FROM THE ASHES

REDUCING THE HARMFUL EFFECTS AND RISING COSTS OF WESTERN WILDFIRES

A REPORT BY
TAXPAYERS FOR COMMON SENSE
DECEMBER, 2000

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EXECUTIVE SUMMARY

Photo: John McColgan, Bureau of Land Management

The 2000 wildfire season was one of the most severe the nation has seen in decades and the most costly ever. To battle these blazes, federal taxpayers spent more than $1 billion and more than 27,000 firefighters put their lives on the line. Even so, hundreds of families lost their homes, and businesses dependent upon tourism lost hundreds of millions of dollars.

As the steward of more than 192 million acres of federal land, the Forest Service has an unrivaled responsibility for managing and preventing severe wildfires. Unfortunately, the Forest Service has wasted or mismanaged too many taxpayer dollars on ineffective or low-priority efforts. Even though the Forest Service has been fighting fires for over nine decades, the threat of catastrophic wildfires has dramatically increased.

Meanwhile, Congressional funding priorities have made the problem worse. While Congress gives a blank check for firefighting, it under-funds proven, cost-effective fire prevention strategies. Also, the agency's commercial timber program can contribute to the risk and severity of wildfire in the National Forests, yet Congress devotes nearly one-third of the Forest Service's entire budget to this wasteful program.

There are 39 million acres of National Forest lands that are at high risk of catastrophic wildfire. In October 2000, Congress appropriated $2 billion to deal with the problem, but taxpayer money will only make a difference if it is intelligently applied through a reformed program.

In the past, the Forest Service has not kept promises to reform the wildfire program. After 1994's record fire year, the Forest Service pledged reforms as part of an overall strategy to accept wildfire as natural and focus agency efforts where they could make a difference. Five years later, little progress has been made toward these objectives.

In January 2001, the new Administration and Congress took their oaths of office. Unless they take action, next year's fire season could be just as costly and destructive as 2000's. Taxpayers for Common Sense calls on the new Administration and the 107th Congress to act immediately to reform the agency's misguided fire program.

If these leaders fail to act, then homeowners, firefighters, and taxpayers will suffer as future wildfire seasons become more dangerous, costly, and destructive.

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OVERVIEW

The destruction caused by the wildfires of 2000 is an undeniable tragedy. The fires charred more than 2.2 million acres of National Forest land and an additional 5 million acres of other public and private lands. These terrifying wildfires threatened homes, businesses, and the people of the interior West.

Since the settlement of the West, wildfires have united Westerners to protect their homes and livelihoods from these threats. So it was with the wildfires of 2000.

Certainly, the greatest heroes were the 27,000 firefighters who risked their lives to battle the blazes, saving homes, lives, and protecting our natural resources. The federal government also mobilized on a mammoth scale - the Forest Service and other agencies did whatever they could to douse the flames and protect citizens and their homes from the fires. Finally, from the safety of their living rooms, millions of Americans watched the wildfires rage on their televisions and supported federal efforts to fight the fires. Indeed, many were proud to know that the federal wallet was opened to the Forest Service and other agencies, and that no expense was spared in fighting the flames.

The 2000 fire season needs to mark an important crossroads for how our nation deals with wildfire.

Fires that burned more than 7 million acres and cost more than $1 billion taught us an important lesson about federal fire policy that cannot be forgotten.

Aggressive federal action needs to be taken in order to reduce both the harmful effects and the escalating costs of Western wildfires. Taxpayers will spend billions of dollars in coming years to manage wildfire in the interior West. But without needed reforms, some of these funds will be wasted.

In 2000, fires raged across much of the interior West, burning millions of acres, and costing taxpayers more than $1 billion (Image: General Accounting Office)

Before 2000, the most expensive year for firefighting was 1994. During 1994, 4.7 million acres burned at a cost of $950 million to federal taxpayers. Following the fires of 1994, the Forest Service publicly recognized the need to shift federal fire policy in order to save lives, protect natural resources and property, reduce costs, and improve accountability. Among the proposals was the promise to prioritize the creation of fire management plans for every burnable acre of

National Forest. These plans are integral to effective firefighting efforts. The plans identify areas that should be allowed to burn within certain limits, and help the agency to focus appropriate resources for firefighting efforts. Without these fire plans, the Forest Service needlessly endangers firefighters' lives and wastes millions of dollars fighting some fires.

Unfortunately, the Forest Service has failed to implement most of these reforms. For example, as of March 2000, fewer than 5% of all National Forests had written a fire management plan. While the Forest Service has made some progress, the continuing focus on fire suppression over fire prevention and planning continues to put lives in jeopardy, and waste taxpayer money. Even the Forest Service recognizes that many fires should be allowed to burn within limits, yet it continues to expend vast human and physical resources trying to extinguish almost all wildfires.

Misguided policies of the Forest Service and Congress contributed to the severity of the 2000 fire season (Photo: Bureau of Land Management)

The Forest Service cannot repeat the same mistakes it made following the 1994 fires. That is why Taxpayers for Common Sense wrote this report. It is now time to tally the costs of fighting the wildfires of 2000 - in firefighter lives, taxpayer dollars, and the effects on National Forests.

It is time to ask what worked, and what did not. It is time to face the mistakes so that they are not repeated. Most of all, it is time to ask what America will do when the fires come again next summer, and the next summer, and many more summers to come.

The year 2000 was the most expensive fire-year to date. The Forest Service spent more than $1 billion during 2000 to combat wildfires on 2.2 million acres of National Forests. The Bureau of Land Management, Bureau of Indian Affairs, National Park Service, and the Fish and Wildlife Service collectively spent an additional $600 million. Most state and local governments have yet to account for their total expenditures, which will amount to hundreds of millions more. In many cases, federal taxpayers cover a portion of these

local and state costs through Federal Emergency Management Agency grants. Finally, the indirect, non-governmental costs of the fires could amount to billions of dollars. According to some early estimates, Montana's businesses alone lost upwards of $360 million due to the loss of tourism dollars.

The cost of fire suppression has escalated over the past two decades, largely because there are few incentives to promote cost-efficient federal firefighting efforts. In fact, Congress has always reimbursed the Forest Service for any and all costs associated with fighting fires. The lack of any fiscal restraints has led to mismanagement of these funds.

Fires have played and continue to play an important role in the ecology of western forests. Although it may sound counter-intuitive, the Forest Service needs to reintroduce controlled fire into the forests in order to reduce the risk of catastrophic fire. This can reduce the toll of future fire seasons on taxpayers, forests, and communities. This investment in the forests would be paid off through reductions in future firefighting costs.

More than 27,000 firefighters risked their lives to protect lives, homes, and natural resources from wildfires in 2000 (Photo: Bureau of Land Management)

Taxpayers for Common Sense believes that the real crisis is a collection of failing federal policies dealing with the management of wildfires and National Forest resources. Unless these policies are changed, billions of taxpayer dollars will be wasted in coming years while wildfires continue to cause widespread damage.

This report attempts to answer several urgent questions:

· *What federal policies and programs increase fire risk and severity in the National Forests?*

· *What factors drive up firefighting costs? Can anything be done about them?*

· *What reform proposals have been offered to tackle these problems? Do these proposals address the critical factors?*

Decades of wildfire suppression have changed the National Forests, and have substantially increased the risk of wildfire. Grazing, commercial logging, and the introduction of non-native plants have also contributed to the growing risk of fire. The Forest Service, Congress, and independent experts have identified many of the factors that increase the danger of wildfire, yet few changes have been made as a result of these findings.

According to the General Accounting Office, 39 million acres in the National Forests face a high risk of catastrophic wildfire. In coming

years, American taxpayers will spend billions of dollars to reduce these risks and to manage wildfires. If current management practices are not altered, some of these funds will be spent in vain.

In October 2000, Congress appropriated $2 billion to pay for the 2000 fires and to reduce the future risk of fire in National Forests. In order to have the greatest impact, the Forest Service must immediately formulate an effective plan to spend these funds. In the past, Congress and the Forest Service have prioritized commercial logging in the National Forests to the detriment of other agency activities. Consequently, many experts are skeptical whether the recently appropriated funding will effectively address the problem of wildfire risk.

The budget process and funding priorities of the Forest Service, which are set by Congress, make the wildfire situation worse. Taxpayer money is used to log the National Forests to benefit timber companies, which contributes to the escalating risk of catastrophic wildfire. Then, huge additional sums of taxpayer money are spent trying to put the fires out.

Wildfires do not respect the boundaries between communities and forests. Consequently, firefighters face increasing conflicts when wildfires cross these boundaries. As more and more people move into communities that intermingle with natural areas, residents of these areas must recognize the risks and take responsibility for fireproofing their homes. Local, federal, and state agencies must involve communities in the decision-making process and must educate them on the

Logging slash increases the risk of fire and can complicate firefighting efforts (Photo: Unknown)

dangers of living in these high-risk areas. In some cases, it may be better not to expand communities into these hazardous areas in the first place, but instead to take these factors into account and build homes elsewhere.

In addition, wildland and residential firefighters need to increase their cooperation. Residential firefighters are not familiar with wildland fire behavior, and wildland firefighters are unfamiliar with structural fires. These complications can increase the risks that firefighters take, the harm done by the fires, and the associated costs.

The Forest Service has a responsibility to manage lands efficiently and effectively, and to promote the health of the forests. Past activities have imperiled these lands, and it is time to reverse this trend. By following through on the recommendations of this report, the Forest Service could reduce wildfire suppression costs, improve the management of the National Forests, and reduce the risk of fire.

Taxpayers for Common Sense intends this report to open the debate and spur immediate action in the first 100 days of the new Administration and 107th Congress. Taxpayers for Common Sense does not believe it has all of the answers. Indeed, new information on the wildfires of 2000 will continue to emerge. Taxpayers for Common Sense looks forward to seeing others' findings and recommendations. But Taxpayers for Common Sense rejects any view based on the assumption that the federal government does not know enough to make useful reforms, or that the federal government must wait another year before taking action.

POLICY RECOMMENDATIONS

Congress and the Forest Service have an opportunity to reduce the skyrocketing costs of wildfire suppression and to adapt to changing conditions in the National Forests. Unless changes are made, the cost of wildfires will continue to increase, firefighters lives will be put in jeopardy, and homes will continue to be threatened. The following recommendations provide a basis for these changes.

COME TO TERMS WITH WILDFIRE

Follow through on the promise by the Forest Service to create fire plans for the National Forests. Fire plans – which can empower federal officials to let certain areas burn – can help reduce firefighting costs. *(See page 12)*

Minimize costs, not fires. The federal government should not try to extinguish every fire at any cost. Rather, the federal government should try to manage fires at a reasonable cost, while prioritizing firefighter safety and the protection of natural resources. *(See page 12)*

ELIMINATE SUBSIDIES

Establish separate contracts for fire hazard reduction projects. This would eliminate the current incentive to include larger, more valuable, fire-resistant trees in order to make timber sales more attractive to timber companies. *(See page 25)*

Eliminate commercial timber subsidies in order to reduce fire risk, using the savings to fund fire preparedness. *(See page 21)*

IMPROVE THE BUDGET

Reform the Forest Service budget to emphasize management activities that promote long-term forest health. The existing Forest Service budget structure overemphasizes the commercial logging program at a cost to other agency priorities, such as fire planning. *(See page 24)*

Do not utilize the commercial timber program to reduce the risk of fire. Commercial incentives undercut forest health objectives and can actually increase the risk of fire. *(See page 25)*

Evaluate the success of fire prevention efforts by measuring the number of high-risk communities protected, instead of the number of acres treated. The current focus on the latter measure encourages low cost projects, which may not benefit communities that face the highest risk. *(See page 25)*

Eliminate the so-called timber trust funds in order to bring them under congressional control. Trust funds force the Forest Service to rely on commercial logging of the forests in order to secure funding for fire prevention and other restoration activities. *(See page 24)*

SAFEGUARD COMMUNITIES

Educate homeowners of the danger associated with the wildland-urban interface and the necessity to do their part to reduce the risks. *(See page 27)*

Encourage state and local governments to set regulations that require homeowners in the wild to protect their own private property through common-sense fire safety

practices, such as the use of fire-resistant roofing material and the clearance of brush and other flammable materials near homes. If state and local governments are unable or unwilling to take responsibility for setting such regulations, then the federal government will have no choice but to do so. *(See page 28)*

Develop a list of communities facing the highest risk, and target the recent $2 billion fire preparedness plan at those communities. To date, the Forest Service has not sufficiently identified high-risk areas. *(See page 29)*

The Forest Service's efforts to extinguish all fires at any cost has actually increased fire risk (Photo: Bureau of Land Management)

I. LIMITS OF FIREFIGHTING

The federal government has a legitimate and important role in protecting lives, property, and natural resources from wildfires. Yet, even firefighting has its limits. Through 90 years of experience, the Forest Service has learned that completely eliminating fire from the National Forests is not a realistic strategy. Following the fires of 2000, the Forest Service and Congress have an opportunity to redefine wildfire policy. However if they fail to act, fire risks will continue to escalate, along with the costs to American taxpayers.

