

# FOREST NEWS



The Newsletter of Forest Service Employees For Environmental Ethics

Spring 2023

## Colorado

## Collaborators

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**BETTING ON BIOCHAR / \$60 BILLION FOR FOREST RESTORATION? /  
GUEST COLUMN: FOREST SUCCESSION / TONTO NATIONAL FOREST**

With “water, water, everywhere,” the Forest Service still cannot rid itself of the fire retardant albatross around its neck. Ten years ago, in a study commissioned by the Forest Service, the Rand Corporation published “Air Attack Against Wildfires: Understanding U.S. Forest Service Requirements for Large Aircraft.” The study sought to determine “the composition of a fleet of airtankers, scoopers, and helicopters that would minimize the total social costs of wildfires, including the cost of large fires and the cost of aircraft.”

Scoopers skim across a lake or river, filling their 1,600-gallon tanks in only 12 seconds. The Rand study “found that at least two-thirds of historical fires have been within ten miles of a scoop-accessible body of water, and about 80 percent have been within five miles of a helicopter-accessible body of water.” Rand concluded that scoopers are “considerably less expensive” than large helicopters or air tankers and can drop “far more water on a fire than a retardant-bearing aircraft can drop retardant.” Rand also noted that “because most human settlement is near water, scoopers can be highly effective against many of the most costly fires.”

Water scoopers are a sensible solution to the pollution from toxic aerial retardant. Because water is not a pollutant, no Clean Water Act (CWA) permit is required to drop water into water. Following Rand’s recommendation to relegate retardant-carrying air tankers to a “niche role fighting the minority of fires that are not water-proximate,” would also all but eliminate accidental retardant dumps into streams and rivers — no nearby water means no risk that retardant ends up in the water.

In response to FSEEE’s lawsuit, the Forest Service has now conceded that retardant dumps into water require a CWA permit. The Environmental Protection Agency has agreed to process the required permit, which

it says will take at least two-and-a-half years to do the necessary toxicity studies. In the meantime, the Forest Service wants to continue its business-as-usual retardant polluting ways. The Forest Service says that if the federal judge hearing FSEEE’s lawsuit bars dumping retardant into water, the Forest Service will abandon retardant altogether because its bombers are too inaccurate to keep the nasty stuff out of our rivers and streams.

So be it, say I. If fighting fire from the air makes any sense at all — a big “if” as Rand notes “the dearth of statistical evidence” documenting the value of air tankers in fighting large fires — water scoopers are the way to go. Canada and the European Union have been using water scoopers for decades; they rarely employ retardant bombers.

Why has the Forest Service ignored the Rand study? Why does it cling so stubbornly to toxic aerial retardant? Perhaps because the Forest Service invented aerial fire retardant in the 1950s, its pride impairs rational decision-making. Regardless of the reason, it is time for the adults in the room to rid the Forest Service of the retardant albatross hanging around its neck.

PS: Your calls opposing H.R. 1586 and the companion bill S. 796, which would amend the CWA to allow toxic retardant pollution, are making a huge difference. Please, keep up the pressure! Call the Capitol switchboard at 202-224-3121 to connect to each U.S. Senate office for your state. Tell your two senators that you oppose S. 796 — the Forest Service can fight fire with water instead of toxic aerial retardant.

Sincerely,

  
Andy Stahl

**Cover: The sun rises on San Isabel National Forest in Chaffee County, Colorado, where a local forest health collaborative has secured \$23 million for fire mitigation projects.**

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*Spring wildflowers bloom in Tonto National Forest (photo by Monica Lara).*

# Featured Forest

## Tonto National Forest

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In the Arizona Upland region of the Sonoran Desert, the **Tonto National Forest** enshrines a ruggedly beautiful landscape in central Arizona, where winter precipitation produced a “superbloom” of wildflowers this spring.

