet et al. 2025, in review: https://www.wilderness.org/sites/default/files/media/file/Summary%20NFS%20roads%20fire%20paper%20-%202025.pdf). Other research has found that 90% of all wildfires occur within half a mile of a road, and there is a highly significant correlation between proximity to roads and increased wildfire occurrence (Morrison 2007: https://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf). There are currently about 360,000 miles of roads on U.S. national forests—mainly old logging roads—according to the U.S. Forest Service itself (USFS 2025, p. 87: https://www.fs.usda.gov/sites/default/files/fs-fy26-congressional-budget-justification.pdf). This is enough to circle the Earth more than 14 times. The notion that national forests need more roads is absurd.

Do Roadless Areas burn more intensely than forests in roaded, managed forests?

No. One large study, analyzing three decades of wildfire data in Roadless Areas and roaded forests, found that "there was no significant difference in fire severity between roadless areas and roaded areas after accounting for biophysical differences" (Johnston et al. 2021: https://iopscience.iop.org/article/10.1088/1748-9326/ac13ee). Johnston et al. (2021) concluded that "management regime had no influence on fire severity in any of the statistical models". In other words, the road building and logging in the managed forest landscape did not reduce wildfire severity. Johnston et al. (2021) further found that a larger proportion of Roadless Areas experienced wildfire over the three decade study period in significant part because "large remote landscapes allow managers flexibility to allow fires to burn when these fires are compatible with resource management objectives", and because fire suppression forces naturally focus efforts near homes, which tend to be surrounded by or adjacent to managed, roaded forests. The authors concluded that land managers' practice of allowing more fires to occur in Roadless Areas without trying to suppress them "may confer resilience to these landscapes in the face of climate change." An even larger study across the entire western U.S., which also analyzed three decades of wildfire data, specifically compared Roadless Areas and other protected forests to roaded, managed forests in the very same forest types, for a close comparison, and found that managed, roaded forests had higher wildfire severity (Bradley et al. 2016: https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.1492).

<u>Does thinning, post-fire logging, or other logging in forest wildlands protect communities from wildfires?</u>

No. In fact, such management likely increases the threats of wildfire to communities for three main reasons. First, thinning and other tree removal activities reduces the windbreak effect that denser forests have, and causes winds to move much faster through forests, which increases the speed of wildfires, giving communities less time to safely evacuate and first responders less time to arrive and help. A comprehensive recent study by Balch et al. (2024: https://www.science.org/doi/10.1126/science.adk5737) found that higher speed is the main factor associated with large losses of homes and lives in wildfires. Balch et al. (2024) noted that wildfires spread much faster through less dense vegetation with "low wind friction". Second, when land managers conduct thinning, post-fire logging, and other logging projects out in Roadless forests, distant from homes, and tell communities that such logging will stop wildfires from reaching homes, this can give communities a dangerous false sense of security, which can reduce motivation to conduct proven, highly effective community fire safety activities, such as home hardening, defensible space pruning, and evacuation planning. By focusing on forest wildlands, instead of on the communities themselves, land managers put communities at greater risk, as the Forest Service's own scientists recently concluded in Calkin et al. (2023: https://www.pnas.org/doi/10.1073/pnas.2315797120). Third, this proposal to rescind the Roadless Rule and allow rampant logging, including mechanical thinning and post-fire logging, ostensibly to curb wildfires and protect communities, ignores the fact that a large body of science from the U.S. Forest Service's own scientists finds that mechanical thinning and post-fire logging actually increase wildfire severity. Below are citations to a number of ***sources from the Forest Service itself*** finding that mechanical thinning or post-fire logging increases fire severity, denser forests burn less intensely, and that the only zone relevant to protecting communities from fire is the defensible space zone within about 100 feet or less around each home or other human structure:

Lesmeister, D.B., et al. 2019. Mixed-severity wildfire and habitat of an old-forest obligate. Ecosphere10: Article e02696.

> "Thinned forests have more open conditions, which are associated with higher temperatures, lower relative humidity, higher wind speeds, and increasing fire intensity. Furthermore, live and dead fuels in young forest or thinned stands with dense saplings or shrub understory will be drier, making ignition and high heat more likely, and the rate of spread higher because of the relative lack of wind breaks provided by closed canopies with large trees."

Lesmeister, D.B., et al. 2021. Northern spotted owl nesting forests as fire refugia: a 30-year synthesis of large wildfires. Fire Ecology 17: Article 32.

> Lower-density forests had higher fire severity, because such forests have "hotter, drier, and windier microclimates, and those conditions decrease dramatically over relatively short distances into the interior of older forests with multi-layer canopies and high tree density…"

Lydersen, J. M., M. P. North, and B. M. Collins. 2014. Severity of an uncharacteristically large wildfire, the Rim Fire, in forests with relatively restored frequent fire regimes. Forest Ecology and Management 328:326–334.

> Forests with “a greater small tree density tend[ed] to burn with lower severity.”

Meigs, G.W., et al. 2020. Influence of topography and fuels on fire refugia probability under varying fire weather in forests of the US Pacific Northwest. Canadian Journal of Forest Research 50: 636-647.

> Forests with higher pre-fire biomass are more likely to experience low-severity fire.

Thompson, J.R., Spies, T.A., Ganio, L.M. 2007. Reburn severity in managed and unmanaged vegetation in a large wildfire. Proceedings of the National Academy of Sciences of the United States of America 104: 10743–10748.

> “Areas that were salvage-logged and planted after the initial fire burned more severely than comparable unmanaged areas.”

Thompson, J., and T.A. Spies. 2010. Exploring Patterns of Burn Severity in the Biscuit Fire in Southwestern Oregon. Fire Science Brief 88: 1-6.

> “Areas that burned with high severity…in a previous wildfire (in 1987, 15 years prior) were more likely to burn with high severity again in the 2002 Biscuit Fire. Areas that were salvage-logged and planted following the 1987 fire burned with somewhat higher fire severity than equivalent areas that had not been logged and planted.”

Thompson, J.R., Spies, T.A. 2009. Vegetation and weather explain variation in crown damage within a large mixed-severity wildfire. Forest Ecology and Management 258: 1684-1694.

> Mature forests with higher canopy cover had lower fire severity.

Hardage, K., et al. 2022. Soil moisture and micrometeorological differences across reference and thinned stands during extremes of precipitation, southern Cascade Range. Frontiers in Forests and Global Change 5: Article 898998.

> Windspeeds were 15 to 20 times higher in thinned forests relative to unthinned forests.

Graham, R., et al. 2012. Fourmile Canyon Fire Findings. Gen. Tech. Rep. RMRS-GTR-289. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 110 p.

> Thinned forests “were burned more severely than neighboring areas where the fuels were not treated”, and 162 homes were destroyed by the Fourmile Canyon Fire (see Figs. 45 and 46).

Countryman, C.M. 1956. Old-growth conversion also converts fire climate. Fire Control Notes 17: 15-19.

Fire will spread 4.5 times faster in an open forest area compared to a dense forest area, and fire in an open forest will require 20 times the fire suppression effort as fire in a dense forest.

Reilly, M.J., et al. 2022. Cascadia Burning: The historic, but not historically unprecedented, 2020 wildfires in the Pacific Northwest, USA. Ecosphere 13: e4070.

Weather conditions primarily determined fire severity, and forest density was not a factor.

"We found minimal difference in burn severity among stand structural types related to previous management in the 2020 fires. Adaptation strategies for similar fires in the future could benefit by focusing on ignition prevention, fire suppression, and community preparedness, as opposed to fuel treatments that are unlikely to mitigate fire severity during extreme weather."

Morris, W.G. 1940. Fire weather on clearcut, partly cut, and virgin timber areas at Westfir, Oregon. Timberman 42: 20-28.

More severe fire weather microclimate in thinned forests.

SNEP. 1996. Sierra Nevada Ecosystem Project, Final Report to Congress: Status of the Sierra Nevada. Vol. I: Assessment summaries and management strategies. Davis, CA: University of California, Davis, Center for Water and Wildland Resources.

"Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity."

Chen, J., et al. 1999. Microclimate in forest ecosystem and landscape ecology: Variations in local climate can be used to monitor and compare the effects of different management regimes. BioScience 49: 288–297.

A more severe fire weather microclimate is created in open forests compared to denser forests.

Dombeck, M. (**U.S. Forest Service Chief**). 2001. How Can We Reduce the Fire Danger in the Interior West. Fire Management Today 61: 5-13.

"Some argue that more commercial timber harvest is needed to remove small-diameter trees and brush that are fueling our worst wildlands fires in the interior West. However, small-diameter trees and brush typically have little or no commercial value. To offset losses from their removal, a commercial operator would have to remove large, merchantable trees in the overstory. Overstory removal lets more light reach the forest floor, promoting vigorous forest regeneration. Where the overstory has been entirely removed, regeneration produces thickets of 2,000 to 10,000 small trees per acre, precisely the small-diameter materials that are causing our worst fire problems. In fact, many large fires in 2000 burned in previously logged areas laced with roads. It seems unlikely that commercial timber harvest can solve our forest health problems."

USFS (U.S. Forest Service). 2022. Gallinas-Las Dispensas Prescribed Fire Declared Wildfire Review. U.S. Forest Service, Office of the Chief, Washington, D.C.

Thinning plus prescribed burning resulted in the largest fire in New Mexico's recorded history and burned down multiple towns.