Fire suppression alone has failed to reduce severe wildfires and is now identified as one of the leading causes of uncontrollable wildfires.

Since 1910, it has been federal policy to extinguish all wildfires on public lands. Decades of fire suppression (as well as commercial logging as described in Chapter III) have dramatically altered the landscape of the National Forests. There has been a massive buildup of undergrowth in these forests that increases the risk of fire. Shrubs and young trees act as a "fire ladder," allowing naturally-occurring ground fires to spread into the canopies of the larger trees. This results in crown fires (fires which carry through the tops of the trees), which burn much hotter than ground fires and are much more difficult to control.

Prior to the European settlement of the interior Western states, lower-elevation forests were maintained through frequent, low-intensity, naturally-occurring ground fires. These fires, ignited by lightning or Native Americans, cleared brush and smaller trees, leaving the larger trees unharmed. This created an open, park-like setting in low-elevation pine forests. Higher-elevation forests experienced much less frequent fires and have not been significantly impacted as a result of fire suppression.

SEVERE WILDFIRES WILL CONTINUE FOR MANY YEARS

Regardless of any new efforts to reduce the threat of wildfire in the National Forests, the impacts of a century of fire suppression will continue to present difficulties for years to come.

Even if the federal government immediately changes how it manages National Forests and wildfires, it will take years before there are significant results. Naturally-occurring fires were an integral part of the landscape before

Crown fires burn more intensely than ground fires (Photo: Bureau of Land Management)

the federal government sought to suppress them. Indeed, the factors that increase the risk of wildfires have been at work for a century. As a result, severe fires will continue to burn vast acreage throughout the Western states for decades to come.

· Federal policy should be to live with, not eliminate, fire — The forests of the interior West have evolved with wildfire, therefore it is not realistic to eliminate fire altogether from the National Forests. Rather, through effective management, the impacts and costs associated with wildfires can be reduced.

· The wildfires of 2000 may be repeated soon — During the summer of 2000, over 7 million acres burned, including federal, state, and private lands. Research indicates that large fire events, as witnessed during the 2000 summer, occur when weather and forest conditions combine.[1] As a result, we can expect similar fire seasons in the near future.

Fires are a natural part of many forest ecosystems. Burned areas will grow back (Photo: Bureau of Land Management)

SOME FIRES CANNOT BE EXTINGUISHED BY HUMANS

While society may put pressure on the federal government to extinguish all fires, scientific research and history have shown that many fires cannot and should not be put out. This is a fundamental fact that must be acknowledged. According to a July 2000 report by the National Association of State Foresters:

> "Fires in many areas will be so intense as to be unstoppable by human intervention."[2]

FOREST SERVICE PRACTICES ARE FAR BEHIND THE AGENCY'S POLICIES

The Forest Service has recognized the importance of allowing selected fires to burn in the National Forests within certain limits, yet has not successfully implemented this practice.

FIRE MANAGEMENT PLANS PROVIDE FOR APPROPRIATE RESPONSES TO WILDFIRES

There is broad agreement that each National Forest should have a fire management plan. These plans include measures to prevent fires and guide fire managers' decisions once fires ignite. The implementation of fire plans provides for appropriate utilization of firefighting resources and can increase the efficiency and effectiveness of fire suppression activities. For example, fire management plans can significantly improve the Forest Service's ability to manage fires by considering weather, forest conditions, past management actions, and other factors.

Such plans can safeguard lives, protect natural resources, and assist decision-makers. The lack of fire management plans increases the cost of managing wildfires.

· Only 5% of National Forests have fire plans — The Forest Service has not been able to meet its own fire preparedness goals. According to the 1995 Federal Wildland Fire Policy Review, "Every burnable area will have an approved Fire Management Plan."[3] A strategy outlining implementation of these plans was to have been completed in 1996. Five years later, fewer than 5% of all National Forests have instituted fire plans, according to the Forest Service.

· Fire management plans include what will not be done — Fire management plans are not only about what the Forest Service will do in case of wildfire, but also what the agency will not do. A fire management plan can allow a federal fire official to set better priorities, including letting certain areas burn within prescribed limits instead of trying to extinguish all fires. The National Association of State Foresters has highlighted how fire management plans can help:

> "On some incidents, fire and fuel parameters may be such that it may be desirable to let a fire burn in order to reduce fuel loading. In those cases, fire managers should be guided by fire management plans and fuels management standards."[4]

The lack of such plans makes it harder to fight fires — In the instance of two fires in National Forests in California during the summer of 1999, "[a Fire Management Plan would] have made a difference in the effectiveness of the fire suppression efforts".[5]

[1]National Interagency Fire Center, *Wildland Fire Statistics*, October 2000, http://www.nifc.gov/stats/wildlandfirestats.html (October 17, 2000).
[2]National Association of State Foresters, Forest Fire Protection Committee, July 1, 2000, C*osts Containment on Large Fires: Efficient Utilization of Wildland Fire Suppression Resources*, 4.
[3]U.S. Department of Agriculture and U.S. Department of Interior, 1995, *Federal Wildland Fire Management Policy and Program Review*, Final Report, (Washington, DC), 5.
[4]National Association of State Foresters, Forest Fire Protection Committee, July 1, 2000, *Costs Containment on Large Fires: Efficient Utilization of Wildland Fire Suppression Resources*, 19.
[5]U.S. Department of Agriculture, Forest Service, 2000. *Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs*, (Washington, DC), 24.

II. COSTS OF FIREFIGHTING

American taxpayers are paying more per acre to fight wildfires in the National Forests than in past decades. While efforts to manage these wildfires should not be abandoned, reforms are needed to control the escalating costs. In 1995, the Forest Service set "cost effectiveness" as a goal of federal firefighting and identified ways to save money and manage fires more efficiently. But the Forest Service has failed to make significant progress toward this goal.

HIGH COST OF 1994 WILDFIRES WAS SUPPOSED TO TEACH LESSONS

Until 2000, the largest one-year cost for wildfire suppression was in 1994, when the federal government spent a total of $950 million to suppress fires on 4.7 million acres.[1] At the time, this figure was considered huge, and it raised fundamental questions about whether the costs were excessive and whether federal wildfire policies were flawed. In response, the Forest Service and the Department of the Interior joined in issuing the Federal Wildland Fire Policy Review. It prioritized firefighter and public safety, mandated the creation of fire management plans for every burnable acre, and represented a rethinking of the federal role in managing wildfires.[2]

FIRE SUPPRESSION COSTS IN 2000 WERE THE MOST EXPENSIVE IN HISTORY

During the summer of 2000, forest fires burned more than 7 million acres nationwide. Fires in the West burned the majority of the acres and consumed the lion's share of the taxpayer dollars spent in 2000. These fires burned 2.3 million acres of National Forest lands, 2.5 million acres of other federal lands, and 2.5 million acres of state and private lands.

Federal fire suppression costs in 2000 exceeded $1.6 billion. The majority of the suppression costs were incurred by the Forest Service, which spent over $1 billion to suppress these fires.[3] In addition, four agencies of the U.S. Department of the Interior – Bureau of Land Management, Bureau of Indian Affairs, National Park Service, and the Fish and Wildlife Service – spent more than $600 million in 2000 to suppress these fires.[4] Finally, state and local governments spent millions more.

THE PRICE OF WILDFIRES

Costs (in 2000 dollars) and Acres Burned in National Forests for Selected Years

YEAR	COSTS	ACRES
2000	$1,020,281,217	2,241,291
1995	$355,895,142	376,000
1994	$862,737,206	1,476,000
1990	$323,874,891	585,000
1988	$613,423,125	1,556,000
1985	$252,989,078	741,000
1980	$138,818,764	379,000

Source: U.S. Department of Agriculture, Forest Service

The high costs of firefighting in 2000 indicate that the Forest Service has been unable to implement many of the policy changes recommended in the wake of the 1994 fires. In order to address these shortcomings, the Forest Service and Congress must remove barriers to reform. The protection of lives, property, and natural resources should remain central to the mission of firefighting on public lands, but the ballooning cost of the program requires immediate attention.

While costly, prescribed burning can effectively reduce the risk of fire (Photo:Bureau of Land Management)

FIREFIGHTING COSTS VARY WIDELY EACH YEAR, BUT ARE ON THE RISE

Similar fire years can vary widely in cost. For example, according to a 2000 Forest Service report, the years 1980, 1981, 1993, 1995, 1998 were comparable fire years in terms of acreage burned, but the average suppression costs per acre ranged from $360 to $932.[5]

Nonetheless, a comparison between decades indicates that overall firefighting costs are on the rise.

· Average costs for firefighting activities have increased over the past two decades — During the 1980's, the average annual cost of fire suppression was $492 per acre. During the 1990's, when a similar number of acres burned, the average annual cost increased to $743 per acre (adjusted for inflation).[6] While the natural variability of wildfires can influence costs, policy changes should be made in order to implement cost-effective firefighting strategies.

MORE MONEY ALONE WILL NOT SOLVE THE PROBLEM

Taxpayers have provided significant new fire-related funding to the Forest Service for 2001. But priorities are still skewed, and funding may not be properly targeted.

In October 2000, Congress and the Administration appropriated $2.021 billion for various fire-related programs of the Forest Service. This is more than double the $817 million appropriated for the same programs in fiscal year 2000, and more than double the $917 million that the House of Representatives and Senate originally approved, before the fires reached their peak in late summer.

Of the $2 billion total appropriated to the Forest Service, $1.2 billion funds fire suppression in fiscal years 2000 and 2001. Another $600 million of the total supports preparedness activities in fiscal year 2001. The remaining $255 million funds a variety of smaller programs, including assistance to state, community, private, and volunteer fire-related programs.[7]

Care is needed to make sure new funding is effective. In the past, the Forest Service has struggled with accountability. The doubling of fire program funding in fiscal year 2001 presents new challenges. To spend this money efficiently and effectively, the Forest Service must immediately apply this funding towards efforts to reduce fire risk, while incorporating measures to ensure fiscal accountability. According to the General Accounting Office:

> "[The Forest Service] must act quickly to develop a framework to spend effectively and to account accurately for what they accomplish with the funds."[8]

FIRE PREVENTION IS MORE COST-EFFECTIVE THAN FIRE SUPPRESSION

When the federal government fights wildfires, an ounce of prevention is worth a pound of cure. The Forest Service reported in 2000 that funds spent on preparedness for wildfires directly reduce the amount of money spent on wildfire suppression. Fire preparedness activities include "planning, prevention, detection, information and education, pre-incident training, equipment and supply purchase."[9]

The National Association of State Foresters and others have confirmed that fire prevention is far more cost-effective than fire suppression.

· Prevention funding reduces suppression costs — By providing adequate funding before wildfires start, firefighting costs can be significantly reduced. According to the Forest Service, every $1 spent on preparedness decreases suppression costs by $5 to $7, and also significantly reduces resource damage.[10]

FIRE PREVENTION FUNDING HAS BEEN INADEQUATE UNTIL FISCAL YEAR 2001

Thirty-nine million acres across the National Forest system in the interior West are at high risk of catastrophic wildfire. In December 1999, the Forest Service estimated that it would need $825 million per year to reduce the buildup of vegetation that poses the greatest fire hazards in the National Forests. According to the General Accounting Office, this program would cost almost $12 billion over the next 15 years.[11] But the Forest Service requested only $75 million for fiscal year 2001 for prescribed burning and other fire prevention techniques. In response to the summer 2000 fires, Congress provided an additional $206 million for prevention in the final fiscal year 2001 appropriation.

