



Redefining the Urban Wildfire Problem in the West

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About Headwaters Economics

Headwaters Economics is an independent, nonprofit research group whose mission is to improve community development and land management decisions. <https://headwaterseconomics.org>

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Cover image: "Under Threat" by Brent Powell (Headwaters Economics) with elements generated by Adobe Firefly.



Executive Summary

Society is facing a wildfire crisis of ever-increasing risks to homes and communities in wildfire-prone areas. Current approaches to controlling wildfire are ineffective, costly, and inconsistent with the well-anchored notion that fire is a sustaining ecological factor in fire-adapted ecosystems.

Community wildfire losses continue to rise due to several related factors: 1) communities have been and continue to be developed with vulnerable construction within and adjacent to fire-prone wildlands and with little preparation; 2) attempts at fire exclusion as a part of land management have caused fuel accumulation that threatens ecosystem sustainability in many areas; and 3) climate change is exacerbating wildfire activity.

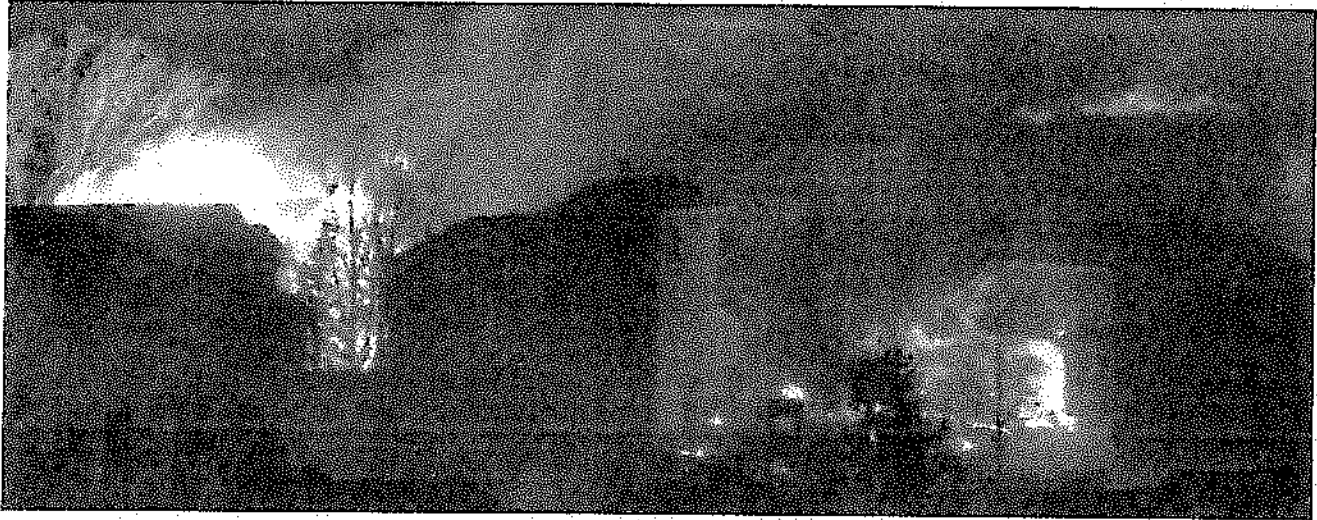
The U.S. government's 2014 National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) is currently the dominant framework for addressing wildfire on the nation's 640 million acres of federal land. The Strategy is an effort to work with public agencies and landowners to reduce wildfire risk on comingled lands. The broad approach of the Strategy outlines a vision of *living with wildland fire* by means of three primary goals: 1) engaging in safe and effective wildfire responses; 2) creating and maintaining resilient landscapes; and 3) creating and maintaining fire-adapted communities. In 2022 the U.S. Forest Service released its 10-year Wildfire Crisis Strategy. This Crisis Strategy outlines an ambitious goal of dramatically increasing the pace and scale of forest treatments *"to address wildfire risks to critical infrastructure, protect communities, and make forests more resilient."*