Totaling almost 3 million acres, the Tonto includes 600,000 acres of designated wilderness in seven wilderness areas — Four Peaks, Hell’s Gate, Mazatzal, Salome, Salt River Canyon, Sierra Ancha and Superstition. These wilderness areas protect unique ecosystems populated by a diverse array of plants (saguaro cacti, barrel cacti, cholla cacti, and palo verde trees, which can perform photosynthesis in their bark) and animals (black bears, bald eagles, mountain lions, elk, ringtail cats,

many snake species, scorpions, and Mexican spotted owls). The Fossil Creek Wild and Scenic River, known for its beautiful clear waters and impressive travertine rock formations, flows through the national forest.

The region was colonized more than 1,000 years ago by the Hohokam people, who dug hundreds of miles of irrigation canals to support their farms. They abandoned the region about 600 years ago amid extreme drought, and were eventually replaced by Apache and Yavapai peoples who were relocated to reservations following a 20-year conflict with the U.S. Army.

Miners and Mormon farmers were the earliest settlers in the Tonto, followed by sheep and cattle ranchers. The Forest has a 150-year history of mining for copper, gold, silver,

lead, zinc, uranium, molybdenum, manganese, asbestos, mercury and more.

At the Diamond Point crystal collection site, limestone and dolomite formations were heavily dissolved by groundwaters, creating cavities in the rock within which quartz crystals formed. Able to grow unconstrained in these cavities, many of the crystals developed beautiful classic shapes, and the quality of the quartz inspired the monicker “Herkimer diamonds.”

The Forest Service allows approximately 26,000 head of cattle to graze in the Tonto, but recent drought conditions have limited grazing to about 20% of that total. Even though the Tonto has limited timber resources, the Forest Service allows roughly 4 million board feet to be harvested each year.





*A wildfire mitigation pilot project in the San Isabel National Forest logged beetle-kill timber using specialized steep-slope equipment. The “success” of this project is being used to justify similar projects on other national forest lands, but the project required millions in public funding, including local tax dollars.*

## In Depth

### A New Kind of Collaborative in Colorado

How a Community Planning Project Spawned a Forest Health Collaborative

by Joe Stone

Christopher Ketcham’s guest column in the Fall 2022 edition of *Forest News* struck a chord with me. Ketcham’s column, excerpted from his book, *This Land*, reveals how forest health collaboratives became, in the words of Barry Rosenberg, “a significant contributor to the most catastrophic Forest Service logging program that I have witnessed in 37 years as a forest advocate.” Based on extensive interviews and research, Ketcham concludes that forest health collaboratives have been used to “give control of the management of our National Forests to local special interests.”

Ketcham’s writing impressed me because of how thoroughly he documented conflicts of interest that skirted the law and subordinated forest management to special interests. His column also caught my attention because of obvious similarities to a county planning initiative unfolding in my own community. Our local initiative — Envision Chaffee County — has garnered national attention as a model for community-based action to protect against the threat of wildfire. But a close look at the Envision process and its outcomes reveals a tangled web of special interests, questionable rationale, and conflicts of interest.

#### THE ENVISION PROCESS

The Envision planning process began in December 2016 when, according to *The Envision Community Action Plan*, a “‘Core Team’ of nine concerned citizens came together to discuss the future of Chaffee County” (population 20,000). This core team included a county commissioner as well as recent arrivals to the county — a former Newmont Mining executive, a former CEO of a large, city community foundation, and a former deputy director of the state commission that allocates state lottery funds. This core group, using *local land conservancy* resources, succeeded in securing grant funding



for the county to embark on the Envision planning process, which involved a **community survey** and multiple meetings over the course of 18 months.

The survey identified “Chaffee County citizens’ most pressing concern” as housing by a substantial margin. The time commitment to participate in 18 months of meetings precluded significant participation by working-class citizens, most of whom need to hold down multiple jobs to afford local housing. The meetings produced *The Envision Community Action Plan*, which indicates “72 non-profit organizations, businesses and agencies” participated. Since public lands account for 80% of Chaffee County acreage, key participants included the Forest Service, the U.S. Natural Resources Conservation Service (NRCS), the U.S. Bureau of Land Management, Colorado Parks and Wildlife (CPW), and the Colorado State Forest Service (CSFS) as well as nonprofits with financial ties to the agencies and to local government.

