When Controlled Burns Go Bad: The Deadly Lessons of California's 2020 North Complex Fire

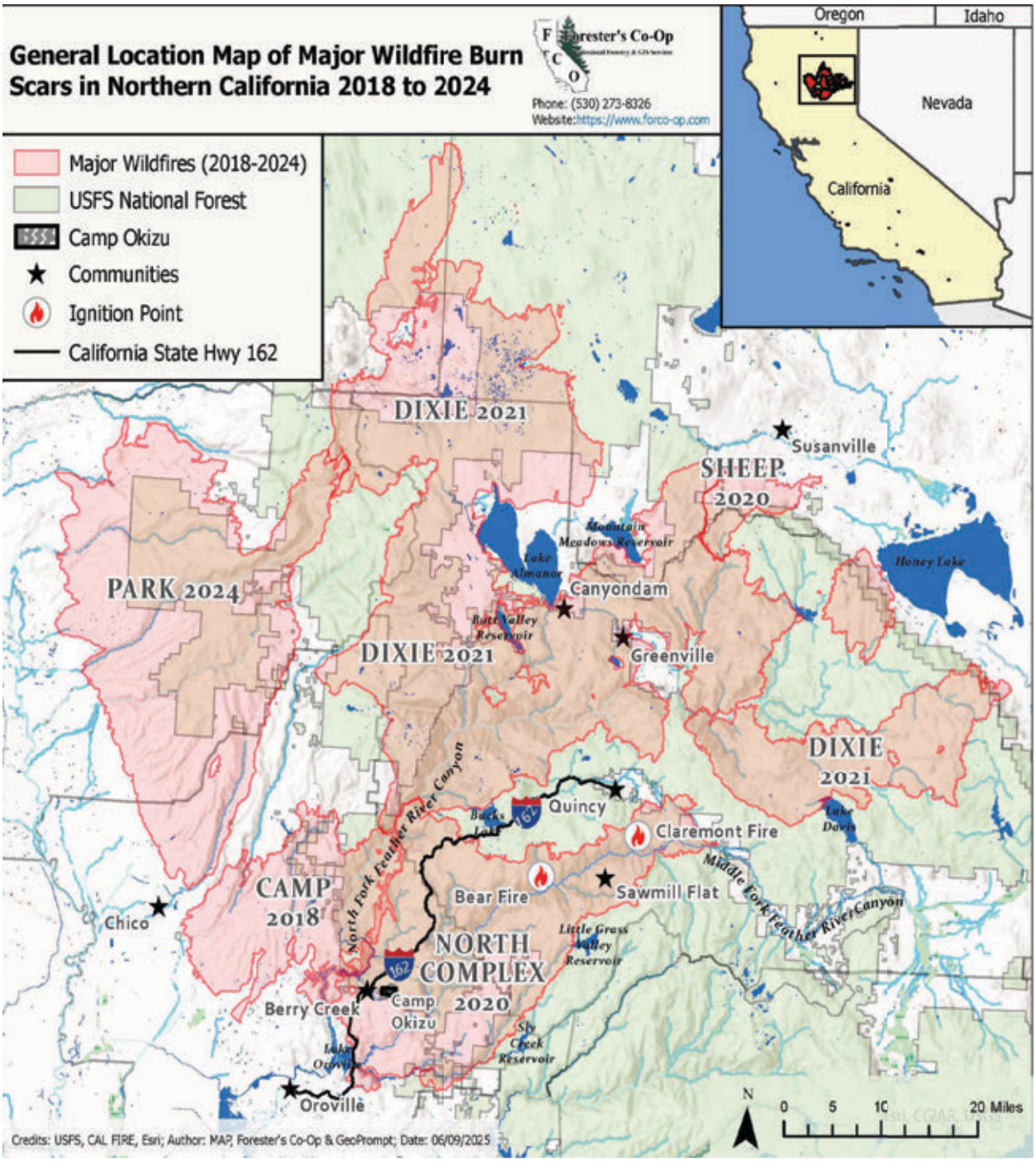
By Dr. Bob Zybach and Frank Carroll

Smokey Bear, long a popular symbol of fire prevention, has more recently become a symbol of costly fire policies using wildfires to "manage" forests. AI illustration by Frank Carroll.