While this increased prevention funding for 2001 will be helpful, Congress needs to realize that it will take decades to reduce fire risk in the National Forests. Regardless of the variation from one fire season to the next, Congress must remember the importance of consistent funding to reduce the risk of fire. A concerted, long-term fire prevention effort is needed if there is hope to reduce the risk and severity of wildfire. As the General Accounting Office reported:

> "We are faced with a pay-me-now or pay-me-later situation in which paying me now is likely the more cost-effective alternative."[12]

FIRE PREVENTION FUNDING MUST BE TARGETED TOWARDS COMMUNITIES AT RISK

Careful targeting of limited fire prevention funds is needed. But the Forest Service continues to emphasize fire risk-reduction where it is cheapest, rather than where it will do the most good (*see page 24*). Instead, the Forest Service should focus its fire prevention efforts on forests adjacent to communities (the wildland-urban interface), where wildfire poses the greatest risks to homes and businesses.

[1]National Interagency Fire Center, *Wildland Fire Statistics*, October 2000, http://www.nifc.gov/stats/wildlandfirestats.html (October 17, 2000).

[2]U.S. Department of Agriculture and U.S. Department of Interior, 1995, *Memorandum: Federal Wildland Fire Management Policy and Program Review*, (Washington, DC), 4-6.

[3]Elizabeth Kinney, U.S. Department of Agriculture, Forest Service, email communication, October 31, 2000.

[4]Donald Smurthwaite, National Interagency Fire Center, email communication, November 2, 2000.

[5]U.S. Department of Agriculture, Forest Service, 2000. *Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs*, (Washington, DC), 14.

[6]Ibid, 14.

[7]U.S. Department of Agriculture, Forest Service, October 13,2000, *National Fire Plan Executive Summary*, http://www.fs.fed.us/fire/planning/Natl_Fire_Plan_ExecSummary10_13_2000.pdf (November 2, 2000).

[8]U.S. General Accounting Office, *Reducing Wildfire Threats: Funds Should Be Targeted to the Highest Risk Areas*, (GAO/T-RCED-00-296, September 13, 2000), 8.

[9]U.S. Department of Agriculture, Forest Service, 2000, *FY2001 Budget Justification for the Committee on Appropriations*, (Washington, DC), 7-3.

[10]U.S. Department of Agriculture, Forest Service, 2000, *Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs*, (Washington, DC), 20.

[11]U.S. General Accounting Office, *Reducing Wildfire Threats: Funds Should Be Targeted to the Highest Risk Areas*, (GAO/T-RCED-00-296, September 13, 2000), 7.

[12]Ibid, 10.

III. WILDFIRE RISKS FROM COMMERCIAL LOGGING

"First, do no harm."
—Hippocrates

The commercial timber program of the Forest Service came into full swing following World War II. The National Forests were used as a resource to fuel the post-war housing boom. Subsidies were provided to private timber corporations to provide an incentive to expand their logging operations into the National Forests. During more than five decades, the Forest Service has built a bloated bureaucracy that has spent billions of dollars to subsidize commercial logging in the National Forests.

Commercial logging targets the larger, fire-resistant trees (Photo: James Mackovjak)

In the 21st Century, the federal government needs to face the fire challenge and act in light of new knowledge gained in the last 50 years by shifting these logging subsidies to fire prevention and preparedness. This could save billions of dollars while protecting lives, property, and natural resources.

COMMERCIAL LOGGING IN THE NATIONAL FORESTS LOSES MONEY FOR TAXPAYERS

Times have changed since the 1950's. But the change hasn't reached the Forest Service timber bureaucracy or logging subsidies. The Forest Service spends approximately $1 billion each year to fund the timber program. The timber program wastes taxpayer money in two ways:

· The timber program supports a bloated, obsolete bureaucracy — The amount of timber logged in the National Forests has decreased by more than 75% since 1989, yet funding for the timber program has risen by 9% during the same time period. Also, the timber program maintains a large and unnecessary bureaucracy, and administrative costs continue to rise. According to the Thoreau Institute:

> "Counting sale costs alone (i.e. leaving out roads and reforestation), unit costs have risen from $19 per thousand board feet offered in 1988 to $55 per thousand in 1998."[1]

· The timber program loses money because it subsidizes timber companies – Taxpayers invest $1 billion per year in the

timber program, which generates an average annual loss of $330 million, according to the U.S. General Accounting Office. This is because many timber sales generate less revenue than they cost to prepare and administer. For that reason, many timber sales would not be economically viable and timber companies would not buy the timber unless the government subsidized them to do so. Taxpayers lost more than $2 billion during the six-year period between 1992-1997 as a result of these subsidies.[2] Furthermore, the subsidy serves no important national goal. In 2000, the National Forests provided less than 4% of all the timber consumed in the U.S., yet the Forest Service continues to spend $1 billion a year on the money-losing timber program.

COMMERCIAL LOGGING CAN INCREASE THE RISK AND SEVERITY OF WILDFIRE

Not only do these subsidies for commercial logging lose money, they can also undermine the federal government's efforts to reduce fire risk in the National Forests. Commercial logging, especially of larger, fire-resistant trees, in the National Forests is one of several factors contributing to the risk and severity of wildfire. Other contributing factors include decades of fire suppression, grazing, and the introduction of non-native species. Numerous independent studies have confirmed that commercial logging has contributed to the risk and severity of fire. For example, according to the independent, congressionally-mandated Sierra Nevada Ecosystem Project Report:

The build-up of slash on logged sites increases fire risk (Photo: Bureau of Land Management)

> "Timber harvest, through its effects on forest structure, local microclimate and fuel accumulation, has increased fire severity more than any other recent human activity."[3]

At the local level, the commercial logging program can increase the risk and severity of wildfire in the following ways:

· Commercial logging removes the most fire-resistant trees – Large, green trees are the most commercially valuable as well as the most fire-resistant. Removing too many of them can significantly alter the structure of a forest. Their removal leaves behind smaller, fire-prone trees, which are a leading factor in the increased risk of fire in the National Forests. Additionally, through its effect on forest structure, logging can result in increased wind speeds,[4] according to the Forest Service. These changes affect fire spread.

· Commercial logging dries out the forest and fosters denser understory trees — Commercial logging and logging roads open the forest canopy, which can have two effects.

THE DANGER OF SLASH

According to the National Interagency Fire Center (NIFC), several fires that burned during the summer of 2000 were started in logged areas, and firefighting efforts were hampered due to the accumulation of logging slash. Specifically, the control efforts associated with the South Fork Nemote #4 fire, burning in the Lolo National Forest in western Montana, were complicated as a result of logging activities. On August 7, 2000, NIFC reported:

> "Containment difficulties are being caused by heavy logging slash, extremely dry fuels and low relative humidities."[10]

Slash buildup made it significantly more difficult to fight these fires. Furthermore, according to regional fire situation reports, several fires were inadvertently ignited during the logging operations.

· The Ryan Gulch fire was allegedly started by Plum Creek Timber Company logging operations on privately owned lands in western Montana. The fire spread to adjacent public lands, and eventually burned 17,118 acres. The final cost for fighting the Ryan Gulch fire was $7.3 million.[11]

· The Crooked fire, burning in the Clearwater National Forest near the Idaho-Montana border, was started in logging slash. According to the NIFC report of September 6, 2000, the fire had burned 4,892 acres at a cost of $5.2 million[12].

Even though much of the acreage burned was on land owned by private timber companies, state and federal taxpayers covered the cost of suppressing these and other fires.

First, it allows direct sunlight to reach the forest floor, leading to increased evaporation and drier forests.[5] As a consequence, ground fuels (grass, leaves, needles, twigs, etc.) dry out more quickly and become susceptible to fire. Second, an open canopy allows more sunlight to reach the understory trees, increasing their growth.[6] This can lead to weaker, more densely-packed forests.

· Commercial logging leaves behind "slash" that speeds fires – Commercial logging leaves behind "slash" (tree bark, cones, needles, branches, etc.), which increases the speed with which wildfires progress, according to the Forest Service.[7] A 1995 Forest Service study showed that logging slash could impact fire behavior by increasing flame lengths and rates of fire spread.[8] The Brush Disposal Fund, operated by the Forest Service, was designed to provide for the removal of logging slash. In 1998, the General Accounting Office revealed unauthorized use of one-third of this fund to cover administrative costs. According to the report, the Forest Service directed 34% of all expenditures from the Brush Disposal Fund to cover overhead expenditures in 1997, the most recent year data is available.[9] Congress subsequently enacted a provision limiting administrative costs to 20% of expenditures. But it is unclear that the Forest Service has moved to implement this requirement.

COMMERCIAL LOGGING IS NO SOLUTION

Congress and the Forest Service continue to rely on the commercial logging program to do something it will never accomplish – reduce fire risk. The commercial logging program is designed to provide trees to private timber companies, not to reduce the risk of fire.

· Politics of logging — Congress and the Forest Service have tended to focus on commercial logging as the means to deal with fire risks. Unfortunately, commercial logging can exacerbate the problem. Moreover, a focus on commercial logging politicizes the problem and distracts from real solutions. As long as Congress and the Forest Service rely on this approach, the situation will continue to deteriorate.

· Lack of incentives has led to a lack of action — Because there is little commercial incentive to remove the trees that present the highest fire danger, the commercial timber program has done little to reduce the risk of large-scale, severe wildfires.

· Funding priorities should be shifted — By ending commercial timber subsidies and using the savings to pay for more fire preparedness and planning, the Forest Service could address critical needs without increasing the Forest Service budget.

[1]Randal O'Toole, *Subsidies Anonymous #32*, 1998, http://www.ti.org/sa32.html (September 14, 2000).

[2]U.S. General Accounting Office, *Forest Service: Distribution of Timber Sales Receipts Fiscal Years 1992-1994*, (GAO/RCED-95-237FS, September 8, 1995), 24-51; and *Forest Service: Distribution of Timber Sales Receipts, Fiscal Years 1995 through 1997*, (GAO/RCED-99-24, November 12, 1998), 28-42.

[3]Sierra Nevada Ecosystem Project, Final Report to Congress, 1996, *Summary of the Sierra Nevada Ecosystem Project Report*, Wildland Resources Center Report No. 39, University of California, (Davis, CA), 4.

[4]Mark Schroeder and Charles Buck, 1970, *Fire Weather…A Guide For Application Of Meteorological Information To Forest Fire Control Operations*, United States Department of Commerce and United States Department of Agriculture, (Washington, DC), 85-105.

[5]Ibid, 191.

[6]K.S. McKelvey, et al., 1996, *An Overview of Fire in the Sierra Nevada*, In Sierra Nevada Ecosystem Project Final Report to Congress, Volume II, Wildland Resources Center Report No. 37, University of California, (Davis, CA), 1035.

[7]Robert Martin and Arthur Brackenbusch, 1974, "Fire Hazard and Conflagration Prevention," *Environmental Effects of Forest Residues Management in the Pacific Northwest; A State-of-Knowledge Compendium*, (Owen P. Cramer, ed.), Gen. Tech. Rept. PNW-24 (Portland, OR: USDA, Forest Service).

[8]Mark Huff et al., 1995, *Historical and current forest landscapes in eastern Oregon and Washington. Part II: Linking vegetation characteristics to potential fire behavior and related smoke production*, Gen. Tech. Rep. PNW-GTR-355, (Portland, OR: USDA, Forest Service), 5.

[9]U.S. General Accounting Office, *Forest Service: Indirect Expenditures Charged to Five Funds*, (GAO-T/RCED-98-214, June 4, 1998), 6.

[10]National Interagency Fire Center, *Incident Management Situation Report*, August 7,2000. http://vwww.vita.org/disaster/wildfire/0008/0006.html (October 29, 2000).

[11]John Gatchell, Montana Wilderness Association, *Testimony Before the Senate Subcommittee on Forests and Public Land Management, Committee on Energy and Natural Resources*, (Billings, MT, September 22, 2000).

[12]National Interagency Fire Center, *Incident Management Situation Report*, September 6,2000. http://vwww.vita.org/disaster/wildfire/0009/0005.html (October 29, 2000).

IV. BUDGET PROCESS AND WILDFIRE

If Congress maliciously decided to devise a Forest Service budget system intended to worsen wildfires, waste taxpayer money, and escape accountability to anyone, Congress would not have to change a thing.

The Forest Service budget process sounds like a boring topic to be left to the policy experts in Washington, DC, but the Forest Service budget process is misguided and bitterly disputed. Because of the Forest Service budget system, firefighters will face dangers and waste many man-hours fighting some fires that should be allowed to burn within limits. Unless the Forest Service budget system is changed, no other policy will be truly effective in fighting wildfires.

Who is to blame for the failure to fix the Forest Service budget process? The U.S. Constitution gives Congress the power of the purse. But Congress has been derelict in its duty when it comes to the Forest Service budget process.