In addition to the *Community Action Plan*, the Envision planning process established two key entities — the Envision Forest Health Council and the **Chaffee County Community Foundation**. A top priority of the *Community Action Plan* was a **ballot initiative** supported by funding from the local land conservancy. Endorsed by the organizations who participated in the Envision process, the ballot initiative passed in 2018 and now generates \$1.2 million per year through a county sales tax. The ballot initiative allocates this funding to three categories:

- 25% for Strengthening Forest Health.
- 25% for Conserving and Supporting Working Lands.
- 5% for Managing Recreation Growth Impacts (driven by tourism).
- 45% for a Discretionary Fund to be allocated among the three categories.

Despite the Envision survey results, funding to support workforce housing was not included in the ballot measure.

### **FOLLOW THE MONEY ... IF YOU CAN**

Once the county sales tax was in place, the Envision planning process was complete, and core team members wasted no time forming a nonprofit named Envision Chaffee County. Giving this new nonprofit an identical name to the county planning initiative has misled many residents to believe that the nonprofit is a part of county government. The Community Foundation (established by Envision leadership through the county planning process) acted as fiscal agent for the Envision nonprofit, allowing the new nonprofit to avoid the time and scrutiny normally required for an IRS nonprofit designation.



**San Isabel National Forest lands in Chaffee County were clearcut about 130 years ago and, in general, have not burned since. The resulting forest density and uniformity in tree ages makes these forests more susceptible to infestation by insects. The dead, gray trees in this photo indicate the early stages of a spruce beetle outbreak.**



The Envision nonprofit — formed just in time to apply for the first round of funding generated by the new county sales tax — has received county funding each year since. The county advisory committee that recommends who receives these county monies includes members of the Envision core team, some of whom hold positions with the Envision nonprofit.

## ENVISION FOREST HEALTH COLLABORATIVE

Most of the discretionary funding generated by the county sales tax has been *allocated* to “strengthening forest health” through the Envision Forest Health Council. Most of that money is paying for tree-thinning — two-thirds on public lands and one-third on private lands. Key players in this forest health collaborative include agencies like the Forest Service, the CSFS, and the NRCS as well as the National Forest Foundation (NFF), the National Wild Turkey Federation (NWTf), and Envision Chaffee County. So far, the Forest Health collaborative has leveraged

county funds to secure \$23 million for wildfire mitigation, according to the Forest Health collaborative’s *2022 Annual Report*.

But the report warns, “Costs have escalated” beyond the original \$45 million estimate needed to meet the Forest Health Council’s “top goal to treat 30,000 priority acres by 2030.” Predictably, a primary driver of escalating costs is “[local] housing costs” needed by new forestry staff.

## PRIORITIES

The 30,000 acres prioritized for fire mitigation are based on the claim in the *Community Wildfire Protection Plan* that “treating 5 to 10% of the total landscape in Chaffee County yields 50 to 70% reduction of the risks wildfire poses to assets prioritized by the community.” In this case, “community” refers to the county residents who could afford the time to participate in the Envision planning initiative and whose priorities were informed and shaped by the Forest Health Council’s “36 leaders from the 17 agencies, government bodies and nonprofit organizations most


closely supporting fire protection and forest health.”

Based on these priorities, the Envision Forest Health collaborative commissioned a *Treatment Priority Map* using computer modeling. The map “shows areas where fuel treatment can have the most impact in reducing the risk of wildfire to community assets.” *The Wildfire Protection Plan* reveals that private residences in the wildland-urban interface are among the most heavily weighted “community assets” used to generate the Priority Map.