A lightning storm on August 17, 2020, ignited 21 individual wildfires in the Plumas and Lassen National Forests in northern California. By September 5, all of the fires had been completely extinguished, with the exception of the Bear, Claremont, and Sheep Fires near the towns of Quincy and Susanville in Plumas and Lassen Counties.

These fires were taking place just a few miles southeast of the 2018 Camp Fire, also in the Plumas National Forest, which made national news when it destroyed the town of Paradise in a few hours on November 8, killing 85 people and ultimately burning more than 150,000 acres and 18,000 homes and businesses.

Because of the large numbers of fires caused by the August 17 lightning strikes, and because of its isolated location, the decision was made on the 18th to leave the Bear Fire "unstaffed" for the time being, and to focus on extinguishing fires of greater risk to local communities.



Camp Okizu prior to being burned in 2020 North Complex. Forester's Co-Op 2022: 52.

According to the September 3 Infrared Interpreter's (IR) Daily Log, the Sheep Fire had grown to 29,500-acres, the Claremont to 23,100 acres, and the Bear to 10,200 acres.

The IR Daily Log report contains summarized information of all infrared photography flights that take place while monitoring a wildfire. The imagery can be seen through smoke, shows the hottest portions of an active fire, accurate perimeter acreage, and the exact locations of advancing spot fires.

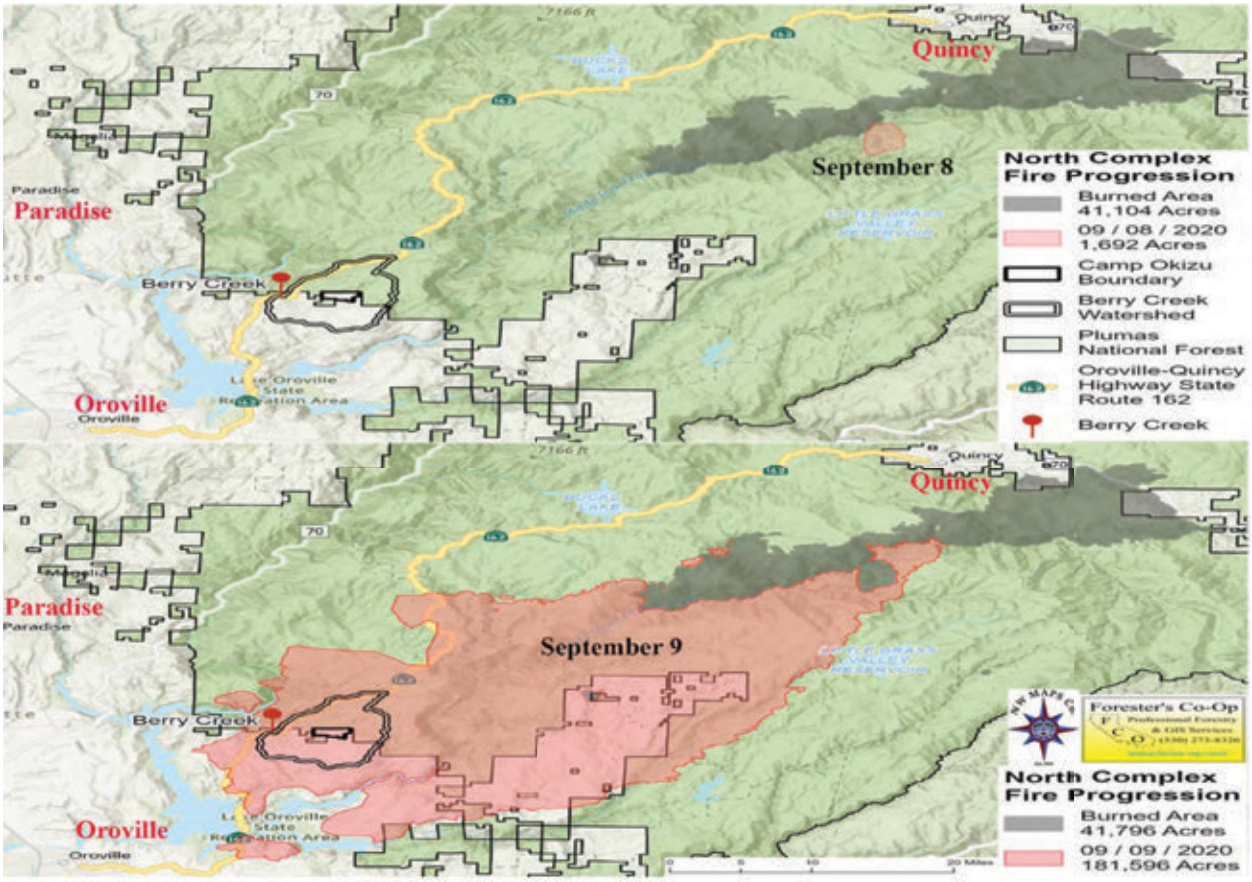
The last IR Daily Log entry for the Sheep Fire on September 3 showed the fire had stopped growing at 29,571 acres. On the same date, on the north rim of the Middle Fork of the Feather River Canyon, Forest Service fire commanders decided to purposefully set fires to merge the Bear and Claremont fires into a single wildfire: the "North Complex."

