

How Should We Tackle the Forest Fire Problem?

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We're all familiar with the environmental and social costs of forest fires; in summertime—fire season in California—there are regular news stories about people losing their homes and thousands of acres ablaze. But the economic costs, literally who pays to put the fires out and how to contain them, are complex issues.

Severe forest fires have increased in frequency over the past decade, resulting in substantial losses of property and human lives. Last year brought one of the worst wildfire seasons in recent history; insured losses from wildfires in California alone were estimated to be over \$2 billion. Though the number of wildfires has gone down since the 1960s, the number of acres burned has risen markedly in the current decade. More than seven million acres of wildlands have burned in all but two of the last eight years.

The increased severity of fires, combined with continuing development in and near forests, puts many more communities at risk and has substantially increased both the difficulty and cost of fire suppression. Expenditures on fire suppression by the U.S. Forest Service alone have exceeded \$1 billion in five of the last seven years. And in 2009, nearly \$2 billion (48 percent of the agency's budget) is to be targeted at fire management, up from \$300 million (13 percent) in 1991.

A principal reason why the cost of fire suppression and the total number of acres affected have gone up stems from tradition. Federal agencies, including the Forest Service and National Park Service, have long pursued a policy of aggressive fire suppression; perversely, their

success has contributed to the increased severity of fires in recent years. Fire suppression has led to denser forests with more flammable materials, or "fuel loadings," and has altered the structure and composition of forests, rendering many more susceptible to fire. By the late 1960s, there was a growing realization that some fires could be beneficial. A small-scale program of "prescribed burning"—intentionally burning portions of a forest—was initiated in the late 1960s to reduce fuel loadings and to maintain forest structure and composition. However, fire suppression continued to dominate Forest Service policy for the next three decades.

By the mid-1990s, the essential role of fires became well recognized in policy circles. The 2001 federal wildland fire-management policy deemed fire to be a critical natural process that should be integrated into land and resource management plans. The 2001 National Fire Plan authorized a large-scale, long-term effort to reduce fuel loadings, with annual funding of roughly half a billion dollars.

In addition to prescribed burning, reductions in fuel loadings can be accomplished through mechanical thinning, which entails physical removal of flammable material through activities such as selective logging and clearing of underbrush. This year, the Forest Service also adopted the concept of "risk-based fire suppression," which calls for prioritizing fire suppression based on the infrastructure, property, and human values at risk. In addition, the Forest Service has expanded its policy of "wildland fire use"—which allows some naturally ignited fires to go unchecked if they do not pose threats to human welfare that cannot be readily mitigated.

While these policy reforms are generally considered to be in the right direction, they have nonetheless been subject to considerable criticism. Analysts have argued that current fuel reduction programs have a short-term focus and place undue emphasis on the number of acres treated, with limited attention given to treatment effectiveness. Also, more attention needs to be given to which forests are best treated as well as the types of fuels to be removed and the manner in which this should be done.

Fuel reduction is expensive, with costs running between \$500 and \$1,500 per acre for mechanical thinning, and \$50 to \$500 per acre for prescribed burning. Estimates of the costs of undertaking fuel reduction on high- and moderate-risk forest lands far exceed the sums budgeted for this purpose, especially when you consider that fuel reduction is not a one-time measure—it typically needs to be repeated at 5- to 35-year intervals, depending on forest type. Although there are regular calls for more funds to be allocated to fuel reduction, it is difficult to assess whether this would be worthwhile given the paucity of quantitative information on the effectiveness of fuel reduction in lowering fire frequency and severity. There is a clear need for better information on the cost-effectiveness of fuel reduction.

The sums spent on fire suppression have also come under question, with federal and state agencies still placing undue emphasis on the strategy. Existing policies restrict the ability of officials to pursue cheaper options, such as suppressing one area of a fire but allowing another area of the same fire to be managed for wildland fire use. Critics have also argued that huge sums are devoted to fighting the largest fires, even though the probability of success is often low, simply because of public perceptions and liability concerns.

The existing framework for sharing fire suppression costs between federal and non-federal agencies also contributes to higher suppression expenditures by distorting incentives. Cost-sharing rules are inconsistent and vague, and state and local governments are responsible for only a small share of the costs of protecting communities near wildlands. This reduces their motivation to adopt building codes and land-use controls that could substantially lower spending on fire suppression. Although this failure has been recognized, it persists. The financial responsibilities of the various levels of government need to be more clearly and consistently defined, and a greater share of the burden needs to be placed on state and local governments. ■

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