"The main fire problem is Congress' willingness to give the Forest Service a blank check to put out fires combined with its unwillingness to give it enough money for fire prevention — unless it happens to also be for logging."
—Economist Randal O'Toole, Thoreau Institute

THE BLANK CHECK FOR FIRE SUPPRESSION WASTES MONEY AND MAY UNNECESSARILY RISK LIVES

When it comes to fire suppression and the federal budget, the usual rules do not apply. For most federal programs, Congress sets an annual spending level that may not be exceeded by the federal agency. If an emergency arises that requires extra money, then the agency goes back to Congress and requests an emergency supplemental appropriation. That extra money is provided only if Congress passes a law approving it.

An emphasis on commercial logging can increase the risk of wildfire (Photo: James Mackovjak)

Spending for fire suppression works differently. The Forest Service is permitted to take money from other Forest Service programs and spend it for fire suppression. Then Congress fully reimburses the Forest Service for the difference.

In short, Congress has given the Forest Service a blank check for fire suppression. Because this is so easy, Congress does not even try to set a realistic budget for fire suppression, and

usually appropriates a token, placeholder amount knowing that it can be increased. For example, at the beginning of fiscal year 2000 (which ended Sept. 30, 2000), Congress appropriated $139 million for fire suppression. In addition, the Forest Service began the year with more than $400 million of emergency funding on hand for fire suppression. But, because of the severity of the fires of 2000, the Forest Service actually spent over $1 billion.[1] So, at the end of fiscal year 2000, Congress appropriated $426 million to make up for the difference. Congress did not ask many questions, and the Forest Service faced little scrutiny over how it had spent the money.

Of course, not every year brings widespread, costly fires. Furthermore, it is reasonable for Congress to have a mechanism that allows the Forest Service to make urgently needed expenditures to fight fires without having to wait for Congress to pass a law. But what is truly necessary? The current system gives the Forest Service no budgetary reason to ask tough questions. Following are several problems:

· The Forest Service has little incentive to get serious about fire preparedness – After all, Congress will always provide funding for fire suppression later.

· Money is wasted to suppress fires that cannot or should not be suppressed — It is widely accepted that some fires should simply be left to burn within certain limits. But the blank check for fire suppression signals that there is a bottomless wallet in Washington, D.C. that will pay to

Cleer Creek fire, Idaho

CASE STUDY: IDAHO'S CLEAR CREEK FIRE

The most expensive fire during the Summer of 2000 was the Clear Creek fire in the Salmon-Challis National Forest in eastern Idaho.

This wildfire burned 217,000 acres. Most of these acres were located in undeveloped, remote and mountainous terrain. Nevertheless, due to the siege-like nature of federal firefighting, no expense was spared.

Efforts to suppress the Clear Creek fire lasted for months. At its peak, the Forest Service assigned 1,783 firefighters, 16 helicopters and 68 engines to control the fire.[2] Over 200 miles of bull-dozed fire-lines, designed to halt the spread of wildfires, were constructed at taxpayer expense. According to the Salmon-Challis National Forest Supervisor George Matejko, many of these fire-lines were built unnecessarily.[3] But local outcry over the fire influenced his ability to make decisions, and costs escalated as a result. Federal taxpayers spent a total of $71.5 million to fight the Clear Creek fire – the most for any fire during the summer of 2000.

But that was not enough. In the end, rain and early snowfall finally extinguished the fire. The case of the Clear Creek fire shows that giving a blank check for fire suppression can result in spending that is excessive or ineffective.

extinguish every single fire, regardless of how long it takes. As was evidenced by the most severe fires of 2000, the Forest Service has an incentive to throw taxpayer money at a wildfire until rain and snow put it out. (*See the example of the Clear Creek fire on the previous page.*)

· The blank check can pressure federal fire officials to dramatically increase costs when houses are threatened — The blank check combined with the presence of homes near a fire can affect the Forest Service's ability to properly weigh the costs and benefits of fire suppression. A fire official may feel intense pressure to commit money and firefighters to an effort that the official knows will not be successful.

FOREST SERVICE TIMBER TRUST FUNDS UNDERMINE FIRE PREPAREDNESS AND RISK-REDUCTION

By creating timber trust funds, Congress set up a system that gives the Forest Service additional funds for fire prevention only if the money also pays for commercial logging. Here is how it works:

· Loose definitions in the Salvage Sale Fund result in removal of fire-resistant trees – Congress established the Salvage Sale Fund in 1976 to finance the sale of trees that otherwise would not be marketable, i.e. dead, damaged, diseased, or trees susceptible to fire or insect infestation. All of the revenue from salvage sales is diverted back into the fund, in order to finance future salvage sales. According to the Forest Service, if properly defined, a "salvage sale" should contain marginal timber that otherwise would not be commercially viable. One problem with this fund is that, in order to make the sales more attractive to timber companies, the Forest Service includes commercially valuable, fire-resistant trees. Therefore, a timber sale that is designed to reduce the risk of fire may actually increase the risk of fire by removing many of the large, green, fire-resistant trees.

· The Knutson-Vandenberg Fund undermines restoration — Established in 1930, this fund pays for reforestation, restoration, and watershed improvements in the area of a timber sale. Some of these activities can also reduce the risk and severity of wildfire. A portion of all revenue generated by a timber sale is funneled into this account to provide for these activities. Therefore, to pay for restoration work, the Forest Service has an incentive to sell large, green, fire-resistant trees from the National Forests, even when the sale of such trees undermines restoration or fire prevention efforts.

FIRE REDUCTION FOCUSES ON LOW-COST INSTEAD OF HIGH-RISK ACRES

The success of Forest Service fire reduction activities is measured by the number of acres treated. For example, in early 2000 the Forest Service submitted a document to Congress justifying the agency's fiscal year 2001 budget request. In its justification, the Forest Service planned to treat 1.345 million acres in fiscal year 2001.[4] There is no way to know whether these acres are the areas most in need.

Many of the areas that face the highest fire risk also require high-cost fire reduction treatments, such as those in the wildland-

Misplaced priorities may be putting firefighters at risk (Photo: Bureau of Land Management)

urban interface. Yet, according to the General Accounting Office, an incentive to neglect these high-risk areas exists, in favor of focusing activities where the costs are low. The U.S. General Accounting Office has noted that measuring fire reduction success by the number of acres treated creates an incentive to reduce fire hazards where it is cheapest, as opposed to the areas that are most at risk.[5] According to the General Accounting Office, to better reduce fire risk, the Forest Service should measure the program's success "by the number of acres treated [that] occur within the highest-priority areas."

FIRE REDUCTION, NOT COMMERCIAL LOGGING

There is much debate over the most effective methods to reduce fire risk in the National Forests. Different types of thinning and prescribed burning are generally accepted to be the most effective methods in reducing the risk of fire. Unfortunately, these methods can be prohibitively expensive. In certain areas, the cost of thinning and prescribed fire can outweigh the cost of fire suppression. However, due to the lack of accountability and natural variation of fire suppression costs, it is difficult to make these judgements. As a result, there is little agreement over the best way to proceed.

In instances where thinning is the desired option, the Forest Service could remove financial incentives to include fire-resistant trees by separating contracts for the removal and sale of fire-prone trees. However in many cases, these trees have no commercial value at all. Most importantly, unless thinning activities are accompanied by proper disposal of slash, thinning activities can actually result in increased fire risk.[6]

· The Forest Service concentrates on forests with high-value instead of high-risk — The agency is motivated to focus on areas with more valuable timber by depending on the commercial timber sale program to reduce fire risk. According to the General Accounting Office:

> "[Forest Service officials] tend to (1) focus on areas with high-value commercial timber rather than on areas with high fire hazards or (2) include more large, commercially valuable trees in a timber sale than are necessary to reduce the accumulated fuels."[7]

· Criteria to judge the timber program are not designed to recognize fire risk — The timber program is judged solely on the volume of timber sold. Forest Service timber sale planners tend to focus primarily on areas with commercially valuable timber,

as opposed to those areas that face the highest fire risk. Consequently, the goal of reducing the risk and severity of fire is neglected.

[1]Elizabeth Kinney, U.S. Department of Agriculture, Forest Service, email communication, October 31, 2000.

[2]Salmon-Challis National Forest, *Fire and Closure Update-August 26, 2000*, U.S. Department of Agriculture, Forest Service, August 26,2000, http://www.fs.fed.us/r4/sc/fire2000/news/826.html (October 25, 2000).

[3]Rocky Barker, "Fire officials weigh damage in wake of Clear Creek fire," Idaho Statesman, September 22, 2000, Boise.

[4]U.S. Department of Agriculture, Forest Service, 2000, *FY2001 Budget Justification for the Committee on Appropriations*, (Washington, DC), 7-11.

[5]U.S. General Accounting Office, *Reducing Wildfire Threats: Funds Should Be Targeted to the Highest Risk Areas*, (GAO/T-RCED-00-296, September 13, 2000), 9.

[6]Russell Grahamet al., 1999, *The Effects of Thinning and Similar Stand Treatments in Western Forests*, Gen. Tech. Rep. PNW-GTR-463, (Portland, OR: USDA, Forest Service), 15.

[7]U.S. General Accounting Office, *Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threat*, (GAO/RCED-99-65, April 2, 1999), 43.

V. HOMES AND FIREFIGHTING COSTS

Firefighters risk their lives and taxpayers spend billions of dollars to protect residential areas adjacent to National Forests. While local and state authorities do have a responsibility to safeguard homeowners, local residents must assume more responsibility for the protection of their property and for making their homes more fire-resistant.

THE PROBLEM

Development in forested areas complicates firefighting efforts.

· Population growth in the wild increases firefighting costs — One of the fastest growing regions in the U.S. is the wildland-urban interface in the interior West.[1] The wildland-urban interface is defined as the residential area that is surrounded by, or borders on wildland areas (e.g. National Forests). Those who buy or build new houses in these areas too often assume that local and state authorities – and increasingly the federal government – will protect their homes from wildfire.

New homes in wildland areas increase fire suppression costs (Photo: Bureau of Land Management)

· Fire protection in the interface consumes a disproportionate share of taxpayer fire suppression dollars — The vast majority of wildfires occur outside the wildland-urban interface. But protecting against fires inside this zone is far more costly. The Forest Service analyzed its federal wildland fire suppression spending for 1994. The agency estimated that approximately one-third ($250 million to $300 million) of all fire suppression spending went towards the protection of the wildland-urban interface.[2] The high cost to protect relatively few acres should alarm taxpayers, especially as more people move to dream houses in the interface zone, assuming that taxpayers will pay to protect their homes at any cost.

EDUCATING HOMEOWNERS TO TAKE SIMPLE PRECAUTIONS IS A NEEDED FIRST STEP

Education of private property owners in these forested areas is essential to the success of fire prevention. Simple measures can go a long way toward preventing homes from burning down. These include:

· Installing fire-resistant roofing shingles and other building materials;

· Clearing brush, vegetation, and other flammable materials from the immediate area surrounding houses;

· Avoiding the construction of new homes in areas that face a high risk of wildfire;

· Ensuring that access roads and driveways can accommodate firefighting vehicles.

Local and state authorities must work with the federal government to intensify educational programs that encourage fire-safe property maintenance. Communities need to coordinate with their state and local governments, fire departments, and federal land managers (e.g., Forest Service or Bureau of Land Management) in order to promote these measures and to effectively reduce the risk of fire in the danger zone.

Flammable wood shingles frustrate fire fighting efforts and exacerbate property losses (Photo: Bureau of Land Management)

Insurance companies can play a minor role by promoting policies that encourage fire-safe property maintenance. However, because fire risk is not a significant component of insurance rates, the potential effectiveness of such incentives is limited.[3] Insurance companies could work to educate homeowners of the potential risks, thereby reducing the companies' liability and the overall cost to policyholders. But property owners must take independent action to reduce the risk of wildfire, if there is to be any hope of solving the wildland-urban interface problem.

REGULATIONS ARE NEEDED TO REQUIRE HOMEOWNERS TO DO THEIR FAIR SHARE TO PROTECT THEIR PROPERTY

While education is needed, it will never fix the problem adequately or quickly enough. Faster, firmer action is needed in the form of regulation from government at some level.

Ideally, state and local governments should assume this responsibility. The National Association of State Foresters recommends local zoning initiatives:

> "There is a need for local and state governments to use their regulatory authorities to strike a safe balance between the siting of structures, the use of fire-wise construction materials and methods, and the creating of defensible space."[4]

In certain areas, it may be appropriate to actively discourage development due to the associated high-risk of wildfire. It is better not to build homes in the first place if they are likely to face destruction in the path of wildfire.

