

Policy Analysis

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Routing

The Perfect Firestorm *Bringing Forest Service Wildfire Costs under Control*

by Randal O'Toole

Executive Summary

Blessed and cursed by a Congress that gives it a virtual if not literal blank check for fire protection, the Forest Service's fire spending is out of control. Prodded by a centralized planning and budgeting process, the agency's expensive, one-size-fits-all approach to wildfire does not fit the extremely diverse 193 million acres of national forests.

The Forest Service's program—which consists of spending close to \$300 million per year treating hazardous fuels and as much as \$2 billion a year preparing for and suppressing fires—will not restore the national forests to health or end catastrophic fire in most of those forests. In many forests it may do more harm than good.

Forest Service plans are based on the notion that western national forests suffer from an unnatural accumulation of hazardous fuels. In fact, that is probably true for no more than about 15 percent of those forests. The appropriate treatments on the remaining 85 percent may be as diverse as the forests themselves.

Significant structural changes in the Forest Service are essential to control fire costs. Those changes should divorce the agency, or at least its fire program, from Congress's blank check. They should also decentralize decisionmaking so local

decisions will respond to local economic and ecological conditions.

This paper suggests several possible structural changes, including

- Cost-containment programs (effectively the current direction);
- Focusing efforts on the wildland-urban interface, which is mostly nonfederal land;
- Relying on private insurance to fund (and control the costs of) emergency fire suppression;
- Turning national forest fire control over to state and local fire protection districts;
- Turning national forests into fiduciary trusts funded exclusively out of their own user fees; and
- Abolishing the Forest Service and turning the lands over to the states.

Because the actual situation varies greatly from one region to another, it may be that no one of these solutions will work for all federal lands. To find the solution or solutions that work best, Congress should apply some or all of these alternatives to one or more national forests on an experimental basis. Such experiments will help point the way to future wildfire management.

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The hazardous fuels story is just as fallacious as the previous promise of fire exclusion.

Introduction

Like wildfire in dry fuel on a hot windy day, Forest Service spending on fire is exploding out of control. The agency's fire expenditures have grown by 450 percent in the last 15 years, and that growth shows no signs of slowing down (Figure 1). Whereas fire consumed less than 10 percent of the Forest Service's budget in 1992, by 2007 it made up well over 40 percent.¹ There are 17 national forests in California; more than 60 percent of the 2006 budgets of four of those forests, and more than 50 percent of six more forests, came out of fire money.²

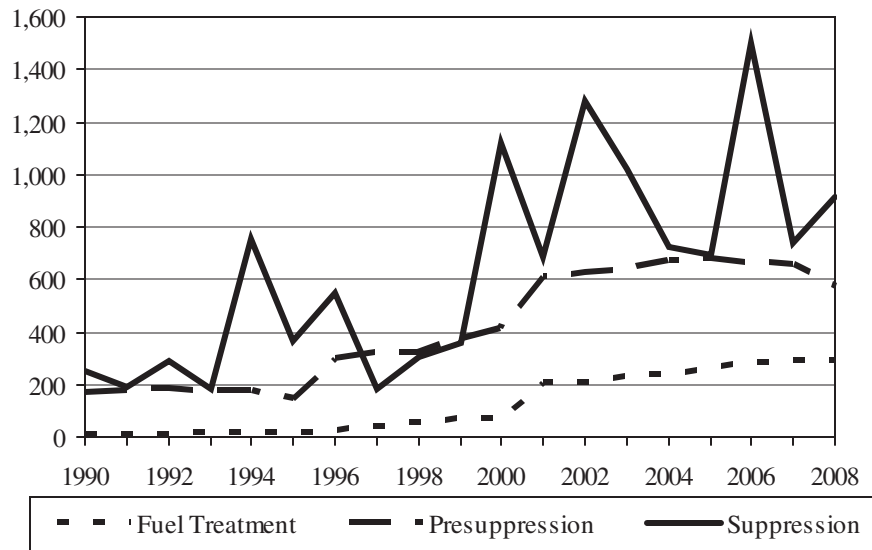
For most of the 20th century, the Forest Service claimed it could largely exclude wildfire from the national forests. By the 1960s that policy appeared to be succeeding; the number of acres reported burned each year had drastically fallen from previous decades. But a series of large fires beginning in 1987 persuaded the agency that fire exclusion was not feasible.

In fact, the Forest Service has now convinced Congress that decades of fire suppression have made federal forests more vulnerable to fire than ever. Fire suppression, the agency says, led to an unnatural buildup of fuels that are just waiting to burn in catastrophic fires. In response, Congress has rewarded the Forest Service for its past mistakes by giving it hundreds of millions of dollars each year for hazardous fuel treatments. Just as the Forest Service once promised to save the forests through fire suppression, now it promises to save them by reducing hazardous fuels.