Thinning reduced canopy cover, increasing growth of combustible grasses; associated pile burning caused a huge wildfire, spreading rapidly through thinned areas, burning many homes.

Calkin, D.E., Barrett, K., Cohen, J.D., Finney, M.A., Pyne, S.J., and Quarles, S.L. 2023. Wildland-urban fire disasters aren't actually a wildfire problem. Proceedings of the National Academy of Sciences of the United States of America. 120: e2315797120.

Thinning, and other logging and vegetation removal under the rubric of fuel reduction, in wildlands ostensibly to protect communities from wildfire—the current approach of the Forest Service—is ineffective and counterproductive; instead, the Forest Service should focus directly on helping communities to become fire-safe through proven community-focused methods that are deployed in and immediately adjacent to towns.

Cohen, J.D. 2000. Preventing disaster: home ignitability in the wildland-urban interface. Journal of Forestry 98: 15-21.

The only relevant zone to protect homes from wildland fire is within approximately 100 feet or less from each home—not out in wildland forests.

In addition, hundreds of scientists from universities and non-governmental organizations also find that, while fire alone can and will modify and reduce subsequent fire behavior, thinning is either ineffective or counter-productive—exacerbating wildfire intensity and effects, killing more trees that it prevents from being killed, and causing a large net increase in carbon emissions relative to wildfire alone—while the only effective way to protect homes and lives from wildfires is to focus on the communities themselves:

Moomaw et al. (2020) (letter from over 200 scientists: https://johnmuirproject.org/2020/05/breaking-news-over-200-top-u-s-climate-and-forest-scientists-urge-congress-protect-forests-to-mitigate-climate-crisis/):

"Troublingly, to make thinning operations economically attractive to logging companies, commercial logging of larger, more fire-resistant trees often occurs across large areas. Importantly, mechanical thinning results in a substantial net loss of forest carbon storage, and a net increase in carbon emissions that can substantially exceed those of wildfire emissions (Hudiburg et al. 2013, Campbell et al. 2012). Reduced forest protections and increased logging tend to make wildland fires burn *more* intensely (Bradley et al. 2016). This can also occur with commercial thinning, where mature trees are removed (Cruz et al. 2008, Cruz et al. 2014). As an example, logging in U.S. forests emits 10 times more carbon than fire and native insects combined (Harris et al. 2016). And, unlike logging, fire cycles nutrients and helps increase new forest growth."

Moomaw et al. (2021) (letter from over 200 scientists: https://bit.ly/3BFtIAg):

"[C]ommercial logging conducted under the guise of "thinning" and "fuel reduction" typically removes mature, fire-resistant trees that are needed for forest resilience. We have watched as one large wildfire after another has swept through tens of thousands of acres where commercial thinning had previously occurred due to extreme fire weather driven by climate change. Removing trees can alter a forest's microclimate, and can often increase fire intensity. In contrast, forests protected from logging, and those with high carbon biomass and carbon storage, more often burn at equal or lower intensities when fires do occur.

Kelp, M., et al. 2025. Effect of recent prescribed burning and land management on wildfire burn severity and smoke emissions in the western United States. AGU Advances 6: Article e2025AV001682.

There was no significant effect of thinning on wildfire severity, including thinning in combination with other actions like pile burning and post-thinning prescribed fire, while previous burning (prescribed fire) significantly reduced wildfire severity.

Gibbons P, van Bommel L, Gill MA, Cary GJ, Driscoll DA, Bradstock RA, Knight E, Moritz MA, Stephens SL, Lindenmayer DB. 2012. Land management practices associated with house loss in wildfires. PLoS ONE **7**: Article e29212.

Defensible space pruning within less than approximately 100 feet from homes was effective at protecting homes from wildfires, while vegetation management in remote wildlands was not.

Syphard, A.D., T.J. Brennan, and J.E. Keeley. 2014. The role of defensible space for residential structure protection during wildfires. Intl. J. Wildland Fire 23: 1165-1175.

Vegetation management and removal beyond approximately 100 feet from homes provides no additional benefit in terms of protecting homes from wildfires.

Balch, J.K., et al. 2024. The fastest-growing and most destructive fires in the U.S. (2001-2020). Science 386: 425-431.

The authors concluded that fast-moving wildfires comprise less than 3% of all U.S. fire events but account for 89% of all structures damaged or destroyed, and that fires move fastest in ecosystems that have "low wind friction" due to sparse or absent tree cover which is associated with a dominance of grasses. Firefighters quickly become "overwhelmed" by fast-moving fires.

Hakkenberg, C.R., et al. 2024. Ladder fuels rather than canopy volumes consistently predict wildfire severity even in extreme topographic-weather conditions. Communications Earth & Environment 5: Article 721.

In a huge analysis of 42 recent (2019-2021) wildfires in California's forests, dense, mature/old forests with higher canopy cover, higher biomass, and higher densities of "ladder fuels" (defined as seedlings and saplings beneath the forest canopy, less than 33 feet tall), had significantly ***lower*** wildfire severity (Figure 3 of the study). Younger forests with lower canopy cover, lower biomass, and intermediate densities of seedlings and saplings had the highest wildfire severity.

Hanson, C.T. 2021. Is "Fuel Reduction" Justified as Fire Management in Spotted Owl Habitat? Birds 2: 395-403.

Thinning followed by burning and post-fire logged areas had higher overall fire severity.

"Within the forest types inhabited by California Spotted Owls, high-severity fire occurrence was not higher overall in unmanaged forests and was not associated with the density of pre-fire snags from recent drought in the Creek Fire, contrary to expectations under the fuel reduction hypothesis. Moreover, fuel-reduction logging in California Spotted Owl habitats was associated with higher fire severity in most cases. The highest levels of high-severity fire were in the categories with commercial logging (post-fire logging, private commercial timberlands, and commercial thinning), while the three categories with lower levels of high-severity fire were in forests with no recent forest management or wildfire, less intensive noncommercial management, and unmanaged forests with re-burning of mixed-severity wildfire, respectively."

Baker, B.C., and C.T. Hanson. 2022. Cumulative tree mortality from commercial thinning and a large wildfire in the Sierra Nevada, California. Land 11: Article 995.

Thinning followed by burning increases overall fire severity.

"Similar to the findings of Hanson (2022) in the Antelope Fire of 2021 in northern California, in our investigation of the Caldor Fire of 2021 we found significantly higher cumulative severity in forests with commercial thinning than in unthinned forests, indicating that commercial thinning killed significantly more trees than it prevented from being killed in the Caldor Fire…Despite controversy regarding thinning, there is a body of scientific literature that suggests commercial thinning should be scaled up across western US forest landscapes as a wildfire management strategy. This raises an important question: what accounts for the discrepancy on this issue in the scientific literature? We believe several factors are likely to largely explain this discrepancy. First and foremost, because most previous research has not accounted for tree mortality from thinning itself, prior to the wildfire-related mortality, such research has underreported tree mortality in commercial thinning areas relative to unthinned forests. Second, some prior studies have not controlled for vegetation type, which can lead to a mismatch when comparing severity in thinned areas to the rest of the fire area given that thinning necessarily occurs in conifer forests but unthinned areas can include large expanses of non-conifer vegetation types that burn almost exclusively at high severity, such as grasslands and chaparral. Third, some research reporting effectiveness of commercial thinning in terms of reducing fire severity has been based on the subjective location of comparison sample points between thinned and adjacent unthinned forests. Fourth, reported results have often been based on theoretical models, which subsequent research has found to overestimate the effectiveness of thinning. Last, several case studies draw conclusions about the effectiveness of thinning as a wildfire management strategy when the results of those studies do not support such a conclusion, as reviewed in DellaSala et al. (2022)." (internal citations omitted)

DellaSala, D.A., B.C. Baker, C.T. Hanson, L. Ruediger, and W.L. Baker. 2022. Have western USA fire suppression and megafire active management approaches become a contemporary Sisyphus? Biological Conservation 268: Article 109499.

Thinning followed by burning increases overall fire severity.

With regard to a previous U.S. Forest Service study claiming that commercial thinning effectively reduced fire severity in the large Wallow fire of 2011 in Arizona, DellaSala et al. (2022, Section 5.1) conducted a detailed accuracy check and found that the previous analysis had dramatically underreported high-severity fire in commercial thinning units, and forests with commercial thinning in fact had higher fire severity, overall.

DellaSala et al. (2022, Section 5.2) also reviewed several U.S. Forest Service studies relied upon by Prichard et al. (2021) for the claim that commercial thinning is an effective fire management approach and found that the actual results of these cited studies did not support that conclusion.

Beschta, R.L.; Frissell, C.A.; Gresswell, R.; Hauer, R.; Karr, J.R.; Minshall, G.W.; Perry, D.A.; Rhodes, J.J. 1995. Wildfire and salvage logging. Eugene, OR: Pacific Rivers Council.

"We also need to accept that in many drier forest types throughout the region, forest management may have set the stage for fires larger and more intense than have occurred in at least the last few hundred years."

"With respect to the need for management treatments after fires, there is generally no need for urgency, nor is there a universal, ecologically-based need to act at all. By acting quickly, we run the risk of creating new problems before we solve the old ones."

"[S]ome argue that salvage logging is needed because of the perceived increased likelihood that an area may reburn. It is the fine fuels that carry fire, not the large dead

> woody material. We are aware of no evidence supporting the contention that leaving large dead woody material significantly increases the probability of reburn."