· Federal regulation may be necessary — If state and local governments duck this responsibility while handing billion-dollar fire suppression bills to federal taxpayers, then federal regulations should be considered. If the Forest Service is expected to try to protect homes in the interface, it must have the authority to regulate building materials, access, and property maintenance.

UNCLEAR RESPONSIBILITIES VICTIMIZE FEDERAL FIRE OFFICIALS AND TAXPAYERS

Protecting private property against fire is mainly the job of state and local authorities. But states often enter into cooperative fire agreements with the federal government. Under such cooperative agreements, federal agencies assist state and local firefighters with training and supplies. In certain cases where rural fire departments are overwhelmed, the federal government can agree to actively protect homes and other structures. Such agreements relieve state and local jurisdictions of the responsibility for fire protection. The truth is that too many fire officials at the federal, state, and local levels are confused about their responsibilities. Federal officials suffer directly from this uncertainty. According to a government study:

> "There is no central coordination, and there is no single policy that clearly defines the federal land managers' role or requires agencies to take compatible actions in the wildland/urban interface… As a result, federal land managers and fire personnel are uncertain about their role."[5]

Clearly written job descriptions are needed. The National Association of State Foresters recommends that the Forest Service:

> "Establish written agreements among local, state, tribal and federal agencies detailing responsibilities with respect to structure protection in the interface."[6]

But federal taxpayers are also victimized indirectly by this uncertainty. The lack of a clear policy has led some local governments, the public, and even federal agencies to erroneously assume that federal taxpayers have a special responsibility to protect private property in the wildland-urban interface.

As more homes are built in wildland areas, scenes like this one will become more common (Photo: Bureau of Land Management)

A SYSTEM IS NEEDED TO DEAL WITH THE PROBLEM

First, the Forest Service must identify areas that fall within the wildland-urban interface, in order to implement an effective strategy. To date, the Forest Service has failed to inventory these areas. Only with such knowledge can the Forest Service craft effective fire management strategies.

Nonetheless, it would be foolish to guarantee federal fire protection to homeowners, due to the unpredictable nature of fires.

[1]U.S. General Accounting Office, *Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threat*, (GAO/RCED-99-65, April 2, 1999), 19.

[2]U.S. Department of Agriculture and U.S. Department of Interior, 1995, *Memorandum: Federal Wildland Fire Management Policy and Program Review*, (Washington, DC), 29.

[3]*Ibid*, 32.

[4]National Association of State Foresters, Forest Fire Protection Committee, July 1, 2000, *Costs Containment on Large Fires: Efficient Utilization of Wildland Fire Suppression Resources*, 12.

[5]U.S. Department of Agriculture and U.S. Department of Interior, 1995, *Memorandum: Federal Wildland Fire Management Policy and Program Review*, (Washington, DC), 30.

[6]National Association of State Foresters, Forest Fire Protection Committee, July 1, 2000, *Costs Containment on Large Fires: Efficient Utilization of Wildland Fire Suppression Resources*, 10.

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NATIONAL FOREST TIMBER SALE PROGRAM LOSSES

Alabama	
National Forests in Alabama	-$7,276,468
Alaska	
Tongass Forest	$69,116,321
Chugach Forest	-$3,674,710
State Total	-$72,821,034
Arizona	
Apache-Sitgreaves Forest	-$10,066,949
Coconino Forest	-$7,004,633
Coronado Forest	-$814,692
Kaibab Forest	$4,992,850
Prescott Forest	-$1,852,056
Tonto Forest	-$2,453,544
State Total	-$27,184,704
Arkansas	
Ozark and St. Francis Forest	-$7,018,822
Ouachita Forest	-$12,288,496
State Total	$19,307,318
California	
Angeles Forest	-$234,119
Cleveland Forest	-$69,078
Eldorado Forest	$19,517,016
Inyo Forest	$147,823
Klamath Forest	-$23,054,297
Lassen Forest	$25,607,345
Los Padres Forest	$207,816
Mendocino Forest	-$10,387,365
Modoc Forest	-$13,026,857
Plumas Forest	$6,891,652
San Bernadino Forest	-$773,864
Sequoia Forest	-$8,083,434
Shasta-Trinity Forest	$15,707,057
Sierra Forest	$8,318,191
Six Rivers Forest	-$14,902,182
Stanislaus Forest	-$16,193,662
Tahoe Forest	$27,979,291
State Total	$190,805,686
Colorado	
Arapaho and Roosevelt Forest	$1,469,641
Grand Mesa, Uncompahgre, and G	$4,531,207
Pike and San Isabel Forests	-$733,984
Rio Grande Forest	-$6,987,670
Routt Forest	$754,946
San Juan Forest	$766,266
White River Forest	-$5,131,969
State Total	-$18,863,791
Florida	
National Forests in Florida	-$1,152,921
Georgia	
Chattahoochee and Oconee Forests	$6,588,443
Idaho	
Boise Forest	$25,859,937
Caribou Forest	-$1,911,254
Challis Forest	-$463,013
Clearwater Forest	-$15,962,413
Idaho Panhandle Forest	-$18,592,407
Nez Perce Forest	-$10,261,862
Payette Forest	-$14,264,962
Salmon Forest	$6,127,216
Sawtooth Forest	-$2,255,596
Targhee Forest	-$2,288,469
State Total	$97,987,129
Illinois	
Shawnee Forest	-$905,278
Indiana	
Hoosier Forest	$677,457
Kentucky	
Daniel Boone Forest	$6,539,319
Louisiana	
Kisatchie Forest	-$3,477,064
Michigan	
Hiawatha Forest	-$3,941,205
Huron-Manistee Forest	-$3,083,492
Ottawa Forest	$5,383,115
State Total	-$12,401,812
Minnesota	
Chippewa Forest	$3,678,116
Superior Forest	$8,391,919
State Total	$12,070,035
Mississippi	
National Forests in Mississippi	$5,377,982
Missouri	
Mark Twain Forest	-$6,327,462
Montana	
Beaverhead Forest	-$4,626,953
Bitterroot Forest	-$3,796,530
Custer Forest	$1,513,412
Deerlodge Forest	$2,469,543
Flathead Forest	-$8,739,834
Gallatin Forest	-$3,766,399
Helena Forest	$3,111,329
Kootenai Forest	-$30,936,396

TCS calculations based on General Accounting Office report, Forest Service Distributionof Timber Sales Receipts, Fiscal Years 1995 Through 1997 (GAO/RCED-99-24)

NATIONAL FOREST TIMBER SALE PROGRAM LOSSES

Montana (Continued)		
Lewis and Clark Forest		-$2,395,454
Lolo Forest		-$16,282,285
	State Total	$77,638,635
Nebraska		
Nebraska Forest		$59,820
Nevada		
Humboldt Forest		$108,777
Toiyabe Forest		$2,629,356
	State Total	$2,738,133
New Hampshire		
White Mountain Forest		$5,086,055
New Mexico		
Carson Forest		$4,004,916
Cibola Forest		-$1,509,053
Gila Forest		$3,112,076
Lincoln Forest		-$1,447,904
Santa Fe Forest		-$3,870,218
	State Total	-$14,344,167
North Carolina		
National Forests in North Carolina		$8,523,891
Ohio		
Wayne Forest		-$654,732
Oregon		
Deschutes Forest		-$40,215,739
Fremont Forest		$17,638,824
Malheur Forest		-$6,798,696
Mt. Hood Forest		-$38,530,134
Ochoco Forest		-$9,702,482
Rogue River Forest		$2[illegible],580,841
Siskiyou Forest		$8,386,453
Siuslaw Forest		-$35,545,928
Umpqua Forest		$5,946,881
Umatilla Forest		$17,684,436
Wallowa-Whitman Forest		-$20,906,064
Willamette Forest		$52,688,851
Winema Forest		-$40,228,546
	State Total	-$314,853,874
Pennsylvania		
Allegheny Forest		$15,706,960
South Carolina		
Francis Marion and Sumter Fore		-$50,236
South Dakota		
Black Hills Forest		-$14,199,827
Tennessee		
Cherokee Forest		-$3,374,222
Texas		
National Forests in Texas		$3,341,909
Utah		
Dixie Forest		$8,514,686
Fishlake Forest		-$1,681,038
Manti-La Sal Forest		-$3,137,393
Northern Utah Eco Group		-$6,950,270
	State Total	-$20,303,387
Vermont		
Green Mountain Forest		-$1,058,458
Virginia		
George Washington Forest		$6,517,927
Jefferson Forest		-$1,545,897
	State Total	-$8,063,824
Washington		
Colville Forest		-$18,979,394
Gifford Pinchot Forest		-$49,887,752
Mt. Baker- Snoqualmie Forest		-$22,014,186
Okanogan Forest		-$20,377,773
Olympic Forest		$15,176,661
Wenatchee Forest		-$26,323,113
	State Total	-$153,136,879
West Virginia		
Monongahela Forest		$3,333,319
Wisconsin		
Chequamegon Forest		$3,919,456
Nicolet Forest		$3,210,481
	State Total	-$7,129,937
Wyoming		
Medicine Bow Forest		-$5,777,330
Bighorn Forest		-$2,119,888
Shoshone Forest		-$1,133,864
Bridger-Teton Forest		-$2,915,552
	State Total	-$11,946,634

TCS calculations based on General Accounting Office report, Forest Service Distributionof Timber Sales Receipts, Fiscal Years 1995 Through 1997 (GAO/RCED-99-24)

TOTAL WILDLAND FIRES AND ACRES BURNED IN 2000

STATE	FIRES	ACRES	STATE	FIRES	ACRES
AK	351	751,233	NC	4,913	35,008
AL	5,584	85,827	ND	1,147	71,606
AR	2,924	35,820	NE	33	24,537
AZ	3,592	85,660	NH	248	160
CA	7,283	235,248	NJ	521	1,432
CO	2,101	126,747	NM	2,466	519,177
CT	91	717	NV	1,078	635,715
DC	2	2	NY	107	457
DE	12	165	OH	817	4,134
FL	6,572	200,980	OK	1,936	83,547
GA	7,357	52,129	OR	2,006	477,741
IA	0	0	PA	115	954
ID	1,599	1,361,459	PR	1	1
IL	29	597	RI	109	210
IN	1,486	3,668	SC	4,477	21,680
KS	20	1,112	SD	588	116,647
KY	1,741	141,124	TN	2,941	61,123
LA	4,542	103,254	TX	2,438	188,352
MA	1,854	2,735	UT	1,929	277,827
MD	253	506	VA	1,103	36,784
ME	243	298	VT	28	67
MI	646	11,678	WA	1,116	256,781
MN	2,828	70,539	WI	1,608	4,611
MO	200	13,017	WV	1,087	37,355
MS	5,040	73,672	WY	651	279,583
MT	2,437	949,817	*Total*	*92,250*	*7,393,493*

Total Wildland Fires, January 1, 2000 to December 29, 2000 (Source: National Interagency Fire Center)

Suppression Costs for Federal Agencies						
Year	Bureau of Land Management	Bureau of Indian Affairs	Fish and Wildlife Service	National Park Service	USDA Forest Service	Total Costs
1994	$98,417,000	$49,202,000	$3,281,000	$16,362,000	$678,000,000	$845,262,000
1995	$56,600,000	$36,219,000	$1,675,000	$21,256,000	$224,300,000	$340,050,000
1996	$96,854,000	$40,779,000	$2,600	$19,832,000	$521,700,000	$679,167,600
1997	$62,470,000	$30,916,000	$2,000	$6,844,000	$155,768,000	$256,000,000
1998	$63,177,000	$27,366,000	$3,800,000	$19,183,000	$215,000,000	$328,526,000
1999	$85,724,000	$42,183,000	$4,500,000	$30,061,000	$361,000,000	$523,468,000
2000	$600,000,000				$1, 020,281,817	$1, 620,281,817

Source: Based on National Interagency Fire Center and Forest Service data

Significant Large Fires of 2000				
FIRE	FOREST, STATE	ACRES BURNED	STRUCTURES LOST	COST
Clear Creek	Salmon-Challis National Forest, ID	216,961	1	$71.5 million
Burgdorf Junction	Payette National Forest, ID	64,496	19	$23.4 million
Valley Complex	Bitterroot National Forest , MT	292,070	239	$61.9 million
Canyon Ferry Complex	Helena National Forest, MT	43,947	50	$12 million
Cerro Grande (Los Alamos)	Bandelier National Monument, NM	47,650	235	$32.4 million

Source: National Interagency Fire Center Daily Reports

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Memorandum

August 22, 2000

TO : Hon. Ron Wyden
Attention: Sarah Bittleman

FROM : Ross W. Gorte
Natural Resource Economist and Senior Policy Analyst
Resources, Science, and Industry Division

SUBJECT : Timber Harvesting and Forest Fires

This memorandum responds to your request for both quantitative and qualitative assessments of the assertion that the decline in timber harvesting from the national forests over the past 10 years is a significant factor contributing to the current severe fire season in the West. Table 1 and figure 1, on the following page, present 20 years of national forest timber harvest volumes and acres burned on Forest Service protected areas. (Because of several cooperative agreements, the Forest Service protects some non-federal lands, while other organizations protect some national forest lands. However, the total acres protected by the Forest Service roughly equals the National Forest System acres. Thus, the difference in lands seems likely to be insignificant.)