Close scrutiny reveals, however, that the hazardous fuels story is just as fallacious as the previous promise of fire exclusion. Although hazardous fuels are a problem in some western forests, that problem is far less serious than the Forest Service claims.

The real purpose behind both the fire-exclusion promise and the fuel-reduction promise was budget maximization. This is not to suggest that anyone in the Forest Service is deliberately lying to Congress in order to get more money. Instead, it simply means that natural

Figure 1
Forest Service Fire Budgets, 1990–2008 (millions of dollars)



Source: *Forest Service Budget Justification statements*, 1991–2008.

Notes: The Los Alamos fire in 2000 led Congress to greatly increase Forest Service fire budgets, and they have grown steadily ever since. Suppression funds are actual dollars spent except for 2007 and 2008. Numbers for 2008 are from the president's budget, which proposes to reduce presuppression funding; based on early hearings on the budget, Congress is likely to increase it instead.

bureaucratic processes lead agencies like the Forest Service to promote people whose ideas tend to increase the agencies' budgets. Those processes have been particularly visible within the Forest Service over the last decade.

The rapid growth in fire spending raises several important questions:

- Is this spending really necessary?
- Considering that 2004, 2005, and 2006 each saw more acres burn than any prior year since 1954, is this spending even effective?
- Is there any way to control the growth in fire expenses, or even to estimate what the optimal level of spending should be?
- Is there a danger that some of the activities funded by this money are actually doing more harm than good?
- What will happen to the culture of the Forest Service, an agency that once prided itself on multiple-use management, when most of its money comes from fire?

The Government Accountability Office and the U.S. Department of Agriculture's inspector general have published numerous reports encouraging the Forest Service to target its fire spending more effectively. The Forest Service itself has published a seemingly endless series of reports on cost containment. But all of those efforts are merely tinkering at the edges of the problem.

This paper will show that the real problem with fire is not ecological but institutional: Congress has inadvertently designed the Forest Service fire program to spend more and more money with little regard to effectiveness or results. Fixing this problem will require significant and, for some, painful institutional changes. This paper will suggest some alternative designs that could help save taxpayers billions of dollars and greatly improve federal forest management.

A Budgetary History of Fire

Forest Service fire histories traditionally focus on the large fires fought by the agency,

starting with the great Idaho and Montana fires of 1910. But the real history of national forest fire started two years earlier, when Congress gave the Forest Service a literal blank check for emergency fire suppression.

That blank check was not subject to the appropriations process that every other federal agency went through. Instead, it allowed the Forest Service to spend whatever it judged necessary to put out fires. In actual practice, the Forest Service "borrowed" the money from one of its other funds, and Congress always reimbursed that fund at the end of the fire season. It is unlikely that Congress has ever given any other federal agency a blank check, and certainly not one that lasted for seven decades.

At first, national forest managers were reluctant to use the blank check, considering it a sign of their failure to exclude fires from the forests. Records indicate that they drew upon the blank check only six times in the first 25 years after Congress passed the law.³ But in 1935 the chief of the Forest Service issued a directive that greatly expanded the use of the blank check and made its use routine rather than exceptional.

First, the directive specified that all funds expended to suppress fires after 10 AM of the day after the fires were detected would come from the emergency fund. Second, the chief also authorized forest managers to draw upon the blank-check fund even before a fire was ignited if drought or other conditions led them to believe that an emergency might exist. This money would be used for *presuppression*, meaning purchases of equipment and hiring and training firefighters.⁴

All this money for fire control "helped to bring political power to the Forest Service," says Stephen Pyne, a former firefighter and the nation's preeminent fire historian.⁵ "As that power grew, the Service found itself subtly corrupted in spirit and imagination."⁶ The corruption took two forms: a corruption of the budget and a corruption of the truth.

"The secret to creative financing," Pyne writes elsewhere, "is to transfer as many costs as possible from the budgeted account to the non-budgeted, 'emergency' accounts, of which