Morrison, P.H. and K.J. Harma. 2002. Analysis of Land Ownership and Prior Land Management Activities Within the Rodeo & Chediski Fires, Arizona. Pacific Biodiversity Institute, Winthrop, WA. 13 pp.

> Previous logging was associated with higher fire severity.

Donato DC, Fontaine JB, Campbell JL, Robinson WD, Kauffman JB, Law BE. 2006. *Science* 311: 352.

> "In terms of short-term fire risk, a reburn in [postfire] logged stands would likely exhibit elevated rates of fire spread, fireline intensity, and soil heating impacts…Postfire logging alone was notably incongruent with fuel reduction goals."

Hanson, C.T., Odion, D.C. 2006. Fire Severity in mechanically thinned versus unthinned forests of the Sierra Nevada, California. In: Proceedings of the 3rd International Fire Ecology and Management Congress, November 13-17, 2006, San Diego, CA.

> "In all seven sites, combined mortality [thinning and fire] was higher in thinned than in unthinned units. In six of seven sites, fire-induced mortality was higher in thinned than in unthinned units…Mechanical thinning increased fire severity on the sites currently available for study on national forests of the Sierra Nevada."

Platt, R.V., et al. 2006. Are wildfire mitigation and restoration of historic forest structure compatible? A spatial modeling assessment. Annals of the Assoc. Amer. Geographers 96: 455-470.

> "Compared with the original conditions, a closed canopy would result in a 10 percent reduction in the area of high or extreme fireline intensity. In contrast, an open canopy [from thinning] has the opposite effect, increasing the area exposed to high or extreme fireline intensity by 36 percent. Though it may appear counterintuitive, when all else is equal open canopies lead to reduced fuel moisture and increased midflame windspeed, which increase potential fireline intensity."

Cruz, M.G, and M.E. Alexander. 2010. Assessing crown fire potential in coniferous forests of western North America: A critique of current approaches and recent simulation studies. Int. J. Wildl. Fire. 19: 377–398.

> The fire models used by the U.S. Forest Service falsely predict effective reduction in crown fire potential from thinning:
>
> "Simulation studies that use certain fire modelling systems (i.e. NEXUS, FlamMap, FARSITE, FFE-FVS (Fire and Fuels Extension to the Forest Vegetation Simulator), Fuel Management Analyst (FMAPlus), BehavePlus) based on separate implementations or

direct integration of Rothermel's surface and crown rate of fire spread models with Van Wagner's crown fire transition and propagation models are shown to have a significant underprediction bias when used in assessing potential crown fire behaviour in conifer forests of western North America. The principal sources of this underprediction bias are shown to include: (i) incompatible model linkages; (ii) use of surface and crown fire rate of spread models that have an inherent underprediction bias; and (iii) reduction in crown fire rate of spread based on the use of unsubstantiated crown fraction burned functions. The use of uncalibrated custom fuel models to represent surface fuelbeds is a fourth potential source of bias."

DellaSala et al. (2013) (letter from over 200 scientists):

> "Numerous studies also document the cumulative impacts of post-fire logging on natural ecosystems, including…accumulation of logging slash that can add to future fire risks…"

DellaSala et al. (2015) (letter from over 200 scientists):

> "Post-fire logging has been shown to eliminate habitat for many bird species that depend on snags, compact soils, remove biological legacies (snags and downed logs) that are essential in supporting new forest growth, and spread invasive species that outcompete native vegetation and, in some cases, increase the flammability of the new forest. While it is often claimed that such logging is needed to restore conifer growth and lower fuel hazards after a fire, many studies have shown that logging tractors often kill most conifer seedlings and other important re-establishing vegetation and actually increases flammable logging slash left on site. Increased chronic sedimentation to streams due to the extensive road network and runoff from logging on steep slopes degrades aquatic organisms and water quality."

Bradley, C.M. C.T. Hanson, and D.A. DellaSala. 2016. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western USA? Ecosphere 7: article e01492.

> In the largest study on this subject ever conducted in western North American, the authors found that the more trees that are removed from forests through logging, the higher the fire severity overall:
>
> "We investigated the relationship between protected status and fire severity using the Random Forests algorithm applied to 1500 fires affecting 9.5 million hectares between 1984 and 2014 in pine (*Pinus ponderosa*, *Pinus jeffreyi*) and mixed-conifer forests of western United States, accounting for key topographic and climate variables. We found forests with higher levels of protection [from logging] had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading."

Dunn, C.J., et al. 2020. How does tree regeneration respond to mixed-severity fire in the western Oregon Cascades, USA? Ecosphere 11: Article e03003.

> Forests that burned at high-severity had lower, not higher, overall pre-fire tree densities.

Bartowitz, K.J., et al. 2022. Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context. Front. For. Glob. Change 5: Article 867112.

> The authors found that logging conducted as commercial thinning, which involves removal of some mature trees, substantially increases carbon emissions relative to wildfire alone, and commercial thinning "causes a higher rate of tree mortality than wildfire."

Evers, C., et al. 2022. Extreme Winds Alter Influence of Fuels and Topography on Megafire Burn Severity in Seasonal Temperate Rainforests under Record Fuel Aridity. Fire 5: Article 41.

> The authors found that dense, mature/old forests with high biomass and canopy cover tended to have lower fire severity, while more open forests with lower canopy cover and less biomass burned more severely.

<u>In real-world examples, has thinning or post-fire logging in forest wildlands, distant from towns, been effective at protecting homes and lives from wildfires?</u>

No, this approach is associated with large-scale losses of homes and lives in wildfires. Previous mechanical thinning and post-fire logging was wildly ineffective and counter-productive as a wildfire management and community protection approach when the Dixie fire occurred, for example.

The images below, from the Washington Post, show the devastation of the town of Greenville, after the Dixie fire swept up from the southwest, moving rapidly northeast through vast areas that had been mechanically thinned, before destroying most of the towns of Greenville and Canyondam, along with the smaller town of Indian Falls.

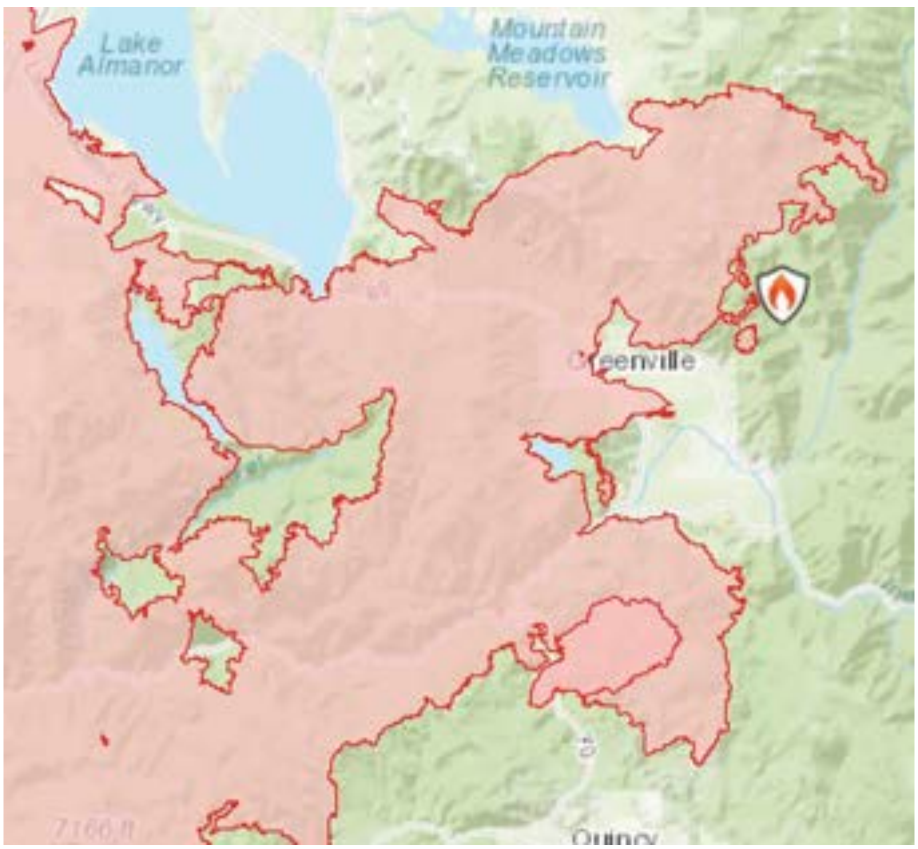
The damaged central business district.
STUART W. PALLEY FOR THE WASHINGTON POST

A burning structure in Greenville late Wednesday.
STUART W. PALLEY FOR THE WASHINGTON POST

The images below, from Google Earth, show numerous large areas of pre-fire mechanical thinning and earlier post-fire logging (after the 2012 Chips fire around Butt Valley Reservoir) on the Plumas National Forest, southwest, south, and southeast of the Greenville, Canyondam, and

Indian Falls areas, through which the Dixie fire swept before destroying most of the homes and businesses. For each location a pair of images is shown—one after mechanical thinning but before the Dixie fire, and the other after the Dixie fire. GPS coordinates of the imagery locations are shown at the bottom right margin of each. Most of the mechanically thinned and post-fire logged forests burned at high intensity, as the post-fire images show.

The images below represent all areas of mechanical thinning and/or post-fire logging of any significant size that could be identified as occurring within 15 years or so prior to the 2021 Dixie fire, and which were within the path of the fire as it approached Greenville, Canyondam, and Indian Falls. As the images show, the Dixie fire burned mostly or entirely at high intensity through all such areas. For spatial context, each of these images shows an area that is several thousand acres in size.