Timber volume harvested has clearly declined in the 1990s, from a peak of 12.7 billion board feet in 1987 to 2.9 billion board feet in 1999, after relatively stable harvest levels (generally 9-12 billion board feet) from 1958–1990. Acres burned have been less stable than harvest volumes, varying from 44,622 acres burned in 1982 to 1,549,955 acres burned in 1988, but four of the worst fire seasons since 1920 (the only four with more than a million acres burned) have occurred within the past 15 years — 1987, 1988, 1994, and 1996 — and the 2000 fire season could be worse than any of these. However, as explained below, the acres burned in any particular year appear to be at most weakly related to the volume of timber harvested.

Some critics have argued that, because timber harvesting removes biomass from the forest, it also reduces the extent and severity of forest fires. A correlation analysis, relating acres burned to timber harvest volume, was performed to test part of this hypothesis — that the extent of forest fires is related to the quantity of timber harvested. The coefficient of determination (r^2) is the most frequently used statistic to assess the correlation between two variables; an r^2 of 1.00 indicates an absolutely perfect correlation, while an r^2 of 0.00 indicates a perfectly random relationship. The coefficient of correlation (r) is also used sometimes, since it indicates the direction of the correlation (positively or negatively related) as well. The coefficients of determination and of correlation were calculated for 1980–1999,

1960–1999, and 1987–1999.[1] The results are shown in table 2. The coefficients of determination (r^2) are quite low, with the highest being an r^2 of 0.1362 for 1987–1999. The analysis finds that, for this period, less than 14% of the variation in acres burned is related to the variation in harvests; for other periods, the relationship is even weaker. The coefficients of correlation are also low. More surprising is that the they are positive for 1980–1999 and 1987– 1999, indicating *fewer* acres burned in association with lower timber harvests, contrary to the hypothesis.

Table 2. Coefficients of Determination and of Correlation for Harvest Volume–Acres Burned Comparisons

Period	Coefficient of Determination (r^2)	Coefficient of Correlation (r)
1960-1999	0.0036	– 0.0598
1980-1999	0.0302	0.1738
1987-1999	0.1362	0.3691

In assessing this relationship — acres burned with timber harvests — qualitatively, the conclusion of the correlation analysis is not surprising. Timber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these "fine fuels" on the forest floor *increases* the rate of spread of wildfires.[2] Thus, one might expect acres burned to be positively correlated with timber harvest volume.

It should be noted that this discussion focuses on the extent of fire, but not on the severity. Areas with heavier fuel loadings almost certainly burn more intensely than areas with lesser fuel loadings. Timber harvesting does remove fuel, but it is unclear whether this fuel removal is significant, because the proportion of fuel removed is unknown and because the relative importance of large-diameter fuels in fire intensity is unknown. Furthermore, while it seems likely that more intense fires cause more resource damage, damage appraisal methods are relatively unsophistocated. Thus, timber harvesting might reduce the severity of forest fires, but given currently available information, a quantitative analysis of this benefit is infeasible.

If you have any questions, please do not hesitate to call me at [redacted].

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[1] 1987 was chosen as likely to maximize the correlation, since 1987 was the peak harvest year.

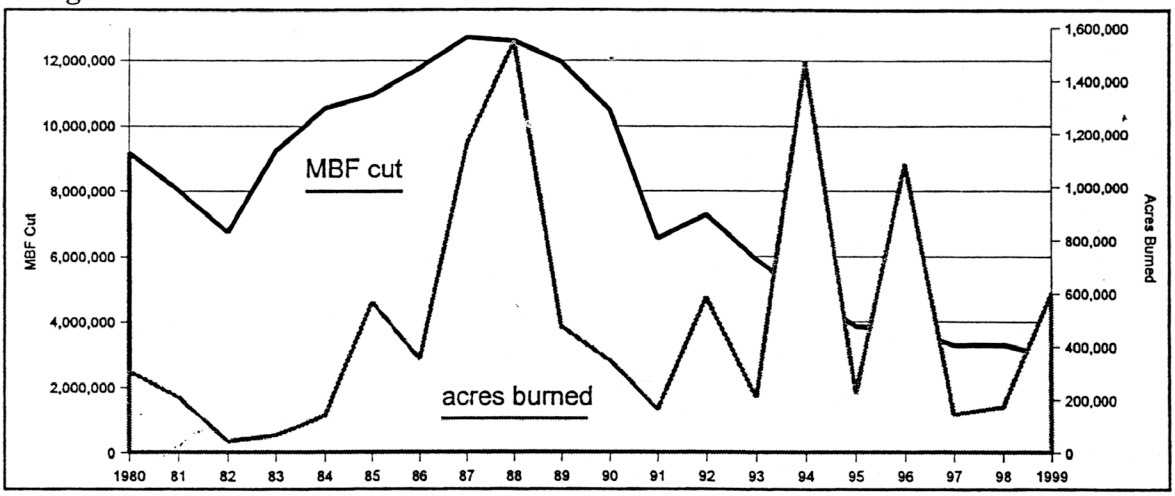
[2] See: Robert E. Martin and Arthur P. Brackebusch, "Fire Hazard and Conflagration Prevention," *Environmental Effects of Forest Residues Management in the Pacific Northwest: A State-of-Knowledge Compendium* (Owen P. Cramer, ed.), Gen. Tech. Rept. PNW-24 (Portland, OR: USDA Forest Service, 1974).

Table 1. National Forest Timber Harvests and Acres Burned on Forest Service-Protected Lands
(in millions of board feet and total acres burned)

Fiscal Year	Harvest Volume	Acres Burned
1980	9,178.2	308,400
1981	8,036.2	209,631
1982	6,747.3	44,622
1983	9,244.0	66,498
1984	10,548.7	141,139
1985	10,941.3	568,297
1986	11,786.5	353,128
1987	12,712.1	1,162,757
1988	12,596.4	1,549,955
1989	11,950.9	475,799

Fiscal Year	Harvest Volume	Acres Burned
1990	10,500.3	346,350
1991	6,558.9	163,540
1992	7,289.6	585,052
1993	5,916.9	208,376
1994	4,815.3	1,476,402
1995	3,865.9	218,993
1996	3,724.6	1,092,672
1997	3,285.3	143,663
1998	3,297.6	172,582
1999	2,938.6	605,000

Figure 1. Forest Service Acres Burned in Relation to Millions of Board Feet Cut



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Memorandum

September 20, 2000

SUBJECT : Forest Fires and Forest Management

FROM : Ross W. Gorte
Natural Resource Economist and Senior Policy Analyst
Resources, Science, and Industry Division

Following release of an August CRS memorandum on timber harvests and forest fires, CRS has received numerous comments and requests for clarification and analysis. The earlier memorandum statistically explored the limited and possibly misleading question of a potential relationship between acres burned and timber volume harvested in the national forests, without providing background information: (1) on the context of the relationship between forest management and wildfires more generally; (2) on the limits of the data used for statistical analysis; or (3) on the limitations of the statistical techniques employed. This memo broadens the discussion with more complete recognition of wildfires as an enormously complex phenomenon; for more information, see CRS Report 95-511 ENR, *Forest Fires and Forest Health*.[1] If you have any questions, please do not hesitate to call me at [redacted].

The volume of timber harvested is not the principal forest management question involved in assessing the extent and severity of fires. Public and private forestry practices and policies — commercial logging and slash disposal, thinning, road construction or obliteration (closing the road and attempting to restore it to near-natural conditions), roadless area protection, *etc.* — can alter a forest's susceptibility and resistance to fire and other threats, and its resilience to changes. However, other independent variables, such as recent and past weather patterns (*e.g.*, short-term and long-term drought, wind speeds and patterns) and site-specific factors (*e.g.*, slope, aspect, and fuel loads) are critical factors in determining the extent and severity of any particular fire.

[1] A CRS long report updating and expanding on the information in *Forest Fires and Forest Health* is in preparation.

This memorandum was prepared by the Resources, Science, and Industry Division to enable distribution to more than one congressional client.

The extent to which timber harvesting from the national forests in any particular year, or even over several years, affects fire extent and/or severity in a given year cannot be determined from the available data, as suggested by the following table and figure that were included in the August 22 memorandum.[2] For example, two of the four worst fire seasons in the past 80 years — 1987 and 1988 — occurred in a decade with relatively high timber harvest levels, yet the other two worst fire seasons — 1994 and 1996 — occurred in a decade with relatively low timber harvest levels. In other years with high harvest levels (*e.g.*, 1986 and 1989), the fire seasons were relatively mild, while other years with low harvest levels (*e.g.*, 1995 and 1997), also had relatively mild fire seasons. Thus, these data suggest that one cannot draw conclusions about the severity of a fire season based on the level of timber harvested nationally.

Although one cannot draw conclusions at the national level, at the local level, on a specific site, timber harvesting can affect the extent and intensity of wildfires. The severity of a fire (rate of spread and level of damage) depends on numerous site-specific factors, such as the slope and aspect of the site and the flora and fuel load on the site, as well as on both general and site-specific weather factors, such as humidity and fuel moisture content, ambient temperature, and especially wind. Timber harvesting can alter the flora and fuels on a site, removing the relatively large diameter wood that can be converted into wood products, but leaving behind the "slash" (*e.g.*, the branches and needles). Fire protection is one of the principal reasons for disposing of logging slash.[3] Slash disposal following the timber harvest is standard practice on public and private lands, and in most national forest timber sales, the Forest Service requires purchasers to deposit funds into a special account (called "brush disposal") which are then permanently available to the agency to pay for slash disposal.[4] However, information on the extent of various slash treatments, and on the fuel reduction resulting from such treatments is lacking. In addition, other treatments, such as precommercial thinning and prescribed burning, are also used to reduce fuel loads, and might be as, or more, effective and efficient at reducing fuel loads as timber harvesting with slash disposal, depending on the site-specific circumstances.

Finally, it should be noted that the public's attention generally focuses on the extent of fires (*i.e.*, acres burned), but not on the severity or intensity of fires. However, intensity is of greater consequence for assessing the effects of fires. "Light" fires that burn surface fuels (*e.g.*, grasses and needles) at relatively low intensity can produce significant ecological benefits, even if they cover large areas; recognition of these benefits led to modification of the policy of aggressive fire suppression efforts on all wildfires in the late 1970s, and is the

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[2] These data are only for Forest Service protected lands. Of the 6.8 million acres burned to date in the 2000 fire season, 33% of the acres burned have been Forest Service protected lands. Other lands burned include other federal lands (36%) and state and private lands (31%).

[3] David M. Smith, *The Practice of Silviculture*, 7th ed. (New York, NY: John Wiley & Sons, Inc., 1962), pp. 312-313.

[4] The U.S. General Accounting Office (*Forest Service: Better Procedures and Oversight Needed to Address Indirect Expenditures*, GAO/RCED-98-258, August 1998) found that, from 1993-1997, the Forest Service had spent nearly $40 million (27%) of deposits to the brush disposal fund to pay for overhead and other expenses not directly related to the purposes of the brush disposal fund.

basis for today's prescribed burning efforts. Areas with heavier fuel loads may burn more intensely than areas with lower fuel loads, and thus may cause more resource damage, as well as be more likely to burn structures. Timber harvesting (with effective slash disposal) and other treatments remove fuels. It is logical, and widely accepted, that reducing fuels will reduce the severity of wildfires, but no research literature documenting this relationship has been found. Furthermore, damage appraisal methods are not adequate to quantify the magnitude of the benefits of various fuel treatments and their relationship to other factors contributing to wildfire area and intensity.