Strategic firing operations had already increased the acreage for both the Bear and Claremont Fires beginning on August 30 and September 1, and officials reported successful “widespread firing operations” in incident daily reports for those days.

The September 5 IR Daily Log stated that the two fires had grown by nearly 900 acres, with "all growth occurred in the burnout between the two areas." The September 6 IR Log reported the two fires as a single entity for the first time, noting it was now 39,639 acres in size, having grown an additional 1651 acres from the continuing firing operations. The same report also gave a final link to the Sheep Fire data, which was considered contained**.**

The September 7 IR Log listed the North Complex at 40,265 acres; September 8 wasn't computed because of technical issues (the authors believe this decision was

purely political. The incident commanders did not publish the data to deflect attention from the final firing operations on September 7-8, which involved a dangerous run both north and south across the canyon as the firing operations of September 6-7 merged with those from the Sawmill Flat Road on September 7-8). The IR Log on September 9 showed the North Complex had abruptly grown to 248,171 acres.



2020 North Complex Fire Progression Map, September 8-9.

SEPTEMBER 8

A relatively new theory of large fire management began in earnest in 2009. Big boxing and burning, euphemistically dubbed “strategic firing operations,” became a favored strategy of large fire management for complex reasons that included unilateral agency policies such as “reintroducing fire to fire-depleted ecosystems,” using wildfires for “ecological benefits,” and a more arcane catch-all that "firefighter safety" is improved by lighting many more acres on fire than a fire would have burned had it been left entirely alone.

Firefighters had been lighting the Claremont Fire and the Bear Fire together along the north rim of the Canyon while at the same time preparing dozer fire lines on the south rim of the Canyon as part of a plan to burn out heavy concentrations of explosive fuels and avoid sending firefighters into the treacherous steep terrain.

The “strategic firing operation” linked the two fires along a very narrow corridor using prepared fire lines north of both fires between Lookout Rock and Claremont following the tops of the ridges above the Canyon. Firefighters had used various firing devices, including drip torches loaded with one part gasoline and three parts diesel fuel, during the first week of September, setting fires along the southern aspect of the ridge and running roughly east and west between the two fires.