Thanks to escalating real estate prices driven by newly arrived six- and seven-figure earners, many, if not most, of these properties are now valued above a million dollars. So, the Envision Forest Health collaborators are spending millions of public dollars to protect residences and vacation homes of some of the wealthiest property owners in the county (including a tax-exempt religious organization with annual revenue of more than \$470 million, according to its *2021 tax filing*).



**A Forest Health Council project in piñon-juniper forest on state land employed hand-thinning with chainsaws followed by mulching, which will help the soil retain moisture following removal of shade trees.**



**Readily combustible fine fuels are plentiful along a county road adjacent to the thinning project, where winds that drive catastrophic wildfire can easily blow cinders into the thinned piñon-juniper forest.**

## COLLABORATORS

While new to Chaffee County, collaboratives like the Envision Forest Health Council began to flourish in 2009 when federal legislation created the Collaborative Forest Landscape Restoration Program (CFLRP). Through the CFLRP, the Forest Service “blandished potential collaborators with grant monies,” observed FSEEE Executive Director Andy Stahl, a former Forest Service forester. In doing so, the agency “deftly side-stepped the Federal Advisory Committee Act, which mandates openness and representative participation, by outsourcing the formal convening of collaboratives to its trusted confederates, especially the National Forest Foundation, which incentivized participation by passing along federal dollars to environmental groups.”

In Chaffee County, the NFF established the Upper Arkansas Forest Fund, seeded with Chaffee County tax monies — \$1.64 million over five years (half of which hasn’t been collected yet). In short order, the fund received a \$5.7 million boost by way of an NRCS grant facilitated by the NFF. In other words, the NFF “deftly sidestepped” its legislative mandate, which prevents the use of its own congressional funding without matching private funds.

## SAME OLD SAME OLD

While the Envision Forest Health Council’s local roots differentiate it from CFLRP collaboratives, the messaging is essentially the same. The Envision collaborative’s *Community Wildfire Protection Plan* states, “Chaffee County typifies the new reality of wildfire in the West. Decades of fire suppression, drought and ensuing insect infestations have caused our forests to decline into very poor health.”

The second statement is technically true, but to suggest that we face a “new reality of wildfire in the West,” fails to consider the long view, a perspective more in line with the lifespan of a forest through its various phases of succession, beginning with stand-replacing fire. For example, the Forest Health Council’s *Wildfire Plan* asserts, “Fires are coming more frequently and they are more intense,” which may be true over the past three decades but fails to acknowledge recent scientific research. Studies by scientists like William Baker at the University of Wyoming demonstrate that severe wildfires were more common prior to 20<sup>th</sup>-century forest mismanagement.

And the sources of this “new” wildfire reality are not unprecedented. The West has been drought-prone for millennia, hence the history of severe wildfire dating back thousands of years. Without the natural fire cycle, “ensuing insect infestations” by native species are the natural response to the human hubris of “forest management.” Additionally, a 2016 study by Meigs, et al., concludes, “Contrary to common assumptions of positive feedbacks, recent forest insect outbreaks actually dampen subsequent burn severity.”

Furthermore, Jack Cohen has demonstrated through his work at the Missoula Fire Science Lab that fuel reductions more than 100 feet from a structure provide no additional protection from wildfire. Nonetheless, the Envision Forest Health collaborative is using a regressive county sales tax to leverage additional public funds and spend tens of millions of dollars on fuel treatments justified largely by property values of the county’s wealthiest residents. As Cohen has demonstrated, it would be much more cost-effective to spend that money creating defensible space and fire-wise homes.