In 2023, an addendum to the Cohesive Strategy was approved that clearly recognized the inevitability that wildfire and communities will interact. Specifically, it restated the goal for fire-adapted communities as: *"Human populations and infrastructure are as prepared as possible to receive, respond to, and recover from wildland fire."* While the Cohesive Strategy has greatly improved collaboration across the landscape and the more recent Wildfire Crisis Strategy outlines aggressive fuel treatment goals, government agencies responsible for carrying out wildfire and fuels management remain committed to the assumption that community protection should be a primary focus of federal wildfire mitigation and response efforts. Emphasizing fuel reduction on federal land proximate to communities as the cornerstone of both strategies fails to account for emerging research demonstrating that fires with high structure loss are increasingly ignited by human activity on nonfederal lands.¹ Moreover, wildland-urban interface (WUI) research demonstrates that structure ignition conditions within communities principally determine destructive fire impacts on society.

In this white paper, we assert that the current wildfire management approach has partially inverted the wildfire problem as one in which wildland fires encroach on communities when, in actuality, it is communities that

have increasingly impinged on wildlands where fires might appropriately play an important ecological role. As a result, predominant strategies continue to apply shortsighted, risk-averse reactions emphasizing community protection at the expense of creating resilient landscapes and promoting safe and effective wildfire responses.² In doing so, managers are inadvertently limiting agency ability to build fire-adapted communities and generate landscape vegetation and fire conditions that support more meaningful and useful change.

This paper highlights the uncompromising realities of nature and climate change and suggests practical opportunities for living within the conditions that can support ongoing wildland fire as an essential reality and vital ecological process. Wildfire is coming to our landscape. Is it fire that we can live with or fire that will repeatedly destroy us? Forward-looking ecological and practical thinking would transition conditions away from continually degrading fire-adapted ecosystems and underinvesting in community resilience and toward a sustainable approach that consistently promotes ecological and human ecosystem benefits.



The Cohesive Strategy and the Crisis Strategy

After four years of interagency work, the Obama Administration released the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) in 2014, with an addendum during the Biden Administration in 2023, to encourage collaborative work among state and federal agencies and other stakeholders across all landscapes.¹⁷ Its purpose was to provide a national framework to guide and support decision-makers.¹⁸ In 2022 the U.S. Forest Service released the Wildfire Crisis Strategy. The Crisis Strategy outlines an ambitious goal of treating an additional 20 million acres of U.S. Forest Service land and 30 million acres of other federal, tribal, state, and privately owned land “to address wildfire risks to critical infrastructure, protect communities, and make forests more resilient.”¹⁹ These two strategic efforts represent both a recognition of the severity of the wildfire problem and a unique opportunity to make meaningful change to the nation’s relationship with wildfire. However, to achieve the necessary pace and scale of change required, implementation of the strategies must overtake the pace and scale of modern wildfires so that the landscape might tip to more benign wildfire dynamics. To do so requires that we recognize some of the unintended contradictions within these efforts:

- **Short-term outlook:** Schultz et al. (2019) identified ambiguity and conflict within the U.S. Forest Service’s definition of the wildfire problem: short-term protection objectives are inconsistent with more meaningful, longer-term risk reduction. Reducing wildfire risk and restoring an ecological role for fire is a transgenerational goal and responsibility.
- **Lack of workforce:** The Crisis Strategy outlines a massive increase in fuel-reduction work with a focus on going to highest-risk areas first, but does not confront the workforce capacity and capability required to conduct these efforts. Most of that workforce is continually over-committed to wildfire suppression activities. The 2023 Cohesive Strategy Addendum recognizes that the existing wildfire management system has not kept up with demands and therefore includes a new critical emphasis challenge area in workforce capacity, health, and well-being. Thousands of former employees who worked on proactive forest mitigations have been lost to retirement, non-replacement, and the ever-enlarging fire-industrial complex.
- **Over-reliance on fuel treatments:** Most importantly, wildland fuel treatments are seen as the primary tool to reduce structure loss despite decades of research demonstrating that the conditions of the structures and their immediate surroundings are largely responsible for loss. This is a community responsibility. Given the scale of current wildfires and the area burned relative to treated area, wildfires will continue to have increasingly more influence modifying future wildfire potential than hazardous fuels management.
- **Under-reliance on wildfire:** Perhaps the largest opportunity of all is to increase the positive work of

is always the most appropriate and effective response.