The September 6 National Interagency Fire Center (NIFC) "InciWeb Evening Update" reported that: “Today was a successful day fighting the North Complex Fire . . . Line was constructed in the Lookout Rock area to prepare for future firing if weather conditions allow. The south edge of the fire is backing slowly toward the Middle Fork of the Feather River but has not yet reached the river. Crews are positioned to respond to any elevated activity on the south edge of the fire. Contingency lines using existing roads and trails south of the fire are being constructed at a rate of approximately 2 miles per day.”

The InciWeb advisory that day also cautioned: “The unseasonable hot and dry weather pattern will continue into Monday followed by a dry cold front expected Monday night into Tuesday. This front will result in Red Flag conditions Monday night through Wednesday”; September 7 through 9.

Red Flag conditions are warning signs or situations that indicate potential danger, risk, or serious problems that require immediate attention or caution. In this case, red flags warn of extreme fire danger with Haines Indexes of 6. The Haines Index is used in fire behavior predictions to assess the potential for wildfire growth and intensity based on atmospheric stability and dryness as a number from 2 (low potential) to 6 (high potential) for fire growth.

During the evening of September 7 and into the morning hours of September 8, the resulting firing operations were not bounded by firelines and were uncontrolled along the entire southern perimeter of the main fire. Sometime on the night of September 7, or in the early hours of September 8, fire commanders ordered firefighters to light the north side of the prepared, defensive dozer lines along Sawmill Flat Road.

The two fires, driven by variable winds and dominated by the convective heat of firing operations, blew across the Canyon and into the southern flank of the Bear Fire as the two fires now rushed to meet each other, sucking oxygen to fan their respective flames.

By 10:00 a.m. on September 8, northwest winds gusting to 45 mph pushed the combined fire to 58,000 acres by late afternoon. Firing operations along prepared dozer lines in the area of Sawmill Flat Road the previous day held -- temporarily.

Firefighters raced against time and circumstances to complete their strategy at the height of an already epic fire season in northern California. The spectacular firing operation that crossed the Canyon from south to north on September 8 was prelude to disaster. All firing operations had ceased by daylight on September 8.

The following day, a California Department of Forestry report stated: “The area was under a Red Flag Warning on September 8th and 9th due to strong offshore winds, low humidity and dry fuels after a period of excessive heat.”

Burning Home. Berry Creek, California, September 9, 2020. Photo by Noah Berger/AP.

SEPTEMBER 9

On September 9 the gale-force winds shifted from northeast to southwest. The firing operation that began on September 3 now roared down the Canyon and across the vast territory between Quincy and Oroville, quickly enveloping the previous day's firing operations. By 8:35 a.m., firefighters estimated 150,000 acres had burned, destroying the town of Berry Creek, Camp Okizu, 2000 buildings, and killing 16 people and injuring 100 others. By evening the fire had raced 25 miles through 194,000 acres of mature California conifer forest in a single burning period and had grown to more than 252,000 acres.

Camp Okizu, a well-known summer camp for children with cancer, and its 500-acre natural refuge disappeared from history along with its new $10 million dining hall and all principal facilities. The community of Berry Creek, at the top of the ridges just above the city of Oroville, burned in minutes, catching residents completely by surprise. There was no warning. No evacuation orders reached anyone.

Burned Truck. Berry Creek, California, September 9, 2020. Photo by Noah Berger/AP.

How could officials issue evacuation orders when they had no idea and could not imagine the scope and scale of the fire they had lit? Sixteen people died in their homes, running for their cars, in their cars, or standing helpless before the storm. A one-year-old baby died with his mother. The fire continued downhill and into Oroville where the Reservoir and its miles of lake shore slowed and then stopped the forward progress of the fire.

AFTERMATH

On September 10, Forest Service press releases hit newsrooms across California. The news media reported the horrifying and incredulous details in news stories about the scope of the disaster and the tragic deaths. Public information officers emphasized the extreme fire conditions driven by high winds, dry fuels, and record-breaking heat, noting the rapid spread of the fire due to these factors. They stressed the urgency of evacuation orders and cooperation with local emergency services. They highlighted the challenges of timely evacuations given the fire's speed.