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Budget Chronology

- 1905: The Forest Service is created when Congress transfers 63 million acres of forest reserves from the Department of the Interior to Gifford Pinchot's Bureau of Forestry in the Department of Agriculture. Eventually the reserves, now called national forests, will be expanded to encompass 193 million acres.
- 1908: Congress takes the unusual if not unique step of giving the Forest Service a literal blank check for emergency fire suppression. In case of emergency, agency managers could spend whatever it took to put out a fire, and Congress promised to reimburse the agency at the end of the year. Also in 1908, Yale forestry Professor H. H. Chapman publishes research showing that many pine forests in the South rely on frequent light fires (now called *prescribed burning*) for regeneration and protection against a buildup of fuels that could lead to catastrophic fires.⁷
- 1910: The year of the "Big Blow-Up"—fires in Idaho and Montana that burn three million acres and kill 85 people, mostly firefighters. The Forest Service spends almost as much as its entire annual budget trying to suppress the fires, which Congress dutifully covers under the blank-check law. Rather than realize that fire exclusion may be impractical, the lesson the Forest Service learns is that Congress will unquestioningly reward its fire suppression efforts.
- 1911–1934: The Forest Service draws on emergency fire suppression funds several more times, initially with "ambivalence," says fire historian Stephen Pyne.⁸ But in the long run, "the money was irresistible."⁹
- 1924: The Clarke-McNary Act gives the Forest Service the authority to distribute federal funds to state and local fire protection districts. Influenced by its blank check for fire suppression, the Forest Service refuses to fund fire protection districts that allow landowners to use light fires as recommended by Chapman. As a result, most landowners in southern states refuse to join such districts. The Forest Service spitefully records the prescribed fires they light as wildfires.
- 1930s: The Forest Service tries to suppress research by other agencies, as well as its own scientists, that suggests that forests can benefit from prescribed burning.¹⁰
- 1935: The chief of the Forest Service directs that all fires be suppressed by 10 AM on the day after they are detected.¹¹ Historians treat this rule as evidence of the Forest Service's obsession with suppression at all costs. But its real significance was that any fire not suppressed by 10 AM automatically became an emergency, and efforts to suppress those fires would be covered by the blank-check fund. The 1935 directive also allows local forest managers to declare an emergency even before a fire starts if a drought or other conditions would make fires more likely. This allows managers to spend the blank check on emergency *presuppression*, that is, fire crews, training, and equipment.
- 1943: Shaken by catastrophic fires in southern forests whose owners had followed the Forest Service's advice against prescribed burning, the Forest Service formally reverses its no-burning policy for longleaf pine.¹² Perversely, it refuses to publicize this decision until after the war, and it does not reverse the policy for the more common loblolly pine until 1954.¹³ As a result, many southern landowners do not join fire protection districts until the mid-1950s—and in the meantime, the Forest Service continues to record their prescribed fires as wildfires.
- 1950s: The Forest Service begins to use aerial firefighting tools such as helicopters and air tankers. For the first time, Forest Service firefighting efforts have more than a mar-

ginal impact on the landscape.¹⁴

- 1950s–1960s: Timber sales grow from 3 billion to 10 billion board feet per year, causing timber to replace fire as the largest part of the Forest Service budget.
- 1975: Forest Service fire-exclusion policies seem to be working, as the number of acres reported burned each year in the 1960s and 1970s is considerably less than the records report for the 1930s, 1940s, and early 1950s. But the Office of Management and Budget raises concerns that fire suppression costs continue to rise and wonders “what kind of return we [are] getting for our money.”¹⁵
- 1977: Under pressure from the OMB, the Forest Service ends the out-by-10-AM policy and, for the first time, endorses prescribed burning in the West.
- 1978: At OMB’s instigation, Congress repeals the blank-check law, giving the Forest Service instead a fixed budget for fire suppression each year, usually \$125 million. If costs one year exceed that amount, the Forest Service is expected to pay those costs out of one of its revolving funds and then reimburse those funds in later years when fire costs are lower than \$125 million.
- 1979–1986: Responding to the new budgeting process, the Forest Service adopts fire-fighting strategies that allow more acres to burn in exchange for lower costs and greater firefighter safety. The result is a large reduction in annual suppression costs from the previous decade.
- 1987–1988: The new system breaks down when back-to-back severe fire years force the Forest Service to borrow \$422 million from other funds in order to fight fires.
- 1990: Congress gives the Forest Service a supplemental appropriation to cover 1987 and 1988 fire costs and also creates a contingency fund that the Forest Service can access, with presidential approval, for emergency fire suppression. This effectively puts the Forest Service back into the blank-check mode.
- 1990–1994: Timber sales fall from 11 billion to 3 billion board feet per year, leading many people to wonder what will replace timber as the dominant part of the Forest Service budget. One Forest Service chief suggests that the agency’s new mission should be “ecosystem management.” Others suggest that recreation could replace timber, but Congress shows little enthusiasm for either of those ideas.
- 1994: Fourteen firefighters die in a Colorado fire. The Forest Service responds by using more backburning to stop fires, again trading off more acres burned to improve firefighter safety.¹⁶
- 2000: A prescribed fire lit on New Mexico’s Bandelier National Monument escapes. The Forest Service effectively suppresses it with a backburn, but the backburn itself escapes and destroys a billion dollars worth of homes in Los Alamos. Congress responds by giving the Forest Service a 38 percent increase in its budget and directing the Forest Service and the Department of the Interior to write a National Fire Plan. Not surprisingly, the resulting plan calls for increased spending on hazardous fuel reduction and suppression.
- 2002: Arizona, Colorado, and Oregon have the largest fires in their recorded histories.
- 2003: Congress passes the Healthy Forests Restoration Act, giving the Forest Service the authority to spend more money on hazardous fuels and to design timber sales that require the purchaser to do hazardous fuel reduction in lieu of part of the payment for timber.
- 2007: Fire has clearly become, once again, the Forest Service’s *raison d’être*, as it now contributes more to the agency’s budget than timber ever did.