Dixie fire perimeter map showing the area on August 7, 2021, immediately after the fire, moving from the southwest to the northeast, destroyed Greenville and Canyondam. The map is from the inter-agency wildfire site, Inciweb: https://inciweb.wildfire.gov

Image Pair #1: Extensive previous post-fire logging on the Plumas National Forest, northeast of Butt Valley Reservoir, and a short distance southwest of Canyondam. The first image is from July 2, 2017, after post-fire logging, and the second is from August 7, 2021, just one day after the Dixie fire burned through this area and destroyed Canyondam.

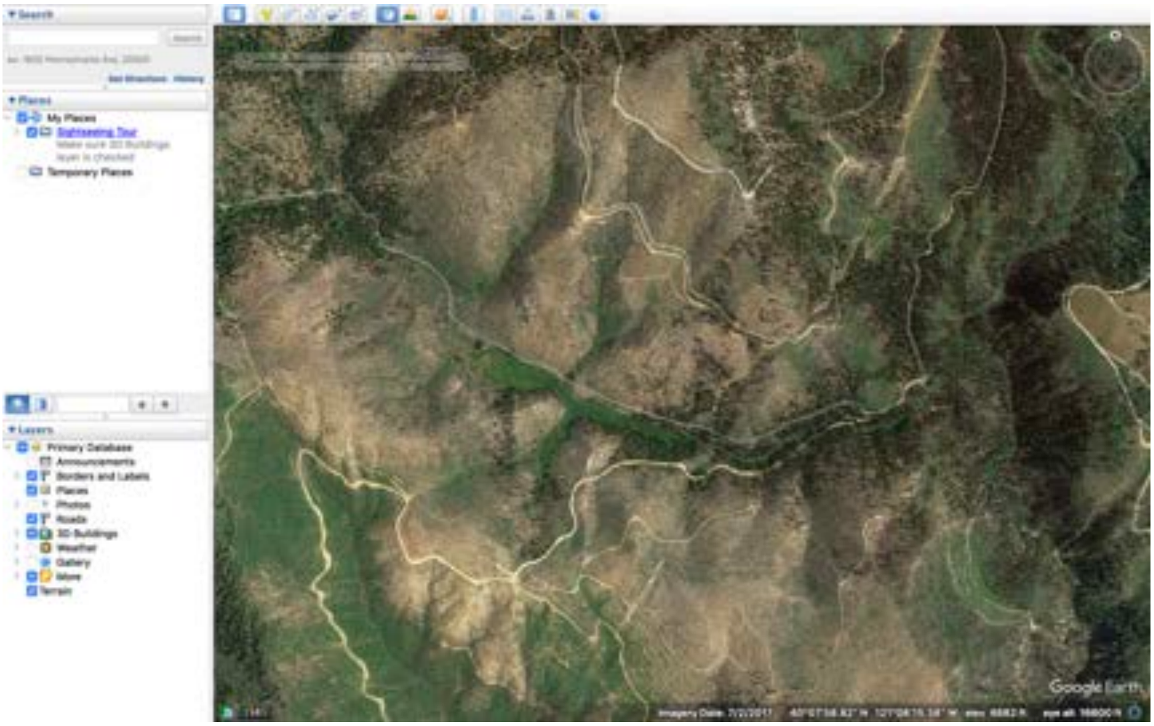
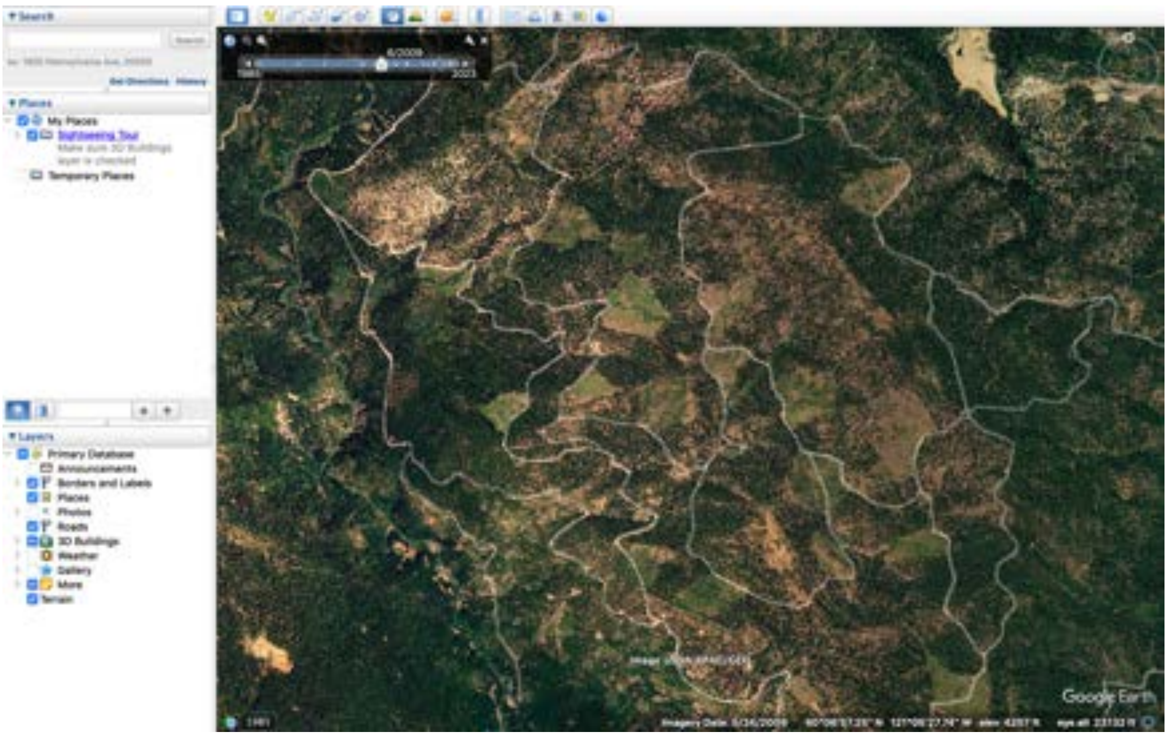


Image Pair #2: A large area that was mechanically thinned south of Canyondam. The first image is from May 24, 2009, after thinning, and the second image is from July 7, 2022 (note the almost total absence of live, green trees remaining in the thinned areas after the Dixie fire).