The releases detailed firefighting resources deployed -- crews, aircraft, etc. -- and the strong coordination with Cal Fire and other agencies. While acknowledging the tragic loss of life and property, fire information officers framed these outcomes as a result of the fire's unprecedented intensity. Not a single official communication mentioned operational failures or the intentional burning leading to the fire storm.

On Friday, September 11, California Governor Gavin Newsom visited the site and blamed climate change: "California is in the midst of an existential climate crisis. It was just two years ago that this area saw the deadliest wildfire in our history. Now, just a few miles away, another deadly wildfire has ripped through these same communities. There is no doubt – climate change is here, and it is happening faster than most had anticipated."

He did not know about, and did not mention, the failed firing operations.

California Congressman Doug LaMalfa criticized Newsom's "audacity to come tour the North Complex and peddle his climate change agenda while offering zero solutions to alleviate the pain of our people or get these fires under control."

California State Senator Jim Nielson coauthored a press release calling Newsom's comments "a deflection from the fundamental failure to address the fuels build-up in our forests that are the cause of these devastating fires."

Official photograph of California Governor Gavin Newsom at the Berry Creek site of the North Complex on Friday, September 11. This photo shows Newson signing a law to free inmates who fight wildfires; one of a series widely released to news and social media under the title: 'Debate is over,' California's governor says. 'This is a climate damn emergency.'

Forest Service and Cal Fire officials did not brief LaMalfa or Nielson – or any other politician – about the sequence of events, Red Flag warnings, or the "strategic firing operations" that had preceded the firestorm. Instead, it was portrayed as just another unimaginable tragedy in a series of unimaginable tragedies that began with the Camp Fire two years earlier and would continue for the next few years, burning several millions of acres of big timber and changing lives ever after.

After action briefings and investigations by expert consultants, people wondered whether just allowing the fires to burn naturally without any suppression action might not have been better for everyone. Strategic firing operations as a normative part of fire suppression is a learned behavior, a mode of operation agreed on by

people who train together, fight fire together, and who enjoy practically unfettered access to do whatever they think best as they work to manage wildfires.

With no barriers to any proposed action and no review or oversight beyond their own understanding, incident commanders are free to take virtually any action imaginable to “manage” a particular wildfire as they see fit. Increasingly, they have seemingly come to believe strategic burning as the best option in almost every situation. When challenged by cooperators or impacted private property owners, incident commanders fall back on the nebulous and counterintuitive rubric of “firefighter safety.”

DISCUSSION

It’s difficult to question officers in the middle of a fire fight when the outcome -- either way -- could injure or kill a firefighter. On the other hand, decisions to allow fires to burn, or to increase the size of fires intentionally, or to merge large fires into even larger fires, can and do injure or kill civilians and destroy private property.

Such decisions ignore the specific policies and jurisdictional imperatives of other government agencies and often result in distrust and opposition to agency decision makers. Lawsuits typically follow, seeking redress for harms inflicted by applying imperfect and unvetted policies to take any action other than putting the fire out as quickly as possible.

Firing operations have long been used as a successful strategy to increase the “black line” of unburned fuel between the main fire and established fire lines. “Burning out” the unburned fuels between the fire line and the fire is a normative part of fire line construction performed as hand tool crews and fire engine crews work to surround and contain a fire.

“Firing operations” are sometimes justified as an attempt to enhance firefighter and public safety, with firefighter safety being the imperative. In a crisis, “back firing,” or lighting the edge of a town on fire to blunt a coming fire storm, has been a successful tactic. This famously occurred in Wallace, Idaho during the "Great Fire of 1910," which is largely credited for saving the town and many lives.