Everyone from top fire commanders to rookie firefighters knows that funds for firefighting are virtually unlimited, and they don't hesitate to spend that money.

there are two. One, the emergency suppression account, covers expenses attributable to actual fires. The other, the emergency presuppression account, pays for personal services and rentals during selective periods of high fire danger.” Pyne continues, “What happens, of course, is that everything imaginable is charged to fires, and the determination of ‘high fire danger’ becomes more and more loosely interpreted.”¹⁷

On the recommendation of the Office of Management and Budget, Congress formally repealed the blank-check law in 1978, and for a few years the Forest Service managed to restrain its fire spending. But severe fires in 1987 and 1988 forced the Forest Service fire program to borrow heavily from the agency’s revolving reforestation fund. The Forest Service asked Congress to reimburse that fund so that it would have money for reforestation. Congress did so, and further created a contingency fund that fire managers could draw upon in emergencies.

Congress’s actions, in effect, created a virtual blank check. While funds now went through the appropriations process, Forest Service managers knew that they could draw from a huge contingency fund and, when that ran out, borrow from the revolving reforestation fund, and Congress would reimburse the fund. That greatly relaxed any restraints the Forest Service had placed on spending.

“Emergency funding for firefighting lacks the rigor, discipline, and incentives for more efficient decision making,” reported the USDA in 2000. “The Forest Service manages emergency firefighting funds as if they are unbudgeted, unlimited, unallocated, and without benchmarks on acceptable spending levels.”¹⁸ As if, in other words, it had a blank check.

“Corruption” implies something illegal or at least highly unethical, and such corruption does exist. In 2006 prosecutors accused a Forest Service purchasing agent of writing her boyfriend \$642,000 in checks out of firefighting accounts. Because that was just a tiny share of the roughly \$1 billion spent on firefighting each year, she was able to easily cover up the theft and was caught only when

someone tipped off the local prosecutor that she and her boyfriend were living beyond their means.¹⁹

For the most part, however, the “corruption” is a corruption of attitudes. Everyone from top fire commanders to rookie firefighters knows that funds for firefighting are virtually unlimited, and they don’t hesitate to spend that money. A 2003 internal Forest Service audit found that firefighters used emergency suppression funds to purchase carpeting for their camps and digital cameras, tents, and designer clothing for themselves.²⁰ The audit also found that firefighting forces “totally ignored” spending rules and continued to operate as if they had a blank check 25 years after Congress formally repealed the blank-check law.²¹

The corruption of the truth is just as serious as out-of-control budgets. In the early 20th century, a growing body of research showed that some forests, particularly in the South, needed frequent light fires both to promote the reforestation and growth of desired species and to prevent a buildup of hazardous fuels. But the Forest Service was so strongly rewarded by the blank check for fire suppression that for several decades it actively opposed anyone who proposed prescribed burning and suppressed the findings of its own researchers that supported such burning.²²

“Sanctified by an administrative theory granting zealous technocrats broad latitude for action, purpose was transmuted into mission, a campaign into a crusade,” wrote Ashley Schiff in his classic 1962 book on Forest Service fire policy, *Fire and Water*. “In the field of fire protection, as one critic of Forest Service policy remarked, ‘twenty years or so of iteration and auto-suggestion has made of complete fire protection, in all circumstances and regardless of conditions, not a theory but a religion, an *idée fixe*.’ Ignoring early caveats, the Service tragically slipped into a rut from which escape proved difficult and embarrassing. Thus had evangelism subverted a scientific program, impaired professionalism, violated canons of bureaucratic

responsibility, undermined the democratic faith, and threatened the piney woods with ultimate extinction.”²³

In order to promote fire protection on state and private lands, Congress in 1924 authorized the Forest Service to offer funds to local fire protection districts. But, conditioned by the blank-check law, the agency was so prejudiced against prescribed fires that it refused to sanction fire protection districts that allowed their members to use light burning in southern longleaf pine until 1943 and loblolly pine until 1954. During that time, many landowners in the South refused to form or join such districts. In response, the Forest Service recorded all prescribed fires on their lands as wildfires.

Forest Service fire statistics from that era show that about 1 percent of acres in fire protection districts burned each year, while about 10 percent of acres in unprotected areas burned per year.²⁴ That allowed the Forest Service to claim that the fire protection districts were a huge success when in fact most of the acres burned in unprotected areas were prescribed fires. When southern landowners finally joined fire protection districts in the 1950s, the number of acres reported as wildfires dropped dramatically. “By the late 1950s, as a result of increasingly sophisticated fire protection, suppression, and public education, both the area burned and size of fires had been substantially reduced,” says a Forest Service historian.²⁵ In fact, most if not all of the decline was due to the Forest Service no longer reporting prescribed fires as wildfires.