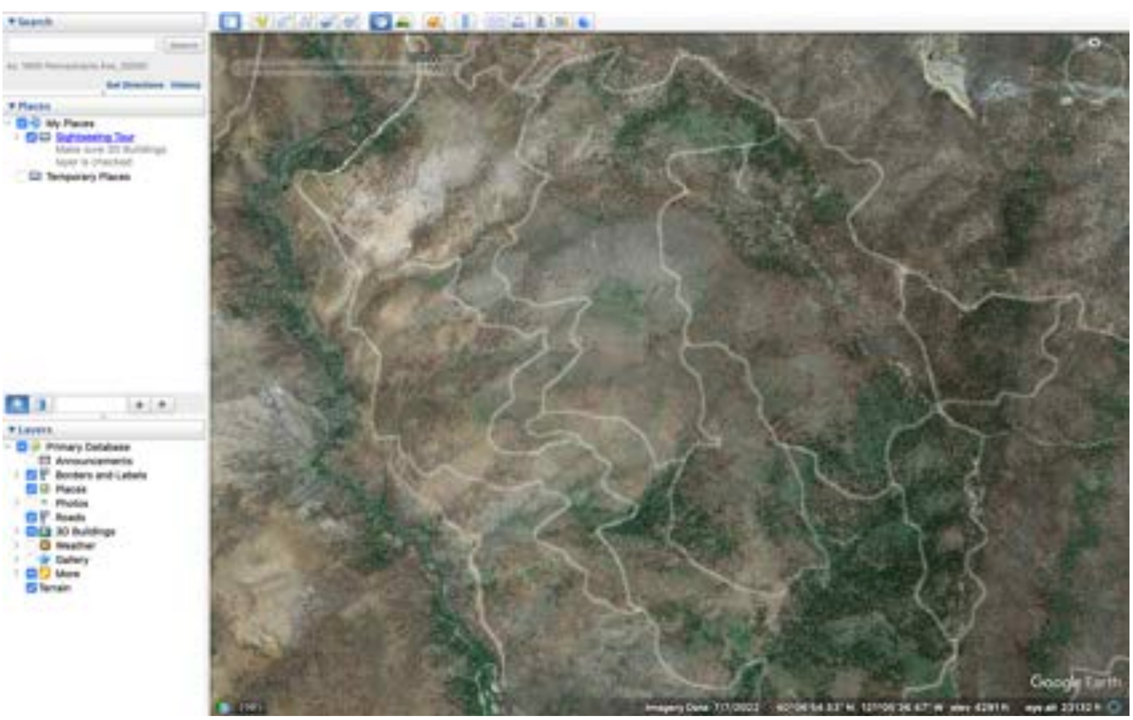
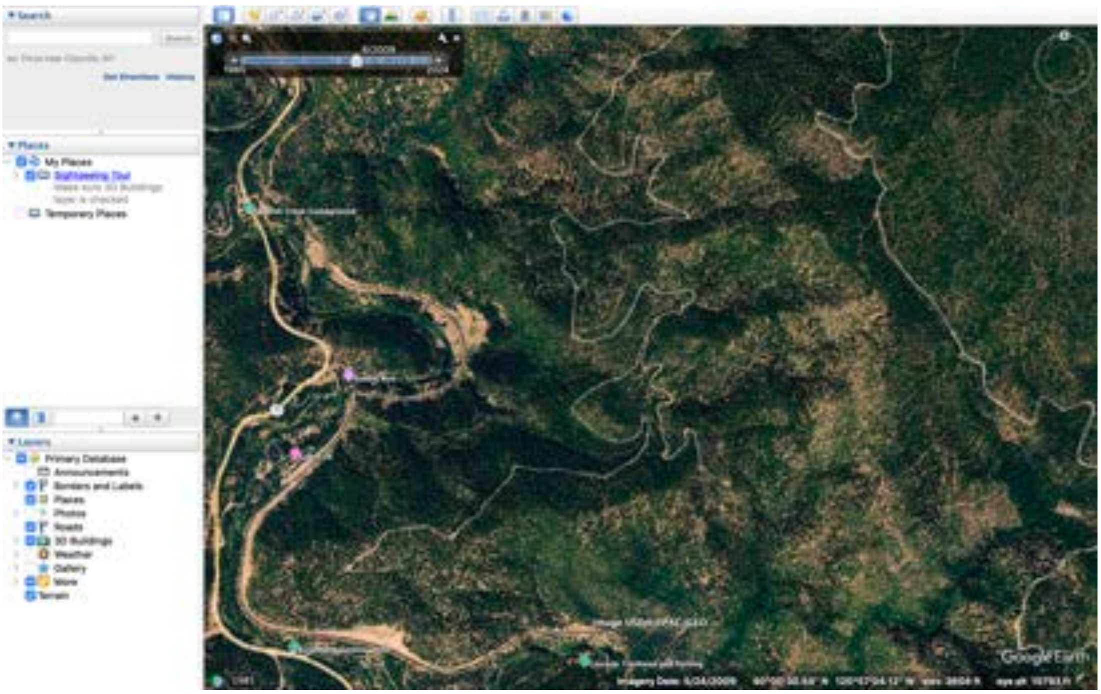
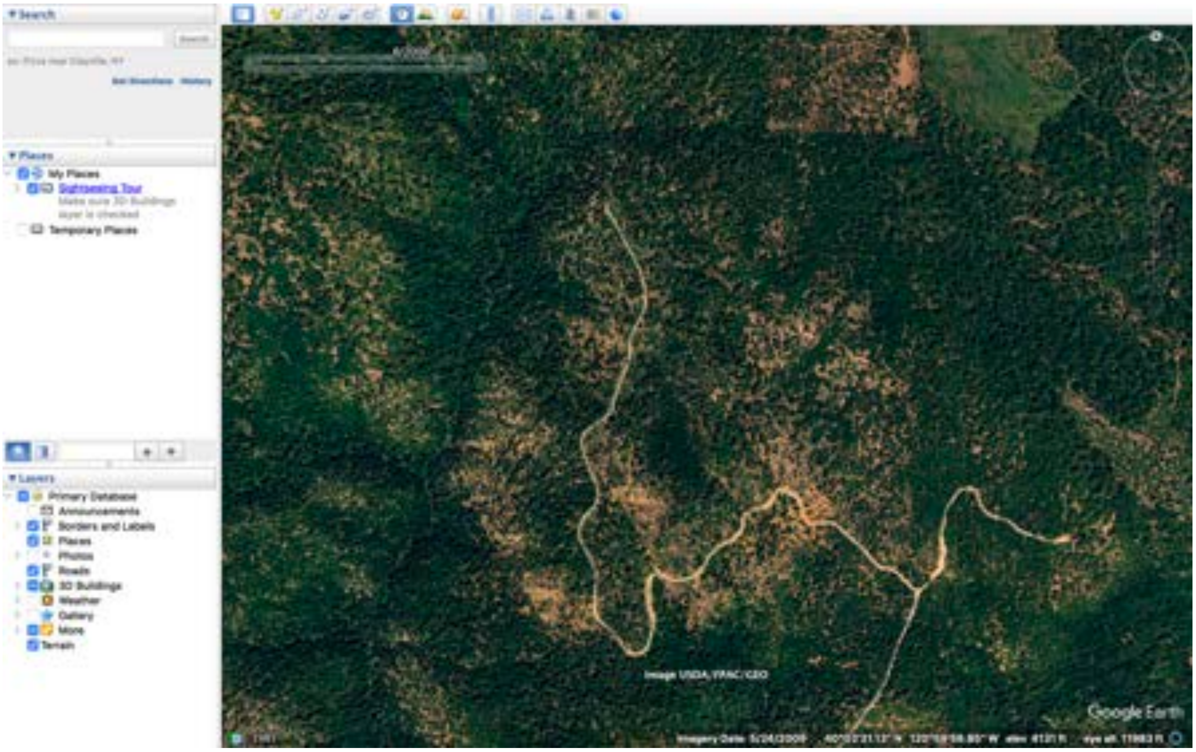


Image Pair #3: Mechanical thinning on the Plumas National Forest, south of Indian Falls. The first image is from May 24, 2009, after thinning, and the second is from July 7, 2022, after the Dixie fire. Note that nearly all of the thinned forest burned at high intensity, with 100% tree mortality in most areas.



<u>Image Pair #4</u>: Mechanical thinning south of Greenville on the Plumas National Forest. The first image is from May 24, 2009. The second is from July 7, 2022, showing almost complete high-intensity fire effects in the thinned area.