One of the justifications for cutting trees is that it improves wildlife habitat, a stance promoted by the National Wild Turkey Federation, which is now funding tree-thinning projects in Chaffee County. When asked if tree-thinning is beneficial to wildlife, Dee Malone, a research ecologist with Colorado State University, responded:

*That would be a resounding NO for many, many reasons. Cutting trees is hugely harmful to both the wildlife and the ecosystem and its processes and functions. Moreover, these so-called “enhancement” projects do not address the underlying problems and instead exacerbate the issues that they purport to resolve....*

*Often, we see [public land agencies] clear-cutting or bush-hogging to “open” the canopy to “improve” vegetation for ungulates such as elk. Their management merely continues the “need” for management.*

*Forests are a process. When we interrupt that process with our “management” activities, we set the process back to the beginning stages in the succession of ecosystem development, that process that begins with, for instance, bare ground after a fire. Then come pioneering forbs and grasses, then shrubs, then pioneering trees, and eventually, a climax forest.*

*Different species occupy the ecosystem during each stage of the process. Finally, in the climax stages we have species such as Northern goshawk, pine marten, lynx — species that require climax forests. Continually logging, bush-hogging, etc., maintains the forest in a pioneering vegetation stage so that only pioneering or generalist animal species survive there — elk, for instance, are a generalist species.”*

While Envision Forest Health Council projects include some support for defensible space, the fact remains that local workers facing inflated housing costs are paying taxes to protect the properties of wealthy residents and second home owners. The rationale for the most costly of these protective actions are questioned by a substantial body of science.





A classic complex (undisturbed) preforest resulting from fire in Yellowstone National Park (photo by Daniel Mayer).

# Guest Column

## Understanding Forest Succession

by Andy Kerr

***As public lands conservationists continue their fight to save the last of the mature and old-growth forests for the benefit of this and future generations, we must not forget the preforests.***

In 1988, fires in Yellowstone National Park caused the media to declare that the entire park was “destroyed.” Today, people still flock to the world’s first national park. While the forests of Yellowstone have changed, they are still magnificent.

In 2020, much old-growth forest in and around the Opal Creek Wilderness and the surrounding Opal Creek Scenic Recreation Area burned in the Beachie Fire, one of several fires burning at the same time in the North Santiam Canyon in Oregon. Some — but not all — of the forest burned at a high severity, what ecologists refer to as a stand-replacing event. In such an event, most — but usually not all — of the live trees are burned. Most — but not all — of those trees die.

I, and many others, worked for decades to save Opal Creek from chainsaws and bulldozers. We were finally successful in 1996. I’m not hankering to go back to see Opal Creek because I know I will feel sad to see the loss of so much old-growth forest that I knew. Those feelings of personal loss will be real, but they will also be irrational.

A forest stand never just stands there. Even an old-growth forest that has stood for centuries is a forest constantly moving through forest succession, though it is often so slow as to be imperceptible to humans. Plots

monitored for an extended period of time show ecologists the inexorable march of change.

Occasionally, a catastrophic event dramatically resets natural forest succession, and an old-growth forest ceases to be a forest. While “catastrophic,” this rapid reset is never a catastrophe (“an event causing great and often sudden damage or suffering; a disaster”) for the forest. In the long run, ecological resets are as desirable as they are inevitable.

But in our current culture, such resets are often misunderstood and consequently mismanaged. A 2014 paper by Swanson, et al., asserts, “Traditionally overlooked by foresters as unproductive and ecologists as disorganized, naturally regenerating forests in the Pacific Northwest are perhaps the least understood forest condition in the region.”

### THE ECOLOGICAL ROLE OF PREFORESTS

In their classic scientific paper (*The Forgotten Stage of Forest Succession: Early-Successional Ecosystems on Forest Sites*, 2010), Swanson, et al., define early successional forest ecosystems as “those ecosystems that occupy potentially forested sites in time and space between a stand-replacement disturbance and re-establishment of a closed forest canopy. These ecosystems undergo compositional and structural changes (succession) during their occupancy of a site.”

Scientists, foresters, and others have given these ecosystems many names, including preforest, early seral



forest, early successional forest, stand initiation stage, reorganization phase, establishment phase, snag forest, etc.

An old classic forestry textbook from 1990, *Forest Stand Dynamics*, labeled this stage as stand initiation, the clear implication being that the only purpose of this stage of forest succession is to get stand growth going so that some good (rhymes with wood) can come from the forest again. A new classic forestry textbook from 2018, *Ecological Forest Management*, labels it the preforest stage and recognizes, describes, and honors its ecological and social values.