History is repeating itself today as the Forest Service distorts its own research and other scientific information about fire ecology to justify huge budgets for hazardous fuels reduction and fire suppression. As the next section of this paper will show, the claim that a century of fire suppression has left most western forests highly vulnerable to fire is greatly exaggerated, which means that much of the billions of dollars that the Forest Service is spending today on fire is unjustified.

Fire Ecology and the Fuels Theory

After Arizona, Colorado, and Oregon each experienced record-breaking fires in 2002, the Forest Service wrote a paper asking, “Why so many large fires?” To answer that question, the paper quoted a 1999 General Accounting Office report that said, “The most extensive and serious problem related to health of national forests in the interior West is the over-accumulation of vegetation, which has caused an increasing number of large, intense, uncontrollable and catastrophically destructive wildfires.”²⁶

The first clue that something is wrong with this is that the Forest Service—supposedly the nation’s experts on forests and wildfire—is quoting the General Accounting Office, whose middle name was, after all, “accounting,” not “firefighting.”²⁷ Where did the GAO get its information? Why, from the Forest Service, of course. That circular attribution hints that there may be something self-serving in the fuels theory.

As further support for the excess-fuels hypothesis, the Forest Service gave Congress a series of photos taken of a ponderosa pine forest in Montana. The first photo, taken in 1909, supposedly shows the forest in its “natural” state before years of fire suppression. The last photo, taken in 1979, shows the same forest after decades of fire suppression allowed vegetation to accumulate. The only problem is that the first photo clearly shows tree stumps, so it is hardly a natural forest. Keith Hammer tracked down a photo of the same site before any timber cutting, which showed a dense forest of trees underlain by waist-high grass and shrubs. The Forest Service had excluded that photo from the series it showed to Congress.²⁸

There is a grain of truth behind the excess-fuels hypothesis. But the problem is nowhere near as serious as the Forest Service claims. Fire ecologists have identified five different *fire regimes* in various forests in the United States:

- I. Low-severity fires every 1 to 35 years,
- II. High-severity fires every 1 to 35 years

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- (mostly grasslands),
- III. Mixed-severity fires every 35 to 100 years,
 - IV. High-severity fires every 35 to 100 years, and
 - V. High-severity fires every 101 or more years.²⁹

Only forests in regime I are likely to suffer catastrophic fires if fires are excluded for many years. It is possible that fire exclusion could also create problems in regime III. But the other three regimes are not going to be altered by fire exclusion. “We expect fuel-reduction treatments in high-elevation forests [regimes IV or V] to be generally unsuccessful in reducing fire frequency, severity, and size, given the overriding importance of extreme climate in controlling fire regimes in this zone,” say fire ecologists in a 2004 paper in *BioScience*. Moreover, fuel treatments in those forests may actually do more harm than good. “A ‘one-size-fits-all’ approach to reducing wildfire hazards in the Rocky Mountain region is unlikely to be effective and may produce collateral damage in some places.”³⁰

Forest Service researchers estimate that 90 percent of national forests in the South fall into the first regime, which is why landowners there have long supported light or prescribed burning.³¹ But less than 38 percent of western national forest lands, mainly ponderosa pine and Sierra Nevada mixed-conifer forests, fall into this category, which means that far fewer western forests have the potential to develop serious fuel hazards.³²

Some ecologists believe the Forest Service has overestimated the extent of regime I in the West, saying that not all ponderosa pine forests should be included in this regime. On the basis of extensive fieldwork, University of Wyoming researcher William Baker found that the natural fire intervals in many of those forests are less frequent than previously assumed.³³ Baker concluded that removing fuels to reduce fire risk “does not have a sound scientific basis” unless managers know for certain that natural fire histories were more frequent.³⁴

Some scientists disagree with Baker’s interpretation of fire frequencies.³⁵ But research by Forest Service scientists also found that “mixed severity fires [typical of fire regime III] were . . . more common than expected in the dry forests” that had been included in fire regime I.³⁶ The study concluded that previous inclusion of those forests in regime I was based on erroneous sampling techniques.