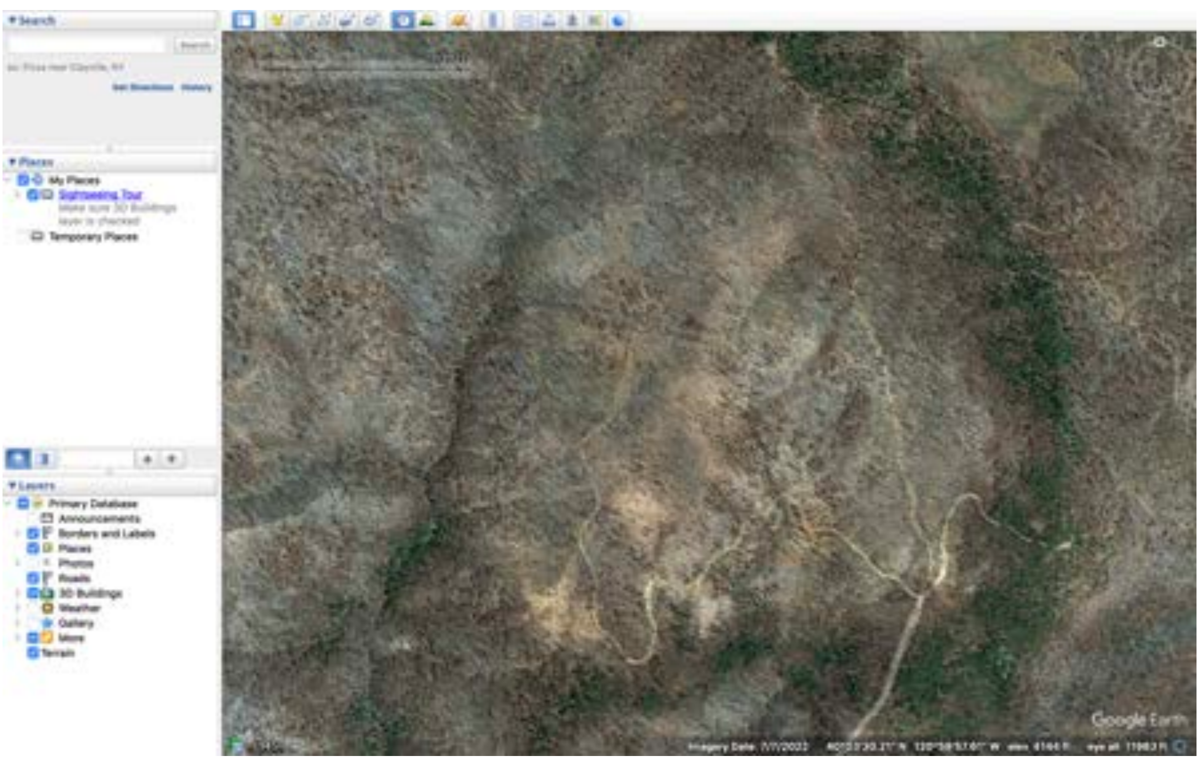
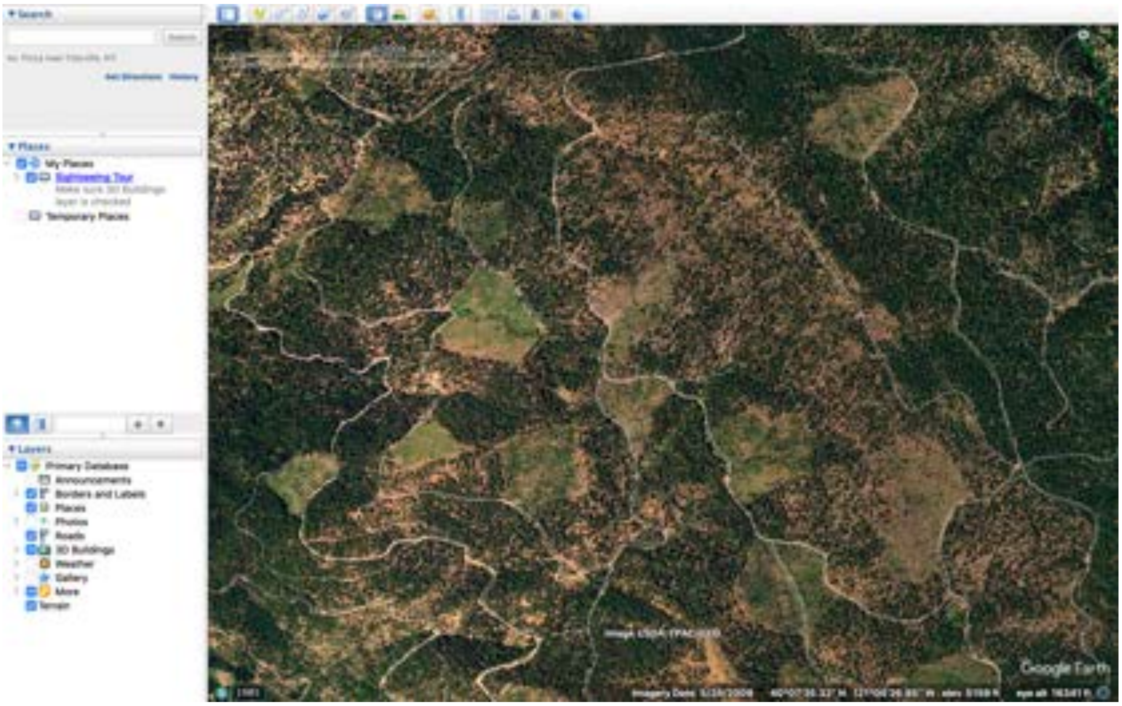
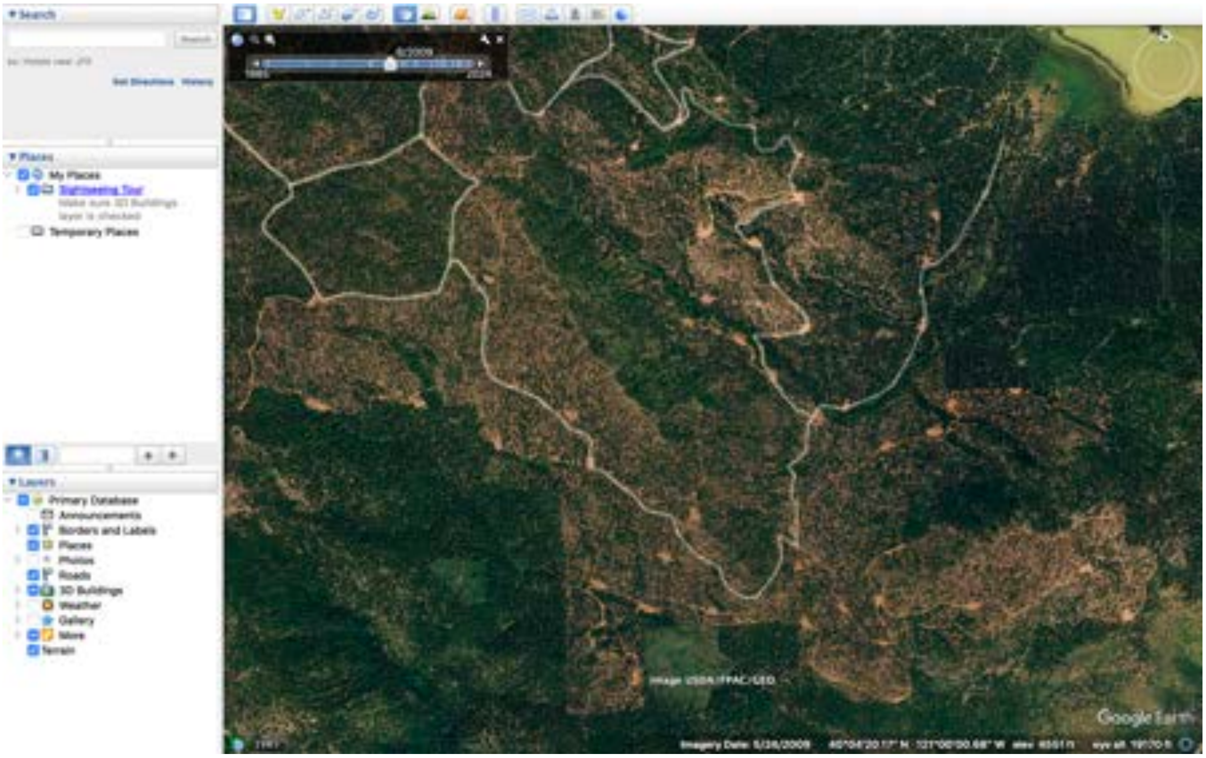


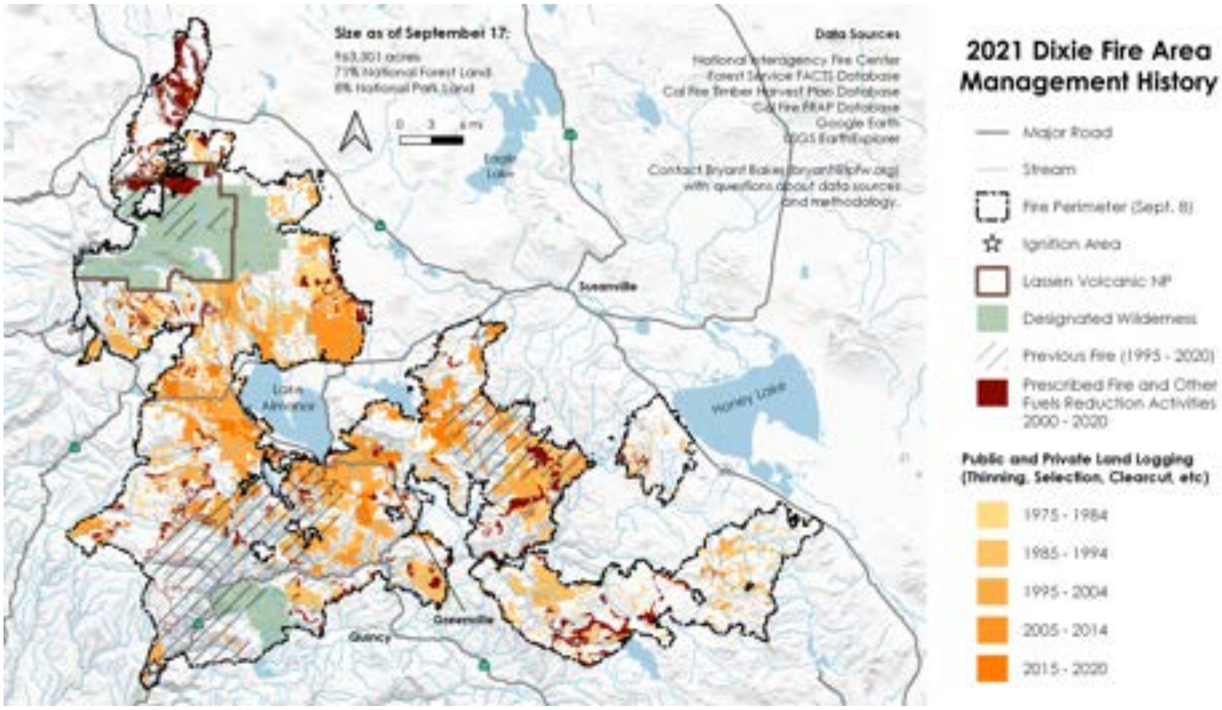
Image Pair #5: Postfire logging and mechanical thinning west of Greenville and south of Canyondam on the Plumas National Forest. The first image is from May 24, 2009, and the second is from July 7, 2022, after the Dixie fire. Once again, note that the thinned area is heavily dominated by high-intensity fire.