The authors of *Ecological Forest Management* explain why they call it the preforest stage: “The absence of significant tree dominance of the site in the Preforest Stage (PFS) allows other plant life forms to flourish and new cohorts of trees, particularly shade-intolerant species, to become established.... The most fundamental feature of the PFS is that trees are not the dominant plant life form. Labeling this stage as preforest clearly identifies it as a non-tree-dominated ecosystem but one that is occupying sites that will eventually become forests....

“[Some] other labels applied to this stage ... focus attention on regeneration of that new cohort of trees and, therefore, have a tree-centric bias. In fact, tree regeneration is only one of the many important processes that occur in the PFS, and those other labels ignore more of the unique ecological roles of the PFS, which are actually a consequence of the absence of tree dominance.”

The book treats preforests as one of the four important stages of forest succession, along with young forest, mature forest, and old-growth forest. While ecologically significant lines can be drawn to demarcate the stages, in reality it's one long circular continuum.

Growing trees use a lot of nitrogen from the soil. Preforest is the stage in forest succession where the most nitrogen is captured from the air and returned to the forest through an abundance of nitrogen-fixing plants. Old-growth forests, because they live so long, have come to rely on nitrogen-fixing lichens in the canopy that fall to the ground and recharge the soil.

Preforests are the rarest forest stage. Before the European invasion, forests that were naturally regenerating after a stand-replacing event occupied between 5% and 20% of the land in the American West at any particular time. Today, early successional forest ecosystems are even more rare and limited in extent than old-growth forests. Compared to the 19<sup>th</sup> and early 20<sup>th</sup> centuries, the extent of preforests in Oregon's Coast Range and Cascades has been reduced by more than 50%. It's similar in the Northern Rockies.

One reason preforest is undervalued is that it has the shortest duration of any forest stage. It also has the least amount (in number and size) of trees of any stage. Since preforest follows a stand-replacing event, far fewer trees are standing, and they are not standing particularly tall. In the American West, preforests can naturally last 10-50 years — if not interrupted by humans, which they most often are. The longer the duration of the preforest stage, generally the more species richness is found there.

When Swanson, et al., published *The Forgotten Stage of Forest Succession: Early-Successional Ecosystems on Forest Sites*, it was as influential in my thinking about and understanding of forests as was the Forest Service technical report *Ecological Characteristics of Old-Growth Douglas-fir Forests* (Franklin, et al., 1981). In

their own ways, both papers called bullshit (a precise term of ecology) on the conventional forestry “wisdom” that both of these stages of forest succession are devoid of ecological or societal value. (I hope to soon see a paper with the title “Ecological Characteristics of the Ignored Stage of Forest Succession: Mature Forests.”)

Swanson, et al., tell us, briefly:

- Naturally occurring, early-successional ecosystems on forest sites have distinctive characteristics, including high species diversity, as well as complex food webs and ecosystem processes.
- This high species diversity is made up of survivors, opportunists, and habitat specialists that require the distinctive conditions present there.
- Organic structures, such as live and dead trees, create habitat for surviving and colonizing organisms on many types of recently disturbed sites.

They then go on to say something that points toward managing preforests to ensure that their ecological value accrues to the benefit of this and future generations:

Traditional forestry activities (e.g. clearcutting or post-disturbance logging) reduce the species richness and key ecological processes associated with early-successional ecosystems; other activities, such as tree planting, can limit the duration (e.g. by plantation establishment) of this important successional stage.

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Andy Kerr is the czar of The Larch Company ([www.andykerr.net](http://www.andykerr.net)) and consults on environmental and conservation issues. The Larch Company is a for-profit non-membership conservation organization that represents the interests of humans yet born and species that cannot talk.