Table 1. National Forest Timber Harvests and Acres Burned on Forest Service-Protected Lands
(in millions of board feet and total acres burned)

Fiscal Year	Harvest Volume	Acres Burned
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SUGGESTED CURES FOR FOREST FIRES WAY OFF MARK

BY JOHN BADEN, PH.D. AND PETE GEDDES

This summer's fires kindled examinations of federal fire policy-but most folks failed. The problems bequeathed by a century of poor forest management have no easy solution such as more logging and road building. And Smokey the Bear's "Only you can prevent forest fires," mantra, the world's most successful public relations campaign, exacerbates the problem.

Western Republicans blame team Clinton and its green allies for the current fire season. They claim the 75 percent decline in timber harvest from the national forests has destroyed both jobs and the environment. They advocate a reform agenda that increases the budget of the Forest Service to cut more trees in an effort to "fire proof" the region's forest.

This violates their purported ideology of limited government and ignores the ecology of western forests. It also misses the major lesson from 100+ years of federal forest management. Namely, when decisions are made in the political arena, political considerations trump ecological, ethical and economic factors. Western senators and representatives speak as though extraction still drives the Western economy. But this is a persistent myth undermining the region's natural evolution from a commodity to a service and information-based economy.

Commercial timber in the Rockies' high elevation national forests has a negative economic value, i.e., it costs the Forest Service more to manage a sale than it receives for the stumpage. These trees are worth more standing than as boards, especially in the region's roadless areas. These are generally high, fragile areas with submarginal timber. We stress a key fact, in most Rocky Mountain national forests the cost of managing a timber sale exceeded the value of the logs by a factor of five. Most logging here was politically driven and the full costs of exploitation were ignored, discounted, and obscured.

However, the West's attractive environment has tremendous economic value. Roadless lands, wilderness, free-flowing rivers, national parks and forests, and healthy wildlife habitat stimulate much of its new economic activity. These amenities attract entrepreneurs. For example Bozeman, Montana has over 60 high-tech firms in a town of 35,000. Freed by FedEx and the Internet, "modem cowboys" (and cowgirls) move here for our high environmental quality.

Ray Rasker of Bozeman's Sonoran Institute notes that since 1970, "Montana has added over 150,000 new jobs, and not one of the new net jobs has been in mining, oil and gas, farming, ranching, or the woods products industry". The extractive industries are notoriously unstable, and commodity prices continue to cascade. The timber industry, for example, is leaving the West for the Southeast and foreign countries.

Even here cutting some trees makes sense. Thinning small trees is an especially effective fire management tool in the region's dry, low-elevation ponderosa pine forests. Historically, periodic slow, creeping fires cleared out weaker, less fire-resistant foliage and created an open forest landscape with only 20-50 trees per acre. However, over the last century these huge, thick-barked pines were cut and fire virtually eliminated. Consequently, dense thickets of scrawny, Christmas tree sized trees replaced these giants. These landscapes are highly vulnerable to insects and disease-and fire naturally follows.

Many reformers are floating the notion that traditional logging can effectively "fire-proof" the region's forests. This is ecological fiction. Fire is a dramatic and essential ingredient in the West's ecosystems. Fires, especially in the higher elevations are characterized by infrequent stand replacing events such as the 1988 Yellowstone fires that burned approximately one half the Park. Veteran firefighters know the only sure way to fight such fires is with an early snow fall. Last week's Bitterroot snow storm finally, after six weeks of fire fighting, contained the 250,000 acre Bitterroot fire.

On a planet whose atmosphere is 21 percent oxygen, one lightening storm can spark over 300 ignitions, and forest fuels accumulate, its fantasy to believe fire can be completely eliminated. Unless there are enormous subsidies to sanitize high elevation, low productivity forests, huge, out-of-control fires are inevitable. The key policy question is how to effectively and economically protect lives and property. Giving more money to the Forest Service to foster commercial logging of non-merchantable trees is no answer. Prudent siting of buildings and managing defensible space around them surely is.

John Baden, Ph.D. (e-mail: jbaden@free-eco.org), a recovering logger and former forestry professor, is Chairman of the Foundation for Research on Economics and the Environment (FREE) and Gallatin Writers, Inc., 945 Technology Blvd., Suite 101F, Bozeman, MT 59718, both based in Bozeman, Montana.

Pete Geddes (e-mail: pgeddes@free-eco.org) holds a graduate degree from the University of Montana School of Forestry and is Program Director with FREE and Gallatin.

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United States General Accounting Office

GAO

Testimony

Before the Task Force on Resources and the Environment, Committee on the Budget, House of Representatives

For Release on Delivery
Expected at 2:00 p.m., EDT
Wednesday,
September 13, 2000

REDUCING WILDFIRE THREATS

Funds Should Be Targeted to the Highest Risk Areas

Statement of Barry T. Hill, Associate Director,
Energy, Resources, and Science Issues
Resources, Community, and Economic Development Division

GAO/T-RCED-00-296

Mr. Chairman and Members of the Committee:

It is very sobering to be here today to discuss the status of efforts to reduce the risk of catastrophic wildfires to communities and natural resources in dry, lower-elevation regions of the interior western United States. So far this year, such wildfires have burned over 6.5 million acres of public and private land--more than twice the 10-year national average and more than in any other year in decades. Lives have been lost, over 1,000 homes have been destroyed, and the estimated damage to human property and forest and rangeland ecosystems totals billions of dollars. The costs to the U.S. Treasury to suppress these fires and to rehabilitate and restore burned areas will exceed $1 billion in this fiscal year alone.

Reducing the future risk of catastrophic wildfires to human lives and property as well as to forest and rangeland ecosystems will require development and implementation of a comprehensive management strategy that includes three components. Two are reactive--suppressing wildland fires after they have become wildfires and rehabilitating and restoring forests and rangelands after they have burned. The third component is proactive--reducing the risk of future fires by removing accumulated hazardous fuels, including small trees, underbrush, and dead vegetation. As requested, our testimony today will focus on the proactive hazardous fuels reduction component. Specifically, we will discuss (1) why conditions on federal forests and rangelands have reached the point that they pose a significant risk to nearby communities and to the ecological sustainability of lands and natural resources, (2) the history and status of efforts by the Department of Agriculture's Forest Service and the Department of the Interior to reduce this risk, and (3) budget-related issues that should be addressed to better ensure that the agencies spend effectively and account accurately for funds appropriated to reduce hazardous fuels. Our comments are based primarily on GAO products issued over the last decade.[1]

In summary:

- The media and others have attributed much of the blame for this year's destructive wildfire season to the prolonged drought that has gripped the interior West. However, the Forest Service has observed that, in hindsight, "uncontrollable wildfire should be seen as a failure of land management and public policy, not as an unpredictable act of nature." Past land management practices that contributed to current conditions included harvesting timber by selectively removing the larger, more valuable fire-tolerant trees or removing all of the trees from a site at one time (clearcutting). In addition, millions of acres of forests and wildlands were cleared for agricultural crops and livestock pastures, and grass cover and soil were lost as a result of intensive livestock grazing. Moreover, during most of the 20th century, the federal government's policy was to suppress all fires, and for 75 years, federal land management agencies were highly effective in implementing this policy.

[1] See app. I for relevant GAO products on hazardous fuels reduction.

- The federal government's approach to reducing hazardous fuels has evolved over time in response to new information and events. From the 1950s to the 1970s, land managers within Interior experimented with allowing fires ignited both by lightning and by the managers themselves to burn, under controlled conditions. By 1972, both Interior and the Forest Service had formally adopted the policy of using fire as a tool to reduce the buildup of hazardous fuels. Until recently, both agencies continued to emphasize prescribed fire as the tool of choice in reducing the accumulation of hazardous fuels. However, in the past several years, land managers have increasingly recognized that in many areas, the volume of accumulated fuels has increased to the point that thinning and mechanical treatments must be used before fire can be reintroduced into the ecosystems.

- Both the Congress and the administration are now prepared to fund an aggressive campaign to reduce hazardous fuels. It is, therefore, imperative that the Forest Service and Interior act quickly to develop a framework to spend effectively and to account accurately for what they accomplish with the funds. For example, according to the Forest Service, priority for treatments to reduce hazardous fuels should be given to areas where the risk of catastrophic wildfires is the greatest to communities, watersheds, ecosystems, or species. However, currently neither the Forest Service nor Interior knows how many communities, watersheds, ecosystems, and species are at high risk of catastrophic wildfire, where they are located, or what it will cost to lower this risk. Therefore, they cannot prioritize them for treatment or inform the Congress about how many will remain at high risk after the appropriated funds are expended. In addition, rather than allocating funds to the highest-risk areas, the Forest Service allocates funds for hazardous fuels reduction on the basis of the number of acres treated. Similarly, both the Forest Service and Interior use the number of acres treated to measure and report to the Congress their progress in reducing the threat of catastrophic wildfires rather than using the number of acres treated in the highest-priority areas or reductions in areas at high risk of long-term damage from wildfire.

The Increasing Risk of Uncontrollable Wildfires Reflects an Unintended Consequence of Past Land Management and Public Policy

The media and others have attributed much of the blame for this year's destructive wildfire season to the prolonged drought that has gripped the interior West. However, the Forest Service has observed that, in hindsight, "uncontrollable wildfire should be seen as a failure of land management and public policy, not as an unpredictable act of nature."[2]

More than a century ago, most forests in the interior West and their associated species were fire-adapted and some—known as short-interval, fire-adapted ecosystems—relied on frequent, low-intensity fires to cycle nutrients, check the encroachment of competing vegetation, and maintain healthy conditions. However, before the turn of the last

[2] *Course to the Future: Positioning Fire and Aviation Management*, U.S. Department of Agriculture, Forest Service (May 1995).

century, these short-interval, fire-adapted ecosystems and species--such as ponderosa and other long-needle pines--began to be replaced by fire-intolerant ecosystems and species--such as Douglas and other firs. These changes resulted mostly from the nation's increased demand for fiber and food. As a result, (1) the larger, more valuable fire-tolerant trees were removed by selective timber harvesting or all of the trees from a site were removed at one time (clearcutting); (2) millions of acres of forests and wildlands were cleared for agricultural crops and livestock pastures; (3) grass cover and soil were lost as a result of intensive livestock grazing; and (4) burning by Native Americans was curtailed to accommodate other land uses. In addition, during most of the 20th century, the federal government's policy was to suppress all fires, and for 75 years, federal land management agencies were highly effective in implementing this policy.

As a result of these human activities, the composition and structure of the forests changed from open, park-like stands of approximately 50 large, older-aged, and well-spaced fire-tolerant trees per acre to dense "dog-hair" thickets of more than 200 mostly small, fire-intolerant trees per acre. Unnaturally dense forests cause individual trees to compete for limited quantities of water, and during drought conditions, weakened trees become susceptible to insect infestations and disease outbreaks. Such trees die in unnaturally high numbers, adding to hazardous fuel loads.

The composition of many rangelands has also changed. Native grass species, including Idaho fescue and bluestem, have been replaced by invasive plant species, such as cheat grass, that fuel and thrive on wildland fires. These exotic species follow fire wherever it goes, are opportunistic, and repopulate a burned landscape faster than native species. Cheat grass grows earlier, quicker, and higher than native grasses and then dies, dries, and becomes fuel for the next year's fires.

As the composition and structure of public forests and rangelands in the interior West were changing, so too was their interface with human structures and other property. Communities have developed alongside and in these forests and rangelands, resulting in a patchwork of homes interspersed among public lands. These areas are collectively referred to as the "wildland-urban interface."

The Federal Government's Approach to Reducing Hazardous Fuels Has Evolved Over Time

The federal government's approach to reducing hazardous fuels has evolved over time in response to new information and events. From the 1950s to the 1970s, land managers within the Department of the Interior experimented with so-called "prescribed fire programs." Under these programs, fires ignited by lightning as well as by land managers themselves are allowed to burn, under controlled conditions, so that the ecological benefits of fire can be reintroduced into fire-adapted ecosystems.

By 1972, both Interior and the Forest Service had formally adopted the policy of using fire as a tool to reduce the buildup of hazardous fuels. From then until 1988, federal land managers allowed thousands of prescribed fires to burn in wildlands. This changed in 1988, when a number of fires started by lightning in and around Yellowstone National

Park burned out of control, resulting in a controversy over what the media termed the government's "let burn" policy. In 1989, an interagency review team reaffirmed the benefits of fire and tasked federal land managers to (1) re-evaluate the use of management-ignited fires and other methods for reducing hazardous fuels and (2) develop fire management plans for each of their land units before allowing a prescribed fire to burn. However, some land managers continued to subscribe to the policy of suppressing all fires, and some land units were slow to develop the required plans.