Although the science of fire ecology has developed over a century of research and is embedded in official fire management policy of the federal government since 1977, the public remains largely alarmed by the presence of wildfire. Historical suppression policies fostered the belief that organized fire suppression is effective at stopping fires, and thus, is beneficially protecting communities and natural resources from ongoing wildfire threats. This arises from an easily established perception from the mid-20th century – when the climate was moderate and fires were readily contained.

In fact, a century of data seems to support this idea. Most fires *were kept small* by suppression, and fire records since the 1910s show that 96 to 98 percent of all wildfires *were kept smaller* than 300 acres. However, the remaining 2 to 4 percent of fires that escape suppression attempts each year are responsible for 90 to 95 percent of annually burned area. This means that fire suppression predictably fails one time in fifty. This failure leads to the 2 to 4 percent of fires each year that are most damaging and difficult to control. Moreover, we have learned that it is the smaller fires that we successfully douse that provide the capacity to constrain the growth, size, and frequency of the largest fires.⁴³

Creating resilient landscapes is but one factor that contributes to reducing wildfire risk. Risk is determined by combining the landscape fire hazard with the susceptibility of the values at risk.⁴⁴ Fuel reduction treatments (as above) applied to improving landscape resilience can also reduce probabilities of severe fires and the extent of their impacts. Mechanical thinning and prescribed and unplanned fire are the most effective techniques for reducing hazard in seasonally cured forests and are consistent with their fire ecology.⁴⁵

While hazardous fuels reduction treatments can reduce burn severity and extent when implemented at the appropriate scale and spatial distribution, evidence that treatments are sufficient to reduce risk to communities is not supported by wildland-urban fire research.⁴⁶ Too often wildland fuel treatments are promised as the exclusive means of preventing community destruction.⁴⁷ Establishing landscapes that are truly more resilient to wildfires requires a fundamental recognition that wildfires play an ecologically appropriate role in ecosystem functionality and sustainability over extremely large areas. What's more, ecologically appropriate fire does not sufficiently prevent ignition-vulnerable communities from burning.

Transitioning to fire-resilient landscapes will require more individual fires (thousands) to burn across large spatial scales over extended durations and weather conditions. The potential fire conditions for any specific fire will remain uncertain and, unavoidably, some fires will experience extreme conditions. Further, climate change through a potent and unwavering combination of warming air temperatures, earlier snow melt, longer fire seasons, earlier fuel curing, drier summers with more windy days, and below-average winter precipitation shifting from snow to rain will be an intense driver of larger and more intense fires.⁴⁸ Coupled with fire exclusion and 100 to 170 years of accumulated fuels, fire regimes are departed from historical conditions.⁴⁹ What traditionally worked in the past to contain and extinguish wildfires from impacting homes, communities, and critical values will not work in the future. For fire and fuels management to succeed in the near term, large-scale transitions are needed – away from the short-term protection mentality that concentrates attention in the wildland-urban interface and to those that support long-term and large-scale landscape and wildfire resilience. Protection of the community is a great need as well, but it involves communities taking responsibility for their vulnerabilities and that requires alternative methods, means, investments, and governance.

On many landscapes, climate change will make historical ecological conditions unattainable because ecological resilience is now known to be a nonstationary condition, ever-evolving with the climate. However, developing and maintaining landscape resilience to newly emerging conditions resulting from climate change and shifting wildfire dynamics is achievable. Resilient landscape configurations will play upon major themes