## *Forest Service Advances Tribal Co-stewardship Agreements*

The Forest Service **reports** it “invested nearly \$20 million in co-stewardship” in fiscal year 2022. The agency has completed 11 co-stewardship agreements with 13 tribes and has 60 more “in various stages of review involving 45 Tribes.”

These agreements were initiated by the Departments of Interior and Agriculture under Joint Secretarial **Order 3403**, which directs agencies like the Forest Service to manage federal lands “in a manner that seeks to protect the treaty, religious, subsistence, and cultural interests of federally recognized Indian Tribes.”

The 11 agreements now in place have established tribal co-stewardship in Bears Ears National Monument, Tongass National Forest, Nez Perce-Clearwater National Forest, Sequoia National Forest, The Nantahala and Pisgah National Forests, Six Rivers National Forest, and Umpqua National Forest.

Tribal interests addressed by the agreements include “caring for forest and watershed health, restoring fire-adapted ecosystems, integrating traditional knowledge into land management decision-making.”

## *Colorado Congressmen Seek \$60 Billion for Forest Restoration*

Sen. Michael Bennet (D, Colo.) introduced S. 540, the Protect the West Act, which seeks \$60 billion “to reduce wildfire risk, restore our watersheds, and protect our communities,” according to a **statement** released by Bennet’s office. Colorado Congressman Jason Crow introduced the bill in the House as H.R. 1236.

Citing “megadrought and wildfire season that never seems to end,” Bennet said the unprecedented expenditure is needed because of the economic importance of forests and watersheds in the West.

The bill is endorsed by multiple nonprofit organizations that have received federal funding for logging in national forests under “stewardship” agreements. These include the National Wild Turkey Federation, the National Wildlife Federation, the National Association of State Foresters, the Western Landowners Alliance, and Western Resource Advocates.

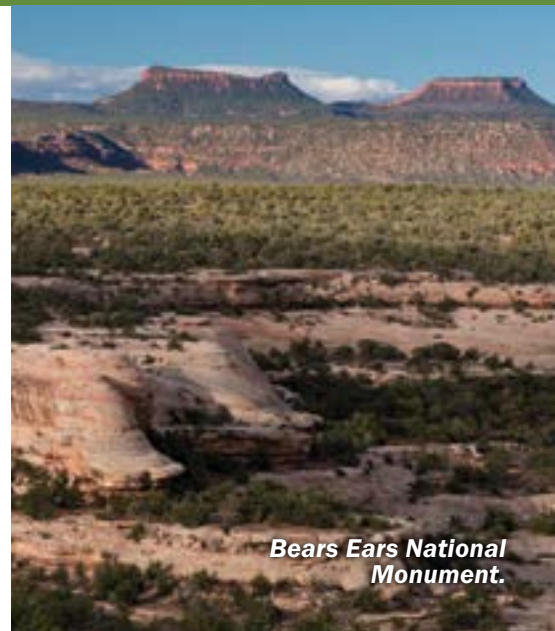
## *2022 Weather Produces Quiet California Fire Season*

Wildfires burned about 362,000 acres in California in 2022, compared to 2.5 million acres in 2021 and 4.3 million in 2020, almost 12 times as much acreage as burned in ’22. Even though fewer acres burned than in the previous two years, the number of California fires per year was comparable. Fires remained smaller.

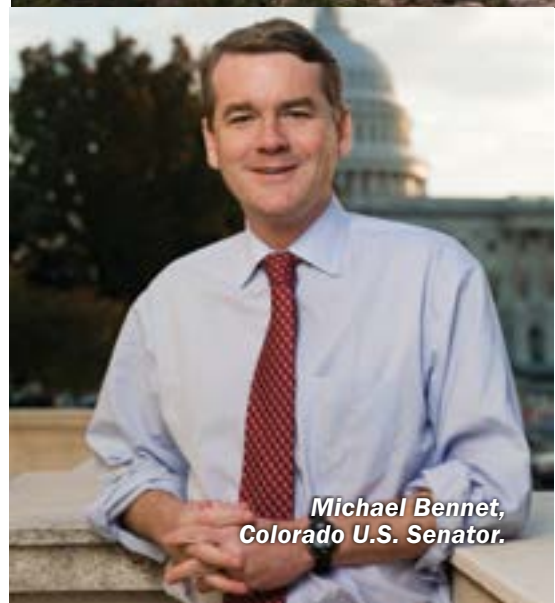
As George Wuerthner observes in *The Wildlife News*, “The main take-home message ... is how much climate/weather influences wildfire burn acreage.... The climate/weather in 2022 was unfavorable to fire spread.”

