

Western Wildfires:

How did we get into this mess and how can we get out of it?

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In October 2020, Colorado was fighting the two largest wildfires in state history. At the same time, California was fighting several destructive wildfires, including the largest in its own history: the August Complex, which by month's end exceeded more than one million acres. The August Complex fire was huge and destructive and encompassed part of a ranger district on California's Shasta Trinity National Forest where I had worked and fought fires in the 1970s.

Like so much in American society today, the issue of Western wildfires has become politicized in ways that make the problem of addressing it much more difficult. The arguments are familiar. One side argues the main culprit is climate change, which has led to extended drought, higher temperatures, drier conditions, and more intense storm and wind events that drive these fires. The other side attributes these catastrophic fires to poor forest management and cites the need to more actively manage Western forests to reduce wildfire risk.

The reality is – both assertions are valid. The length of the active fire season in many parts of the West has increased by more than 30 percent since the 1970s, average temperatures have increased, and intense fire years have become much more frequent. Rising temperatures and drought conditions have stressed forests and led to massive forest mortality due to disease and insects, including bark beetles.

In addition to climate induced stresses, the characteristics and condition of many forests in the West have changed substantially since the turn of the 20th century in ways that has made them more susceptible to large, destructive wildfires.

The consequences of increased temperatures and drought and more fire susceptible forests has been greatly exacerbated by the substantial increase in residential development into high fire risk areas over the last three decades.

It is these three developments – **rising temperatures and drought, forest conditions more susceptible to destructive wildfire, and increasing residential developments in high risk areas** – that have been the primary drivers creating the mess we are now in. Improving this situation will require the public to better understand the factors that created it and a stronger consensus on the actions that are needed to address it.

Even if human greenhouse gas emissions were miraculously halted tomorrow, continued climate warming is projected, causing intensified storms for many years, perhaps decades. Effective solutions must

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include both climate change mitigation and the need to adapt to its continued effects. In the case of wildfire, climate change adaptation requires active vegetation management to better protect at-risk human and natural communities.

We know how to do this. We just need the collective will to do so – and adequate resources devoted to carrying it out.

Why have many Western forests become more susceptible to catastrophic fire?

In the popular literature of today, it is often stated that “more than a century of fire suppression” by federal and state agencies and the failure to let “natural fires” burn has created the fire susceptible forests of today. This is partially true but is also far from the full story.

After the disastrous Idaho-Montana fires in 1910 burned more than 3 million acres and killed 78 Forest Service firefighters, the agency adopted an active fire suppression strategy. But for many decades there remained a big gap between the agency policy of suppression and the performance. A century ago, most forests in the West were inaccessible by road and the capacity and resources for firefighting were quite limited. Firefighting capacity began to improve in the late 1930s with the work of the Civilian Conservation Corps. But it was not until the 1950s that access to forests improved and firefighting capacity became truly effective.

The reality, however, is that Western forests began to change and became more fire susceptible decades before modern fire suppression was realized. For thousands of years, forests and grasslands in California and much of the West were actively managed by Native peoples through controlled use of fire. Fire was used by Indigenous peoples for a variety of purposes, such as improving game habitat; promoting berries, acorns, and other food sources; making it easier to travel; improving the defensive position of villages; among other purposes. Many forest areas were burned frequently using low intensity fire during seasons when the risk of damaging wildfires was low.

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Millions of acres in the lower elevations of the West were open forests and intermixed grasslands that were subject to frequent, low intensity fires, both natural and those set by humans. In the higher elevations which were cooler and moister, natural, and human set fires were less frequent, but when they did occur, were more intense. This often-created forest conditions characterized by openings of various sizes and ages and thus were patchier than today, which limited the spread of large fires.

Indigenous management of forests in the West began to change shortly after the major influx of European immigrants, spurred by the 1849 California Gold Rush and the tens of thousands of settlers arriving via the Oregon and California Trails. By the 1870s, the assault on Indigenous peoples and their forced movement to reservations had resulted in elimination of most active Native American management of forests and grasslands as they were forbidden to carry on many of their cultural practices. At the same time, millions of sheep and cattle were brought in to develop ranching operations, changing fuel dynamics, and further preventing natural lightning fires from spreading. Massive grazing also created mineral seedbeds and encouraged tree seedling regeneration that resulted in dense “dog hair” thickets of trees susceptible to high intensity fire.