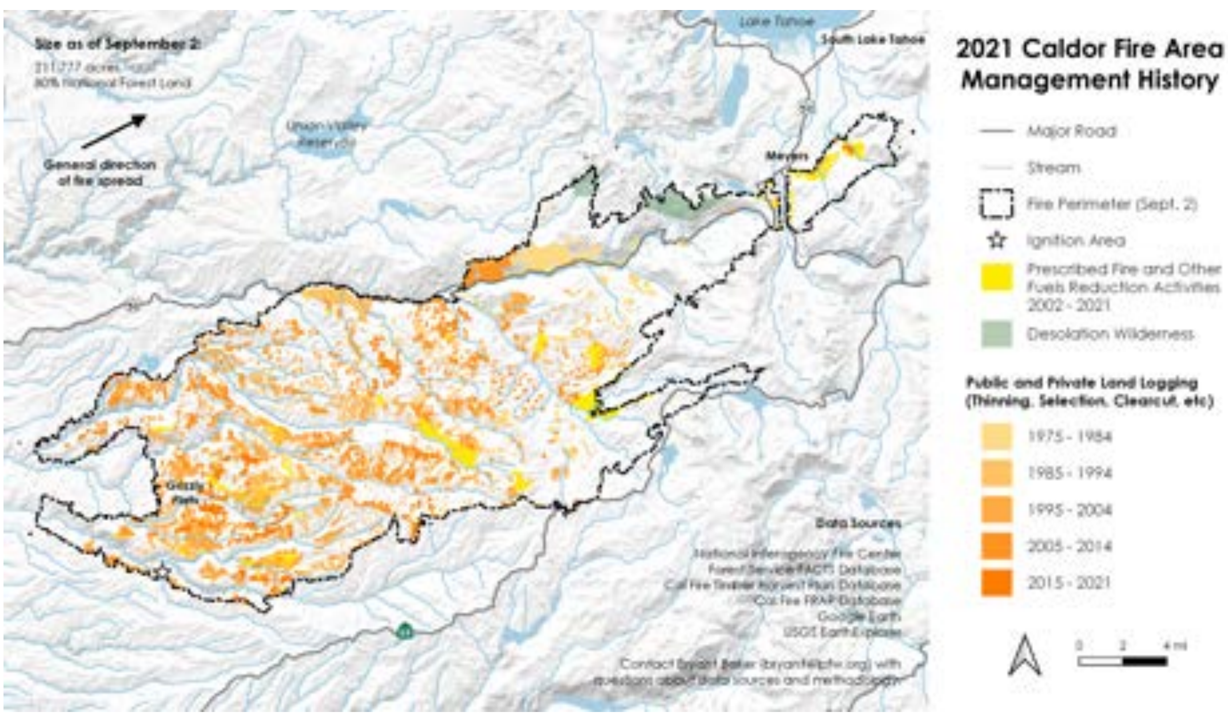


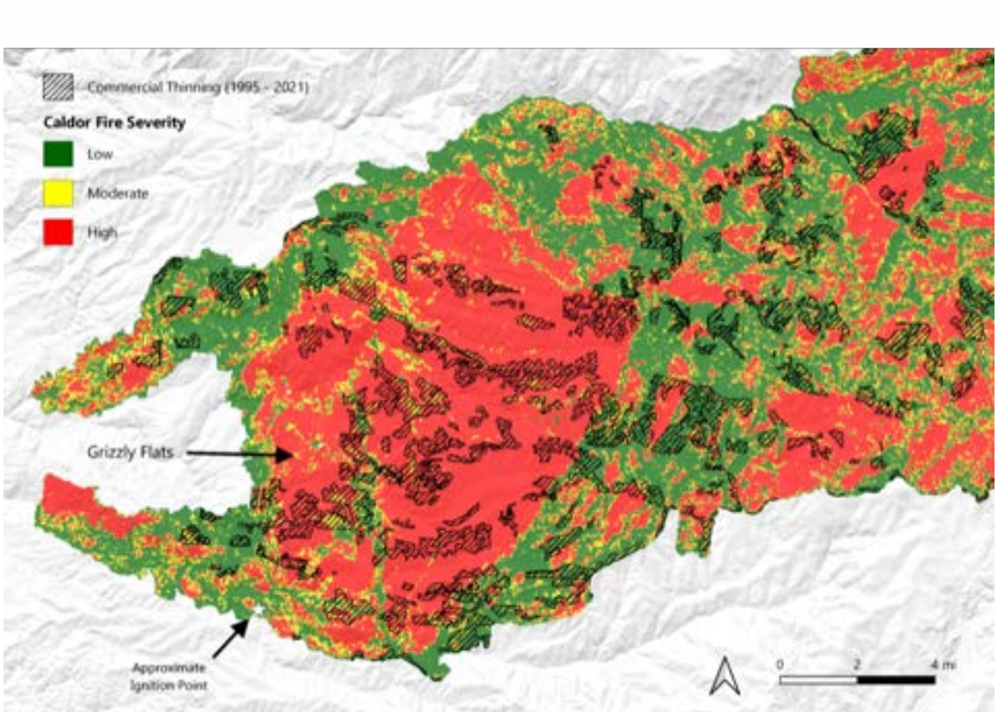
<u>Image Pair #6</u>: Mechanical thinning on private timberlands south of Greenville. The first image is from May 24, 2009, and the second is from July 7, 2022, after the Dixie fire, with the thinned areas heavily dominated by high-intensity fire.

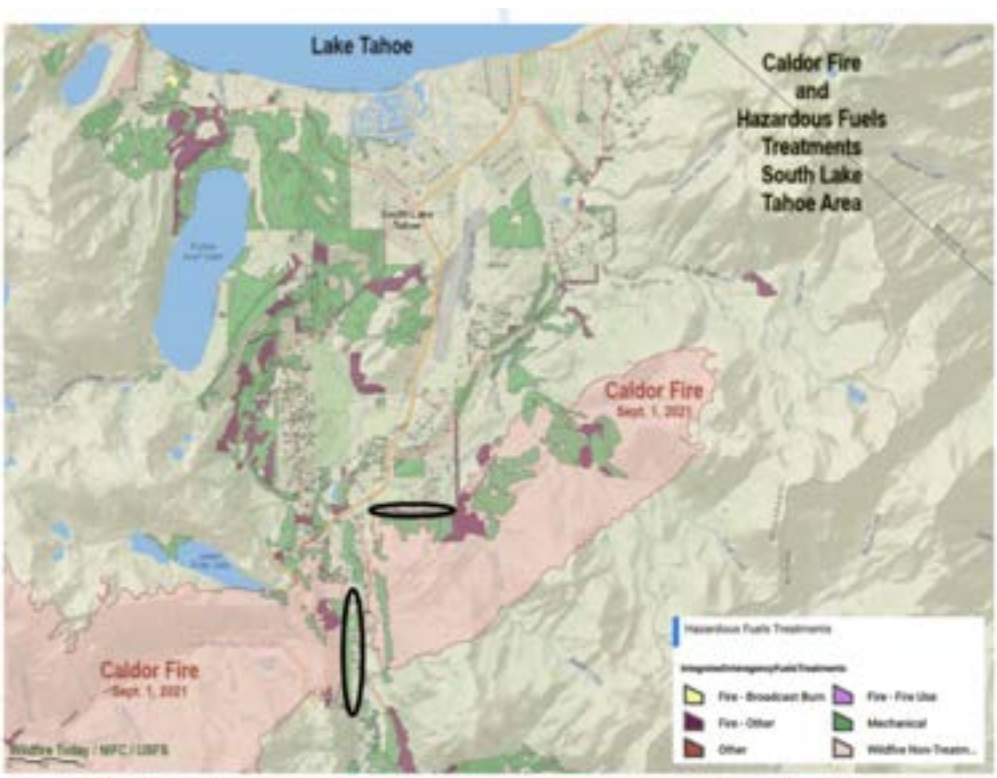


The approach of this proposal to rescind the Roadless Rule is the same approach that the Forest Service has pursued for many years, except this proposal promotes this approach on a much bigger scale. In brief, it involves mechanical thinning and post-fire logging of vast forest areas distant from communities based on the claim that this will either directly stop fires from reaching towns or indirectly stop fires by making fires burn much more slowly and so much less intensely that fire suppression crews can easily halt the fire before it reaches a community. This approach is a proven failure, as we have seen in Paradise (Camp fire of 2018), Greenville (Dixie fire of 2021), Grizzly Flats (Caldor fire of 2021), and Berry Creek and Feather Falls (North Complex fire of 2020), among others. Please see the maps below showing large areas of thinning and other so-called fuel-reduction logging around towns that were largely destroyed by the Camp fire, Dixie fire, and Caldor fire, respectively.


2021 Dixie Fire Area Management History
Size as of September 17:
Data Sources
Susanville
Lake Almanor
Honey Lake
Greenville
Quincy
Major Road
Stream
Fire Perimeter (Sept. 8)
Ignition Area
Lassen Volcanic NP
Designated Wilderness
Previous Fire (1995 - 2020)
Prescribed Fire and Other Fuels Reduction Activities 2000 - 2020
Public and Private Land Logging (Thinning, Selection, Clearcut, etc)
1975 - 1984
1985 - 1994
1995 - 2004
2005 - 2014
2015 - 2020


2021 Caldor Fire Area Management History
Size as of September 2:
General direction of fire spread
Lake Tahoe
South Lake Tahoe
Meyers
Data Sources
Major Road
Stream
Fire Perimeter (Sept. 2)
Ignition Area
Prescribed Fire and Other Fuels Reduction Activities 2002 - 2021
Desolation Wilderness
Public and Private Land Logging (Thinning, Selection, Clearcut, etc)
1975 - 1984
1985 - 1994
1995 - 2004
2005 - 2014
2015 - 2021





Map from Wildfire Today, showing the Caldor fire racing right through "thinning" units in wildlands but stopping at or immediately adjacent to private property boundaries, where defensible space pruning had been conducted on private lands and a short distance on to the National Forest. Map accessed here. Black ovals have been added to show where the fire stopped in defensible space areas adjacent to homes.

Is thinning or other tree removal necessary prior to burning, including managed wildfire, prescribed fire, and Indigenous cultural burning?

No. The Forest Service now acknowledges that "it is known that tree removal is not required before prescribed fire can be used" (USFS 2023a. Community Protection Project – Central and Western Slope. Response to Comments. Plumas National Forest, Quincy, CA). The Forest Service also now admits that thinning plus burning costs six times more per acre than burning alone (USFS 2023b Community Protection Project – Central and Western Slope. Environmental Assessment. Plumas National Forest, Quincy, CA). As Forest Service scientists noted in North et al. (2015: https://courses.seas.harvard.edu/climate/eli/Courses/global-change-debates/Sources/Forest-fires/more/North-etal-2015-short-perspective.pdf), "…fire is usually more efficient, cost-effective, and ecologically beneficial than mechanical treatments." Because no thinning is necessary prior to burning, lower-intensity prescribed natural fires (managed wildfires), controlled burns, and Native American cultural burning can be applied in a very cost-effective way within areas where low-intensity surface fire is in deficit (Baker et al. 2023: https://www.mdpi.com/2571-6255/6/11/428).