In addition to the ’22 fire season, Wuerthner cites multiple examples demonstrating that climate and weather conditions drive wildfire regardless of human fuels-reduction efforts like logging and tree-thinning.

He concludes, “The main factor driving wildfires is climate/weather, and fuel treatments are, for the most part, a waste of time and energy.... Rather than spending billions on thinning/logging or even prescribed burns, we would be much better off hardening our communities so they can stand a reasonable chance of surviving a blaze.”



**Bears Ears National Monument.**




**Michael Bennet, Colorado U.S. Senator.**



**Snowpack in the Sierra Nevada.**





*Biochar produced from woody biomass  
(Oregon Department of Forestry photo).*

## Is Biochar a Forest Health Solution?

Biochar has become a hot topic in discussions ranging from forest health to carbon sequestration, but is it really a panacea for forest management and climate challenges? The Forest Service answers “Yes” in *Biochar Basics*, published by the agency in 2022. “By turning excess forest organic material into economically and environmentally valuable biochar, managers can redistribute the beneficial properties of the organic material from overgrown and unhealthy forests to soils in need of restoration.”

Biochar is created using pyrolysis. Organic waste — slash from wildfire mitigation, for example — is burned in the presence of little or no oxygen. If this sounds familiar, it might be because the same process produces charcoal. In fact, biochar is charcoal. Instead of being burned like charcoal as an energy source, biochar is added to the soil to enrich degraded forestlands and sequester carbon.

Biofuelwatch, an international organization focused on the impacts of bioenergy, published *Biochar: A Critical Review of Science and Policy* in 2011 and published an update in 2020. The update points to multiple studies that reveal biochar is not a hoped-for cure-all. One report (He, et al., 2017) synthesized 91 studies to determine that adding biochar to soil actually increased global-warming potential by 46.22%.

One of the most significant claims from biochar promoters is that biochar carbon remains stable in soil for thousands of years. However, another study cited by Biofuelwatch demonstrates that applying biochar can actually increase carbon dioxide releases from soil through decomposition of biochar as well as pre-existing organic

matter because adding biochar stimulates microbes that accelerate decomposition — essentially the opposite of carbon sequestration.

The other significant claim about biochar — that it delivers “negative emissions” — is also suspect, according to the Biofuelwatch report. The carbon accounting that produces this claim considers biochar a byproduct of using pyrolysis to produce energy. But the use of pyrolysis for energy production “on a commercial scale ... has proven technically challenging, and most attempts to scale up pyrolysis have failed.... Co-production of biochar with energy in ‘modern advanced’ facilities remains technically unproven.”

When it comes to plant health, Biofuelwatch cites a report by Viger, et al., showing “positive growth effects” from biochar but accompanied by weakened plant protections “against insect and pathogen attack, as well as defense against stresses including drought” — critical factors in forest health, especially in Western forests where accelerated wildfire mitigation is producing the feedstock for biochar production.

The Biofuelwatch report concludes, “Biochar remains an unproven approach that simply should not be incorporated as a viable option to climate mitigation at this stage.”

Is biochar just another Forest Service justification for cutting trees? Considering CO<sub>2</sub> emissions from tree-cutting machinery and the loss of carbon-sequestering trees, perhaps it would be wise to stop looking for reasons to cut trees and let mismanaged forests find a natural balance.



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