An additional factor affecting fire risk in recent decades has been the expansion of invasive, exotic species, such as cheatgrass, which have displaced native grasses over large areas and fostered the rapid spread of wildfires.

Tree ring studies and photo comparisons of forests taken in the 1870s and 1880s with those taken in more recent history, clearly show that many forests in the West began to become more fire susceptible decades before the era of modern fire suppression. There is a popular mythology today that discounts the significant role that Native peoples played in shaping pre-European settlement forests and grasslands and assumes that prior to the arrival of Europeans in the Americas, the land was a vast “untouched wilderness” uninfluenced by human activities. This so-called “pristine myth” is a major barrier to effective policies and practices to manage forests to reduce fire risk.

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These fire susceptible areas began to see a major influx of residential development beginning in the 1960s and 70s and accelerating in recent decades. Increased temperatures and drought conditions placed ecological stress on forests and drove extreme fire behavior, completing the formula for the disaster unfolding in the West in recent years.

More than 30 percent of new residential developments in the West are estimated to be in fire susceptible areas (often called the “wildland urban interface” or WUI). The mounting public cost of fire suppression (more than \$3 billion in 2018) has primarily focused on protecting these vulnerable communities.



What can be done?

Much can be done, but only if we have the collective will to do so. We need a commonly accepted understanding of just how we got into this situation. Acknowledging the complexity of the history provides us with insights as to the necessary solutions to the problems. But getting out of it will not be easy or cheap.

The primary elements of an effective policy include: 1) climate change mitigation, e.g., reducing greenhouse gas emissions; 2) creating more fire resistant communities; and 3) managing forests and grasslands to reduce their susceptibility to unnatural catastrophic wildfires. These topics have been written on extensively. Since climate change mitigation is a much larger topic than Western forests and is covered in other venues, I will focus briefly on the last two areas.

- **Create fire resistant or adapted communities.** Much work has been done over the last couple of decades to develop the techniques and programs to make communities more fire adapted by managing vegetation in and around fire susceptible communities and modifying and retrofitting buildings to reduce their susceptibility to wildfires. Evidence after wildfires suggests that these techniques, while certainly not foolproof, can substantially reduce the risk of wildfire loss in residential communities. Unfortunately, adoption of these techniques has been far from universal. Many communities resist public mandates to carry out vegetation treatments in and around neighborhoods and requirements for fire resistant building practices and techniques. They, seldom, however, turn down publicly funded firefighters who arrive to protect their houses when wildfires threaten. This is as much a social issue as it is a technical and economic one. In recent years insurance companies have begun to make effective vegetation treatment around buildings a prerequisite to coverage, creating powerful incentives not available in the past.
- **More actively manage forest and grassland ecosystems to reduce their susceptibility to unnatural catastrophic wildfire.** Many residential areas are embedded within the extensive federal and other public lands that exist in many Western States. Taking steps to manage these public lands, such as the National Forests, to make them more fire adapted remains controversial and is also expensive, especially in the short term. However, analyses suggest that often only a portion of such forests need to be treated to reduce fire risk. If perhaps 20-25% of the forest in certain areas is treated, a substantial change in large scale fire behavior is often possible. These are not conventional logging operations, but are thinnings, creation of well-designed openings, and use of fire on a controlled basis to create healthier and more historic ecological conditions. Again, there are both social and economic barriers to moving in this direction. Controlled use of fire will put smoke in the air – but much less than by a wildfire. It also entails a risk of accidental escape of the fire.

There is also a strong aversion to change. Many assume that the forest conditions they see around them today are the same as existed in the past, and that prior to European settlement, U.S. forests and grasslands were free of human management or influences. This is not true. Even in the face of a changing climate, if Western forests were more like those of the 1850s, the risk of catastrophic wildfire would be substantially reduced. They would also be more ecologically diverse, resilient, and aesthetically attractive than what we have today.

Solutions to this dilemma are not simple or cheap, but the cost of inaction will be far more costly, both to human communities and to heathy forest and grassland ecosystems. We must somehow develop the collective will to act.