Michael Rains is a former Deputy Chief of the Forest Service who served for 50 years, from firefighter to top leadership. He has observed that, as skillful as firefighters may be, there are few people in the ranks who have the requisite

Wildfire Suppression Funds: Misuse of Congressional Intent?

A recent analysis highlights a critical issue with how federal wildfire suppression funds are being used. Congress, through the Consolidated Appropriations Act of 2023, explicitly allocated over $945 million for **emergency wildfire suppression**, emphasizing rapid response to extinguish fires and protect public lands, resources, and communities. However, current practices by the U.S. Forest Service (USFS) appear to deviate from this legal mandate.

Instead of focusing solely on suppression, the USFS has adopted policies allowing wildfires to burn as a tool for achieving land management objectives. These strategies, such as using "natural ignitions" to promote landscape resilience or meet resource management goals, lack clear statutory authorization and directly conflict with Congressional intent. Nowhere in the appropriations law or related legislation does Congress permit the use of unplanned wildfires as a resource management strategy.

This approach not only conflicts with the **"plain meaning"** of the law but also raises concerns about the misuse of funds earmarked for true emergency suppression. Allowing wildfires to burn for strategic purposes—sometimes under the guise of resilience-building—diverts resources from their intended purpose: the immediate containment and suppression of dangerous fires.

The analysis underscores that current USFS actions, including policies outlined in internal manuals and leadership memos, fail to align with the legal framework governing fire suppression. This misalignment risks violating federal appropriations law and undermines Congressional efforts to protect public lands from the growing threat of wildfires.

White paper by Joe Reddan, Chief Forester for Flexilis Forestry, and published in serial editions of *Call to Action* by Michael Rains.

knowledge, skills, experience, and luck to “manage” a large wildfire in the best of circumstances; much less to light more fire, or let fires burn, and successfully predict the outcomes.

There are even fewer line officers, the people with the ultimate responsibility for these decisions, who have any credible large fire experience at all. Many, and probably most, of the current generation of Forest Service leaders are not firefighters and are not individually or collectively able to provide oversight to incident commanders or assess or project outcomes of their decisions.

Rather, in the opinion of the authors, these responsibilities are firmly in the hands of a few unelected, unappointed, professional firefighters with increasingly less knowledge of integrated resource management -- and increasingly greater capacity

to lay fire on the ground from fleets of fire drones, helicopters, and firefighters armed with sophisticated firing devices.

Lighting the forest on fire at the height of fire season is inevitably a roll of the dice. Other options may be limited. In some cases, firefighters hope to achieve management objectives by using “managed” wildfire to reduce fuels or to “reduce the energy” in a fire area; meaning light it on fire and burn the available fuel. A common opinion among many wildfire experts is that a "managed wildfire" is an oxymoron. "Wild" is commonly defined as "unmanaged" and "uncontrolled."

While the 2020 North Complex is among the worst examples of “alternative fire suppression strategies” gone wrong, it is not alone and not unusual, except in the number of civilian dead and injured. Large-scale firing operations are problematic, potentially dangerous, and hazardous in even the best conditions.

During the same year, 2020, the enormous size of the 1,033,000-acre August Complex -- also ignited by the August 17 lightning storm, and the largest wildfire in California history -- was largely blamed on a poorly managed firing operation.

Zeke Lunder, an experienced firefighter, wildfire analyst, and cartographer, noted in his popular website, *The Lookout,* that much of the 2021 Dixie Fire's "growth was affected by fire put on the ground during firefighting." That fire destroyed the towns of Greenville, Concow, and Warner Valley, and Lunder estimated that about 60% -- well more than half -- of the 963,000 burned acres were a result of backfires.

The 2021 River Complex in northern California and southern Oregon was started by a July lightning storm, burned more than 199,000 acres, and was greatly enlarged by firing operations along Coffee Creek Road according to official accounts. Other examples of these failure can be readily listed; at least beginning with the 500,000-acre Biscuit Fire in 2003, and perhaps even earlier.