The latest word in this debate comes in a 2006 paper, coauthored by Baker and four other prominent ecologists, that provides an overview of research on fire ecology in the West. Because hazardous fuel programs make sense only in fire regime I, “current forest law does not adequately incorporate ecological considerations in its implementation,” say the ecologists, “and tends to promote a narrow definition of restoration that focuses almost exclusively on fuels.”³⁷

Whatever the extent of regime I, Forest Service ecologists divide those forests into three *condition classes*, or estimates of how much natural fire conditions have been altered by fire suppression and other forms of management. Condition class 1 is relatively unaltered, class 2 has moderate alterations, and class 3 forests have been significantly altered and are at high risk.³⁸ Only 15.5 percent of western national forests are both in fire regime I and condition class 3.³⁹ This indicates that hazardous fuels are not a serious issue on nearly 85 percent of western national forests. One reason for that is, as previously noted, Forest Service fire suppression efforts were not really very effective before the introduction of aerial firefighting tools in the 1950s.

The 15.5 percent where fuels may be a problem amount to about 24 million acres. Many of those acres are remote, and fires might do little damage to valuable resources. In fact, in many cases letting fires burn on those acres could help restore natural fire regimes. Still, some of those acres are located near homes and other structures as more people have built in what the Forest Service calls the *wildland-urban interface*, or WUI.

The Forest Service estimates that 98 million acres are in the wildland-urban interface,

but fewer than 8 million of those acres belong to the Forest Service or other federal agencies. Nearly 80 percent of the federal acres and 94 percent of the nonfederal acres are in condition class 1, meaning there is little or no fuel hazard. Less than 6 percent of the federal acres and only 1.6 percent of the nonfederal acres are in condition class 3, meaning a significant potential fuel hazard (and then mainly if they are in fire regime 1).⁴⁰

In short, if protecting homes and other structures is the goal, only a few million acres need treatment, most of which are nonfederal land. Moreover, according to Forest Service researcher Jack Cohen, the best treatment is to ensure that structures have nonflammable roofs and that thick vegetation and woody debris are cleared from about 130 feet around the buildings.

“Wildland fuel reduction for reducing home losses may be inefficient and ineffective,” says Cohen; “inefficient because wildland fuel reduction for several 100 meters or more around homes is greater than necessary for reducing ignition from flames; ineffective because it does not sufficiently reduce firebrand ignitions [which are eliminated only by nonflammable roofs].”⁴¹

Despite this, the Forest Service has not focused its hazardous fuel programs on these lands. A 2006 report from the USDA’s inspector general charged that the Forest Service does “not ensure that the highest priority fuels reduction projects are being implemented.”⁴² In response, the Forest Service is putting more effort into fuel reduction in national forests in the wildland-urban interface, but it is still not targeting the lands within 130 feet of structures and is making little effort to ensure that all structures are roofed with nonflammable materials.

If fuels are not the huge problem the Forest Service claims, then what is the explanation for recent large fires and record fire seasons? A recent article in *Science* concluded that the reason was drought, not fuels. The authors studied fire data since 1970 and found that the greatest increases in fires have been in fire regimes III, IV, and V, “where land-use histories

have relatively little effect on fire risks.” Instead of fuels, they found a strong correlation between drought and fire. “Thus, although land-use history is an important factor for wild-fire risks in specific forest types (such as some ponderosa pine and mixed conifer forests), the broad-scale increase in wildfire frequency across the western United States has been driven primarily by sensitivity of fire regimes to recent changes in climate over a relatively large area.”⁴³ Similar correlations between drought and fire have been found going back to 1931.⁴⁴

Another explanation for the large fires in recent years can be found in the changes in fire-fighting strategies aimed at improving firefighter safety. To fight large fires, incident commanders often backburn tens of thousands of acres in an effort to create large firebreaks that wildfires cannot cross. One study of the Biscuit fire, the largest fire in Oregon history, estimated that 30 percent of the acres were burned by backburns, not the natural fire.⁴⁵

All of this research—some of it done by Forest Service scientists—indicates that Forest Service leaders have greatly exaggerated the excess-fuels problem. By concentrating on this issue, they have deftly persuaded Congress to increase funding for hazardous fuel reduction in national forests from less than \$8 million in 1992 to nearly \$300 million in 2007.

Meanwhile, because of the perceived threat of hazardous fuels, Congress has increased funding for presuppression (which the Forest Service now calls *preparation*) from less than \$180 million per year in the early 1990s to more than \$650 million per year since 2004. Despite—or perhaps because of—all this preparation, the Forest Service managed to spend a record amount of money on suppression in 2006, and it has spent three times as much on suppression in the last five years as it did in the first five years of the 1990s.

The Institutional Conundrum

The biggest problem with fire today is not that the Forest Service has misled Congress

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and the public about fuel hazards or that some fire funds are misspent in the haste of emergency suppression efforts. It is that neither Congress nor the Forest Service has any idea how to stop fire costs from spiraling ever higher.