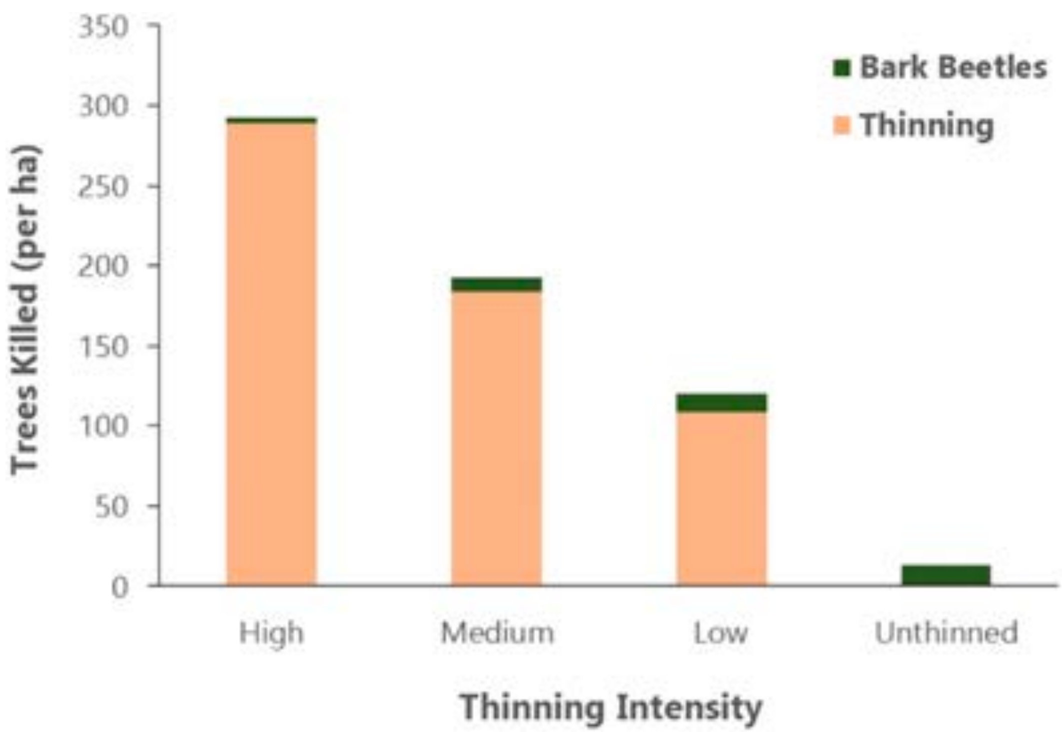
Even thinning of small, subcanopy trees is not necessary prior to introducing or restoring fire, based on half a century of studies, most of which were authored by Forest Service and other government scientists. The table below concisely summarizes some of the many studies indicating that fire alone can be applied, during natural fire season, in Western U.S. conifer forests without prior tree removal, including in the very densest and most long-unburned forests. Land managers simply conduct or allow burning during mild to moderate fire weather.

Study	Type of Fire	Brief Summary of Significance
Keifer (1998)	Controlled burn	Successful lower-intensity prescribed fire in a forest with 498 trees per acre and 64 tons per acre of surface fuel
Stephens and Finney (2002)	Controlled burn	Successful lower-intensity prescribed fire in a forest with 93 tons per acre of surface fuel (downed woody material plus duff and litter) and 286 trees per acre
McClure et al. (2024)	Managed wildfire and controlled burn	Documenting successful use of managed wildfires and controlled burns over 35 years in forests of the Southwestern U.S., with overwhelmingly low-intensity fire effects
Knapp and Keeley (2006)	Controlled burn	Effective lower-intensity prescribed fire, during both early and late fire season, in a dense forest with 301 square feet per acre of basal area that had not burned for 123 years

Knapp et al. (2005)	Controlled burn	Effective lower-intensity prescribed fire, during early and late fire season, in a dense forest with over 80 tons per acre of surface fuel, which had not burned in over 120 years
York et al. (2022)	Controlled burn	Successful lower-intensity spring and fall prescribed fire in 13-14 year-old mixed-conifer plantations with 170 trees per acre
Stephens et al. (2021)	Managed wildfire	Successful mostly lower-intensity managed wildfire over several decades, in unmanaged mixed-conifer forests of Yosemite National Park
Zachmann et al. (2018)	Controlled burn	Successful lower-intensity prescribed fire in a 20-year analysis in dense mixed-conifer forests of the Lake Tahoe Basin, with 204 trees per acre and 257 square feet of basal area per acre
van Mantgem et al. (2013)	Controlled burn	Successful lower-intensity prescribed fire in seven national parks, monuments, and recreation areas in different forest types, including ponderosa pine, across the Western U.S.
van Mantgem et al. (2011)	Controlled burn	Successful lower-intensity prescribed fire in September and October in a dense forest that had not burned since circa 1870, and had 81 tons per acre of surface fuel, and 170 trees per acre
Collins and Stephens (2010)	Managed wildfire	Successful application of mostly lower-intensity managed wildfire, over 30 years in mixed-conifer forests of Yosemite National Park
Webster and Halpern (2010)	Controlled burns and managed wildfires	Successful application of lower-intensity controlled burns and managed wildfires over two decades in unmanaged mixed-conifer forests of Sequoia and Kings Canyon National Parks
Kobziar et al. (2009)	Controlled burn	Effective application of lower-intensity prescribed fire in the last week of June within a 32-year old ponderosa pine and Jeffrey pine plantation, with 149 trees per acre
Collins et al. (2007)	Managed wildfire	Mixed-intensity managed wildfires successfully restored natural habitat heterogeneity in Yosemite mixed-conifer forests
Fule´ et al. (2004)	Controlled burn	Successful application of mixed-intensity prescribed fire, during fire season, in September, in dry forests of Grand Canyon National Park that had 134 trees per acre and had not burned since 1879
Kilgore and Sando (1975)	Controlled burn	Successful lower-intensity prescribed fire in late fire season in a forest with 83 tons per acre of surface fuel

By killing and removing some trees, does thinning save more trees compared to drought and native bark beetles?

No. Thinning kills vastly more trees than it prevents from being killed by drought and native bark beetles, based on the Forest Service's own data. Below is a figure from Lindenmayer et al. (2025: https://www.sciencedirect.com/science/article/pii/S0006320725001089), using Forest Service data (Fettig et al. 2012), demonstrating the dramatic overall increase in tree mortality that results from thinning predicated on the assumption that it will "save" trees from drought and bark beetles (figure courtesy of Bryant Baker).



Do dead trees increase wildfire behavior?

No. The overwhelming weight of science from the largest and most comprehensive studies find either no effect of higher densities of snags on wildfire intensity/severity (Bond et al. 2009, Hart et al. 2015, Hart and Preston 2020, Hanson 2021), or finds lower overall wildfire severity in areas with higher levels of snags and downed logs from previous tree mortality resulting from drought and native bark beetles (Meigs et al. 2016).

Are snags (standing dead trees) and patches of snags a negative indicator of the ecological "health" of forests?

No, it's quite the opposite. Patches of dead trees, or snags, resulting from wildfire or drought and native bark beetles, are called "complex early seral forest habitat", also known as "snag forest habitat". This unique forest habitat type is comparable to old growth forest in terms of native biodiversity and wildlife abundance, based on quite literally hundreds of scientific studies on this subject, which are cited and summarized in two books, DellaSala and Hanson (2024:

https://shop.elsevier.com/books/mixed-severity-fires/dellasala/978-0-443-13790-7) and Hanson (2021: https://www.kentuckypress.com/9780813181073/smokescreen/).

In summary, the claimed justifications for this proposal to rescind the Roadless Rule are strongly contradicted by a wealth of scientific evidence, including dozens of the Forest Service's own studies and reports. As such, this proposal should be withdrawn.

Sincerely,

Chad Hanson, Ph.D., Wildfire Scientist and Director
John Muir Project of Earth Island Institute

Paula Hood, Co-Director
Blue Mountains Biodiversity Project

George Wuerthner, Executive Director
Public Lands Media

Sam Hitt, President
Santa Fe Forest Coalition

Sonia Demiray, Executive Director
Climate Communications Coalition

Jeff Juel, Forest Policy Director
Friends of the Clearwater

Frank Toriello, President
We Advocate Through Environmental Review

Sam Hitt, President
Wild Watershed

Marily Woodhouse, Director
Battle Creek Alliance &
Defiance Canyon Raptor Rescue

Katy Eiseman, Program Manager
Partnership for Policy Integrity

Deanna Meyer, Executive Director

Prairie Protection

Hudson Kingston, Legal Director
CURE (Clean up the River Environment)

Silvia Solaun, Executive Director
New Jersey Forest Watch

Dr. Steven Krichbaum (herpetology, conservation biology)

David Nickell, Chair
Heartwood

Elizabeth Mahoney, President
Indiana Forest Alliance

Kara Kukovich, Outings & Event Chair, Conservation Co-Chair
Allegheny Group Executive Committee