SUMMARY

In April 2014, the Forest Service completed the final phase of its National Cohesive Wildland Fire Management Strategy (the Strategy). Its vision statement reads: “Vision: To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire.”

This aspirational strategy is not supported by annual appropriations law, for which the intent is suppression of wildfire. Shortly after adopting the new Strategy, the Forest Service formally implemented it with the USDA Forest Service Strategic Plan: FY 2015-2020:

"Using the latest tools, we decide . . . when and where to use fire to achieve our objectives for long-term ecosystem health and resilience . . . We will make sure that the actions we take, whether to use fire or control fire, are socially, economically, and ecologically sustainable. Our priority is to reduce the risk from wildfire to communities and natural resources . . . By applying the best available science and land management and by working closely with landowners and other partners, we will restore the natural role of fire while helping at-risk communities adapt to wildfire hazard."

Significantly, no record exists of the Forest Service asking the “at-risk communities” or anyone else whether their plan to “restore the natural role of fire” was a good idea, and there is no extant record of what the public response might have been had they been asked.

There has been no proposed action and no public planning process to analyze or disclose the cumulative effects of such a proposal. The Forest Service asserts "wildfire use" meets the broad objectives of each Forest's Land and Resource Management Plan (LRMP, of course) -- many of which were decades old before "wildfire use" was even contemplated.

Such an approach would invoke annually appropriated funds other than "fire suppression," and would comply with laws and regulations. But neither laws nor publicly promulgated rules and regulations anticipate or authorize "wildfire use" for "natural resource management," or any other purpose other than fire suppression.

The North Complex Fire wasn’t merely a tactical failure—it stemmed from flawed wildfire management policies that prioritized "fire use" over suppression. It further reflected a dramatic shift in wildfire management philosophy. Rather than concentrating only on extinguishing fires, the plan promoted "managed wildfires" in areas considered "low risk."

For decision-makers, this strategy was claimed to be a fairly cost-effective means of mitigating future fire risks. However, for communities such as Berry Creek, it proved to be a deadly gamble.

Two firefighters armed to burn. These Forest Service firefighters carry Very pistols and pistol-fired flares (called "sausage guns") to light fire at distance of several hundred feet from the fire line. One firefighter called the thrill of being ordered to light giant fires "cowboy burning," referring to the practice on Instagram as #HoldTheLineAndBurnItAll and #GetYourSmokeyOn. USDA Forest Service photo.

Between 2015 and 2020, Congress allocated over $2.5 billion annually for fire suppression but only $385 million for fire prevention. This funding disparity economically encouraged risky strategies such as firing operations.

There must be accountability for subsequent reckless decisions. The commanders who approved the North Complex firing operation made a series of choices that directly contributed to its deadly outcome. Without consequences, there is little incentive to change the costly and deadly risk-taking culture that has become entrenched in wildfire management.

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A change of administrations in 2025 altered the dynamic of wildfire policy and management in encouraging ways. Recently appointed Forest Service Chief Tom Schultz has instituted new policies requiring firefighters to suppress fires during

wildfire season. His annual Chief's letter is unequivocal in requiring "immediate fire suppression" to protect public and private lands.

New wildfire policies are also on the horizon that will mandate salvaging dead timber, reforesting badly burned areas, opening roads and trails to public use, allowing grazing after fires to help restore rangelands, and implementing other measures long advocated by us and by other members of the informal National Wildfire Alliance (NWA), that has steadfastly promoted these ideas for several years and even decades.

One of the key participants in this fluid organization of aging wildfire experts and resource managers is journalist Jim Peterson, editor of *Evergreen Magazine* and long-time supporter of actively managed forests and rangelands. Peterson's 2020 book, "First, Put Out the Fire!," traces the social, cultural, historical, economic, environmental, and regulatory roots of the wildfire pandemic sweeping through western National Forests. And its title succinctly sums up the philosophy of every NWA member and remains the constant focal point of our various efforts.

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