Whenever a national forest wildfire threatens someone's home, members of Congress go on television and promise to increase the Forest Service budget so that such threats never happen again. In 2006 a senator from Montana sharply criticized the Forest Service for allowing fires to burn grass that might have fed a few subsidized cows grazing in the national forests.⁴⁶

Members of Congress greeted the president's 2008 Forest Service budget proposal with incredulity. The budget allocated \$911 million to fire suppression, 23 percent more than in 2007 and far more than in any prior year. Yet Rep. Norm Dicks (D-WA) called this "a very unworkable budget," and Rep. David Obey (D-WI) called it a "let's pretend' budget" because they felt even more money should be spent on fire.⁴⁷

In contrast to congressional pushes to increase fire spending, the Forest Service has undertaken numerous cost-containment efforts. One study suggests that Forest Service fire commanders tend to spend too much on direct suppression when other alternatives should be considered.⁴⁸ According to a USDA inspector general's audit, "the majority of FS large fire suppression costs are directly linked to protecting private property in the WUI." The audit recommends that state and local governments be asked to pay more of those costs.

There is a widespread belief among fire ecologists that more fires should be allowed to burn in the national forests. That would not only help restore natural ecological conditions and fire regimes, it would reduce suppression costs.

Yet fire commanders know that the criticism they might face for spending too much money to suppress a fire is nothing compared to the firestorm of criticism they will face if they allow a fire to escape and burn something valuable such as homes or other

structures. Although most national forests today have fire plans that theoretically provide for letting fires burn (though generally only in wilderness areas), forest managers let less than 0.4 percent of all fires burn in 2006.

Fire managers do not lose their jobs for pouring massive resources into fire suppression, or even for burning down someone's home if it is done in the course of a backfire aimed at stopping a wildfire. But some managers have lost their jobs (or were transferred to other jobs) after starting prescribed fires or letting wildfires burn that accidentally spread onto private land.

In addition to Congress and the Forest Service, a new player has entered the field: firefighting companies. The Forest Service once directly employed all its own firefighters; today it increasingly hires firefighters employed by private firms, not to mention airplanes, helicopters, and other equipment. This "fire-industrial complex," as some have called it, certainly promotes more spending on fire suppression.

The Forest Service once had a positive image and produced positive things such as wood for homebuilders; scenic beauty for recreationists; fish and wildlife for anglers, hunters, and birdwatchers; and clean water for many of the West's thirsty cities. Now that fire control dominates the agency's budget, it has a negative image as the agency that screwed up the forests by letting fuels build up and a negative mission: "We didn't burn your house down last year, and if you give us a lot more money, we'll try not to burn it down again this year." Although national forest managers appreciate the money that fire has brought to their forests, many are disturbed by this negative mission and by the fear that there is no end to spiraling fire costs.

Despite the growing body of evidence that hazardous fuels are a serious issue in only a small share of western national forests, top Forest Service officials continue to make inappropriate promises to Congress about the benefits of fuel treatments. "While wildland fire is an element of natural ecosystem processes," says the agency's 2008 budget pro-

posal, “catastrophic wildland fire is not.”⁴⁹ That may be true in fire regime I, but it is certainly not true in fire regimes II through V, where catastrophic or stand-replacement fires are the norm. Yet in making this statement, the Forest Service is effectively promising to reduce or eliminate such fires if Congress gives it enough money for fuel treatments—another promise it will not be able to keep.

Solving the fire conundrum will require a fundamental restructuring of the agency. That restructuring should reduce the Forest Service’s dependence on Congress, for so long as the agency requires federal funds, members of Congress will have an incentive to deal with fire problems by throwing money at them. It should also decentralize decisionmaking as much as possible, so that one-size-fits-all policies are replaced with policies that best meet local needs.

Alternative Solutions

There may be no single solution to the fire problem, as the actual nature of the problem varies so much from one region of the United States to another. Here I will present six alternatives, one or more of which may offer the most practical solution in different parts of the nation.

Alternative 1: Cost Containment

This is the Forest Service’s current direction and consists of efforts to better train firefighters and fire commanders to ensure that they keep expenditures within appropriate bounds. In 2005 Congress required the Forest Service to identify the “most cost-effective alternative” for dealing with each fire and to report the percentage of fires for which that alternative was adopted.⁵⁰ But this is little more than another piece of red tape that is likely to increase, not reduce, firefighting costs.

The cost-containment alternative does nothing to change the basic incentives shared by Congress, the Forest Service, and the fire-industrial complex to spend more money on fire each year regardless of the effectiveness

of that spending. For that reason, this alternative will do little more than tinker with the edges of the problem.

Alternative 2: Focus on WUI

If, as the USDA inspector general says, most fire-suppression efforts aim to protect homes and other structures in the wildland-urban interface, then costs can be reduced by changing the way that interface is managed. Since Jack Cohen’s research indicates that structures can be fireproofed by roofing them with nonflammable materials and clearing excess vegetation and other flammables within 130 feet of the structures, the Forest Service could focus its fuel-treatment efforts on those areas rather than on its own lands.