During the early 1990s, both the Forest Service and Interior emphasized prescribed fire as the tool of choice in reducing the accumulation of hazardous fuels. As recently as in its fiscal year 1997 budget justification, Interior made no mention of other methods to reduce accumulated hazardous fuels, such as thinning dense stands of trees and mechanically removing underbrush. However, in the past several years, land managers have increasingly recognized that in many areas, the volume of accumulated fuels has increased to the point that thinning and mechanical treatments must be used before fire can be reintroduced into the ecosystems.

The Forest Service and Interior Must Develop a Framework to Spend Effectively and to Account Adequately for What They Accomplish With Funds Appropriated to Reduce Hazardous Fuels

An aggressive campaign to reduce accumulated fuels will require money. However, before this fire season, neither the administration nor the Congress assigned a high funding priority to reducing the threat of catastrophic wildfires. Both the Congress and the administration are now prepared to fund an aggressive campaign to reduce hazardous fuels. It is, therefore, imperative that the Forest Service and Interior act quickly to develop a framework to spend effectively and to account accurately for what they accomplish with the funds.

A Lack of Funds Has Been a Limiting Factor

For a number of years, both the Congress and the administration have been aware of the increasingly grave risk of catastrophic wildfires as well as the need to aggressively reduce hazardous fuels. However, until recently, neither had assigned a high funding priority to reducing the threat.

In a 1994 report, the National Commission on Wildfire Disasters stated that:

> "The vegetative conditions that have resulted from past management policies have created a fire environment so disaster-prone in many areas that it will periodically and tragically overwhelm our best efforts at fire prevention and suppression. The resulting loss of life and property, damage to natural resources, and enormous costs to the public treasury, are preventable. If the warning in this report is not

heeded, and preventative actions are not aggressively pursued, the costs will, in our opinion, continue to escalate."[3]

The Commission observed that: "The question is no longer if policy-makers will face disastrous wildfires and their enormous costs, but when." To mitigate this risk, the Commission recommended, among other things, that federal land management policies, programs, and budgets place a high priority on reducing hazardous fuels in high-risk wildland ecosystems "for at least a decade or more."

Similarly, in 1995, the administration undertook a comprehensive interagency review of wildland fire policy. On the basis of the review, which was summarized in a 1995 statement,[4] the Departments of Agriculture and the Interior predicted serious and potentially permanent environmental destruction and loss of private and public resource values from large wildfires.

In April 1999, we reported that 39 million acres on national forests in the interior West are at high risk of catastrophic wildfire and that the cost to the Forest Service to reduce fuels on these lands could be as much as $12 billion over the next 15 years, or an average of about $725 million annually. We observed that this was more than 10 times the $65 million appropriated for reducing fuels in fiscal year 1999, and that the agency, contrary to its earlier plans, had requested the same amount for fiscal year 2000. We also observed that funding to address the increasingly grave risk of catastrophic wildfires may be too little too late.

In December 1999, the Forest Service estimated that it would need up to $825 million a year and almost $12 billion over 15 years to reduce fuels on 40 million acres nationwide.[5] However, the agency's fiscal year 2001 budget justification, submitted to the Congress 2 months later, requested $75 million.

Interior has not, to our knowledge, developed similar cost estimates. However, the Department spent about $34 million in both fiscal years 1999 and 2000 to reduce hazardous fuels. It requested $52 million for these activities in fiscal year 2001, even though, according to Interior, more than half of the 95 million acres of federal wildlands identified as requiring periodic burning or other fuel treatment are on lands managed by the Department.

The Congress and the Administration Agree That Funds Should Be Increased To Reduce Hazardous Fuels

The Congress and the administration now agree that money should be made available to begin an aggressive campaign to reduce hazardous fuels. The Congress is considering

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[3] *Report of the National Commission on Wildfire Disasters* (1994). The Commission was established on May 9, 1990, by the Wildfire Disaster Recovery Act of 1989 (PL 101-286).

[4] *Federal Wildland Fire Management Policy and Program Review*, Department of the Interior and Forest Service, Department of Agriculture (Washington, D.C.: 1995).

[5] *Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy* (Draft), Forest Service (Dec. 1999).

appropriating an additional $240 million—about $120 million to both the Forest Service and Interior--in fiscal year 2001 to reduce hazardous fuels in high-risk wildland-urban interfaces. Similarly, for fiscal year 2001, the administration is now requesting an additional $115 million for the Forest Service and an additional $142 million for Interior.[6] Thus, between $367 million and $395 million may be available in fiscal year 2001 to reduce hazardous fuels. Moreover, the Forest Service estimates that up to an additional $325 million a year could be made available from within its existing budget to fund hazardous fuels reduction activities and research.

Accountability Must Now Become A Priority

With the Congress and the administration now prepared to double or triple the Forest Service's and Interior's funding for reducing hazardous fuels and with up to five times the current fiscal year's appropriation already available from within the Forest Service's existing budget for these activities and related research, we believe that the Forest Service and Interior must act quickly to develop a framework to spend effectively and to account accurately for what they accomplish with the funds.

For example, according to the Forest Service, priority for treatments to reduce hazardous fuels should be given to areas where the risk of catastrophic wildfires is the greatest to communities, watersheds, ecosystems, or species. However, currently neither the Forest Service nor Interior knows how many communities, watersheds, ecosystems, and species are at high risk of catastrophic wildfire, where they are located, or what it will cost to lower this risk. Therefore, they cannot prioritize them for treatment or inform the Congress about how many will remain at high risk after the appropriated funds are expended. According to the report on managing the impact of wildfires released by the administration last Friday, regional and local interagency teams will be assigned the responsibility for identifying communities that are most at risk.

Moreover, rather than allocating funds to the highest-risk areas, the Forest Service allocates funds for hazardous fuels reduction to its field offices on the basis of the number of acres treated. Thus, the agency's field offices have an incentive to focus on the easiest and least costly areas, rather than on those that present the highest risks but are often costlier to treat, including especially the wildland-urban interfaces. Similarly, both the Forest Service and Interior use the number of acres treated to measure and report to the Congress their progress in reducing the threat of catastrophic wildfires. For instance, they report that they have increased the number of acres treated to reduce hazardous fuels from fewer than 500,000 acres in fiscal year 1994 to more than 2.4 million acres in fiscal year 2000. However, they cannot identify how many of these acres are within areas at high risk of long-term damage from wildfire.

The Forest Service and Interior note that reducing the threat to communities, watersheds, ecosystems, and species can often take years and that annual measures of progress must, therefore, focus on actions taken. We agree, but believe that they must be

[6] *Managing the Impact of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000*, U.S. Departments of Agriculture and the Interior (Sept. 8, 2000).

able to show the Congress and the American public that these actions, such as the number of acres treated, occur within the highest-priority areas. Furthermore, over time, they should be able to show reductions in areas at high risk of long-term damage from wildfire.

Finally, although we have not examined this issue as thoroughly at Interior, our work to date at the Forest Service has shown that, over time, the link between how the Congress appropriates funds and how the agency spends them has weakened as the Forest Service's field offices have been required to address issues and problems—such as hazardous fuels reduction—that are not aligned with its budget and organizational structures. Forest Service field offices must now combine projects and activities from multiple programs and funding from multiple sources to accomplish goals and objectives related to reducing hazardous fuels. We have observed that the agency could better ensure that the up to $325 million a year that may already be available from within its existing budget to fund hazardous fuels reduction activities and research will be used for these purposes by replacing its organizational and budget structures with ones that are better linked to the way that work is routinely accomplished on the national forests. We have also observed that the Forest Service's research division and state and private programs should be better linked to the national forests to more effectively address hazardous fuels reduction as well as other stewardship issues that do not recognize the forests' administrative boundaries.[7] However, according to the Forest Service, it has no plan to replace its program structure with one that is better linked to the way that work is routinely accomplished on the national forests.

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In closing, we are faced with a pay-me-now or pay-me-later situation in which paying me now is likely the more cost-effective alternative. However, restoring fire-adapted ecosystems and protecting the communities that have developed alongside and in these ecosystems will require that the resources for reducing the threat of catastrophic wildfires be well spent. To do so will require that the Forest Service and Interior clearly identify not only how they spend funds appropriated to reduce hazardous fuels but also what they accomplish with these funds.

Mr. Chairman, this concludes my formal statement. I will be pleased to respond to any questions that you or other Members of the Committee may have.

Contact and Acknowledgment

For future contacts regarding this statement, please contact Barry Hill on (202) 512-8021. Individuals making key contributions to this testimony were Charles S. Cotton and Chester M. Joy.

[7] *Forest Service: Actions Needed for the Agency to Become More Accountable for Its Performance* (GAO/T-RCED-00-236, June 29, 2000).

Appendix I

Relevant GAO Reports and Testimonies on Reducing Hazardous Fuels on Federal Lands

Federal Fire Management: Limited Progress in Restarting the Prescribed Fire Program (GAO/RCED-91-42, Dec. 5, 1990).

Western National Forests: Catastrophic Wildfires Threaten Resources and Communities (GAO/T-RCED-98-273, Sept. 28, 1998).

Western National Forests: Nearby Communities Are Increasingly Threatened by Catastrophic Wildfires (GAO/T-RCED-99-79, Feb. 9, 1999).

Western National Forests: A Cohesive Strategy Is Needed to Address Catastrophic Wildfire Threats (GAO/RCED-99-65, Apr. 2, 1999).

Western National Forests: Status of Forest Service's Efforts to Reduce Catastrophic Wildfire Threats (GAO/T-RCED-99-241, June 29, 1999).

Fire Management: Lessons Learned From the Cerro Grande (Los Alamos) Fire (GAO/T-RCED-00-257, July 27, 2000).

Fire Management: Lessons Learned From the Cerro Grande (Los Alamos) Fire and Actions Needed to Reduce Fire Risks (GAO/T-RCED-00-273, Aug. 14, 2000).

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WEBSITES OF INTEREST

www.nifc.gov
National Interagency Fire Center - Provides information about wildfires on public, private and state lands. Operated jointly by the Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and other agencies. This website provides daily fire reports of the national fire situation.

www.fs.fed.us/fire
U.S. Forest Service Fire and Aviation - Details the Forest Service's fire management program. Provides links to other organizations, as well as essays on fire, history of fire suppression, and fire-related research.

www.taxpayer.net/forest
The Taxpayers for Common Sense Forest Campaign website has a Wildfire Library which includes links to USDA Forest Service reports, General Accounting Office reports, and Congressional Research Service documents, all of which discuss wildfire issues.

www.cnie.org/nle/crsfor.html
National Council for Science and the Environment - Provides the full text of Congressional Research Service reports on forest-related topics. Report topics include forest fires, forest health, and salvage timber sales.

www.firewise.org
This site is designed to educate homeowners on what they can do to reduce the risk of wildfire from destroying their homes. It provides links to agencies as well as state and local agencies that can work with homeowners to reduce fire risk.

www.wildfirenews.com
Provides updated news on the current issues surrounding wildfire. Contains links to pertinent public land management agencies, as well as articles on wildfire related topics.

www.firepix.net
Database of wildfire-related photographs. Operated by the Bureau of Land Management.

ABOUT TAXPAYERS FOR COMMON SENSE

Among many other issues, Taxpayers for Common Sense has worked to eliminate money-losing timber sales since the organization's founding in 1995. The Forest Service Budget Reform Campaign was initiated in 1998 to continue to serve as a voice for taxpayers in the debate over National Forest management. The campaign is committed to eliminating wasteful spending and subsidies in the National Forests and improving the fiscal accountability of the Forest Service. Additional information on Taxpayers for Common Sense and the Forest Service Budget Reform Campaign can be found at: www.taxpayer.net.

ABOUT JONATHAN OPPENHEIMER

Jonathan Oppenheimer, Director of the Forest Campaign at Taxpayers for Common Sense, has been involved with National Forest issues since 1994. He is a graduate of the University of Montana - School of Forestry. He took part in several on-the-ground field projects in Montana, Idaho, and Washington, conducting research on National Forests. He has worked with the Forest Service Budget Reform Campaign at Taxpayers for Common Sense since its inception in 1998.

To fight the severe Western wildfires of 2000, taxpayers spent more than $1 billion and 27,000 firefighters put their lives on the line. But too much of this labor and money was wasted because Congress and the Forest Service failed to carry out many reforms promised after the wildfires of 1994. *From the Ashes* calls on the new Administration and the 107th Congress to act in their first 100 days to finally follow through on long-promised reforms. These will save money, protect homes and natural resources, and reduce unecessary risks to firefighters.

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