The agency could inform homeowners about how to keep their properties fire safe and encourage insurance companies to offer discounted rates to homeowners who do so (or higher rates to those who don’t). Until recently, the insurance industry has ignored problems in the wildland-urban interface because (thanks in part to the Forest Service’s willingness to spend millions to protect homes that may only be worth thousands) only a tiny proportion of homes burned each year are in the interface. That is already changing, as a few companies are beginning to offer discounts to people who keep their properties fire safe.

Although it is unlikely that Congress would stand for a policy of letting homes burn if they don’t comply with fire-safe rules, the Forest Service should seriously consider whether it would be less expensive to simply let homes burn than to spend millions trying to suppress fires. Beyond this, Forest Service fuel treatments could focus on creating a fuel break between national forests and adjacent private land, so the agency can let many if not most fires burn within national forest boundaries.

Alternative 3: Insurance

Congress could appropriate a fixed amount of fire suppression funds each year. Rather than rely on the blank check to fund fire suppression when costs exceed that amount, national

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forests could buy insurance. The state of Oregon once relied on a system like this, purchasing insurance from Lloyd's of London for years when fire costs exceeded a fixed amount. The insurance companies would monitor national forest spending and give forest managers incentives to find the most cost-effective ways of keeping that spending down.

One problem would be whether the global insurance industry can take on this large a job; Lloyd's canceled Oregon's insurance after the 2002 fire season. Although the Forest Service has spent more than \$1 billion on fire suppression in four of the last seven years, if insurance were possible, it is likely that suppression costs would be much lower in the future.

Alternative 4: Turn Firefighting Duties over to the States

State and local fire protection districts fund their activities out of fees collected from landowners in the districts. Although each state is different, the typical district charges a basic per acre fee with additional fees charged for structures. This money is pooled and used to suppress fires.

In some cases, federal agencies join these districts rather than operate their own fire suppression programs. For example, the Bureau of Land Management pays a per acre fee to fire protection districts in western Oregon. In this case, the Oregon legislature matches the fees paid by private landowners, but not the BLM, so the BLM per acre fees are actually twice those charged to private landowners.

Under this alternative, the Forest Service would turn over its firefighting resources to the states, and each national forest would join state or local fire protection districts using an appropriate local formula. All preparation and suppression costs would be paid by the states out of those fees. Forest managers might still be expected to reduce hazardous fuels, but such programs could be negotiated with each local district.

Alternative 5: Forest Trusts

Congress has historically provided funding to state and local fire protection districts

via the Forest Service. So turning the firefighting duties over to the states may only transfer the blank check from a federal bureaucracy to state bureaucracies.

As an alternative, each national forest could be made into an independent forest trust that would be funded exclusively out of its own revenues.⁵¹ Although the federal government would retain title to the forests, each forest would be independently operated under the supervision of a board of directors that was either appointed or elected by a "friends of the forest" group. Forests could earn revenue from timber, grazing, mining, recreation, and other activities and would be allowed to keep a fixed share of all those revenues for forest operations. Some share of the revenues might be allocated to a separate trust that would promote the production of nonmarket resources such as endangered species habitat.

The forest trusts would be free to pool their resources to deal with fire and other regional problems. Some forests might elect to contract fire protection to the state, while others might maintain their own fire suppression resources or contract them out to private operators.

This alternative would give forest managers incentives to develop fire policies that respond primarily to local conditions and not to a centralized budgetary process. Because this alternative would completely divorce Congress from forest budgeting, there would be no centralized pressure to overspend on fire suppression in order to protect low-valued resources such as grass.

Alternative 6: Abolish the Forest Service

Robert Nelson's book, *A Burning Issue*, argues that the Forest Service's inability to solve the fire problem shows that the agency should be abolished and the national forests turned over to the states or privatized.⁵² This alternative goes a step beyond the trust alternative by completely severing any direct link between the federal government and the forests. In doing so, it would accomplish the objectives of decentralizing decisions and divorcing the forests from congressional spending.

Conclusion

National forests are located in 40 states, and other federal lands such as national parks can be found in almost all the other states. Because of the wide range of ecological, social, and economic conditions, there is no one-size-fits-all solution to the fire problem on federal lands. Any attempt to deal with the problem must give land managers incentives to respond to local conditions rather than to national political concerns or budgetary issues.

It is not clear which of the six alternatives described above will provide the best solution to out-of-control fire budgets, or even if any one of those six might be the best solution for all federal lands. Accordingly, Congress should experiment with the alternatives by testing each on one or more national forests. Such experiments could be evaluated after several years to see which alternative or alternatives best resolve local fire issues at the most reasonable cost to taxpayers.

Unless Congress is willing to consider such innovative ideas, the Forest Service's fire program will continue to grow at an unsustainable rate. That will prove costly both to taxpayers and to national forest ecosystems. Congress should address this issue now, before the problem becomes too big to fix.

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