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Office of Inspector General
Western Region

Audit Report

Forest Service
Large Fire Suppression Costs

Report No. 08601-44-SF
November 2006



UNITED STATES DEPARTMENT OF AGRICULTURE

OFFICE OF INSPECTOR GENERAL

Washington D.C. 20250



November 20 2006

REPLY TO

ATTN OF: 08601-44-SF

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ATTN: Sandy Coleman
Audit Liaison

FROM: /s/ Marlane T. Evans (for)
Robert W. Young
Assistant Inspector General
for Audit

SUBJECT: Forest Service Large Fire Suppression Costs

This report presents the results of our review of the Forest Service's (FS) large fire suppression costs. The FS' written response to the draft report is included as Exhibit C with excerpts from the Office of Inspector General's position incorporated into the relevant sections of the report.

Based on the written response, we have accepted FS' management decision for all the report recommendations. Follow your internal agency procedures in forwarding final action correspondence to the Office of the Chief Financial Officer.

We appreciate the assistance your staff provided to our auditors during our review.

Attachment

Executive Summary

Forest Service Large Fire Suppression Costs

Results in Brief

Forest Service's (FS) wildfire suppression costs have exceeded \$1 billion in 3 of the past 6 years. FS' escalating cost to fight fires is largely due to its efforts to protect private property in the wildland urban interface (WUI)¹ bordering FS lands. Homeowner reliance on the Federal government to provide wildfire suppression services places an enormous financial burden on FS, as the lead Federal agency providing such services. It also removes incentives for landowners moving into the WUI to take responsibility for their own protection and ensure their homes are constructed and landscaped in ways that reduce wildfire risks. Assigning more financial responsibility to State and local government for WUI wildfire protection is critical because Federal agencies do not have the power to regulate WUI development. Zoning and planning authority rests entirely with State and local governments.

In light of FS' escalating costs to fight fires, the agency has come under considerable scrutiny for its ability to control costs, deliver value for its firefighting dollar, and be accountable for the cost effectiveness of its firefighting operations. The Office of Management and Budget (OMB) assessed FS' wildland fire management program in 2002 and 2006 and concluded that the agency did not regularly collect timely and credible performance information, that Federal managers were not held accountable for suppression costs and performance, and that the program did not demonstrate improved efficiencies and cost effectiveness in achieving program goals.

Recognizing the need to control these expenses, FS plans to implement a number of cost-containment recommendations from a series of studies and audits conducted both internally and by other Government entities. These corrective actions will supplement existing cost-containment policies and procedures that include, but are not limited to, strategic performance measures that focus on minimizing wildfire suppression costs, directives that make FS managers responsible for wildfire financial oversight, and national and regional reviews that evaluate the cost effectiveness of expensive wildfire suppression operations.

As part of the agency's ongoing effort to contain wildfire suppression costs and increase the program's accountability, FS' senior management requested that the Office of Inspector General (OIG) evaluate FS' controls over its

¹ The WUI is the area where structures and other human development meet or intermingle with undeveloped wildland. Wildland urban interface is any area containing human developments, such as a rural subdivision, that may be threatened by wildland fires. Wildland intermix is an interspersing of developed land with wildland where there are no easily discernible boundaries between the two systems, such as an isolated cabin surrounded by forest. In this report, references to "WUI" will connote both wildland urban interface and wildland intermix.

wildfire suppression costs. Guided by this general objective, our audit determined that FS can further strengthen the cost-effectiveness of its firefighting without sacrificing safety by (1) having non-Federal entities pay an equitable share of wildfire protection costs, (2) increasing the use of wildland fires to reduce forest vegetation such as underbrush that may fuel future fires and thereby increase costs, and (3) establishing controls to assess the performance of line officers and incident commanders in controlling costs.

We believe FS can further strengthen its controls to significantly enhance the cost-effectiveness of its wildfire suppression efforts by the following:

Suppression Costs Need to be Fairly Shared by State and Local Governments

We found that the majority of FS large fire suppression costs are directly linked to protecting private property in the WUI. We found that, despite Federal policy², FS managers have not renegotiated their agreements with State and local governments to apportion WUI protection responsibilities and costs as required; nor have the protection areas been redefined to reflect State and local governments' added responsibility which accompanies the growth in WUI private homes. FS managers also continue to prioritize protecting private property over natural resources. Consequently, rather than decreasing, FS' WUI protection expenditures have increased. In fiscal years (FY) 2003 and 2004, about 87 percent of large wildfires we reviewed³ referenced protecting private property as a major strategy for the suppression effort. FS managers and staff generally agreed that WUI protection is the major component of FS' escalating suppression expenditures, with some estimating that between 50 to 95 percent of large wildfire costs are directly related to protecting private property and homes in the WUI. If these estimates are presumed to be accurate for the FS' suppression efforts nationwide, the cost of protecting privately-owned properties in the WUI totaled about \$547 million to \$1 billion in 2003 and 2004.⁴

FS' suppression costs are likely to continue to rise as the number of homes in the WUI increase because current public expectations and uncertainties about protection responsibilities compel FS to suppress fires aggressively and at great expense when private property is at risk, even when fires pose little threat to national forest system land. Similarly, giving natural resource protection an equal or higher priority

² The Federal Wildland Fire Management Policy, chartered in 1994 by the Secretaries of the Interior and Agriculture, provides the foundation for Federal interagency fire management activities.

³ Based on an analysis of 37 wildfires occurring in 2003 and 2004 with suppression costs exceeding \$5 million

⁴ This calculation is based on our characterization of "large wildfires" as those exceeding \$1 million as recorded in FS' financial information system.

than property, or conducting any sort of cost/benefit analysis is considered by FS managers as politically infeasible.

Use of Wildland Fire Should Be Expanded To Control Costs of Future Fires

Wildland fire use (WFU)⁵ lets naturally occurring fires burn accumulated hazardous fuels like dry brush and trees that increase the likelihood of unusually large expensive wildfires. To control the risk of costly, catastrophic wildfires, the Federal Wildland Fire Management Policy specified that FS give WFU and fire suppression equal consideration. However, existing firefighting policies and the lack of qualified WFU personnel restrict FS managers from doing so.

Under current fire policies, FS can either manage a fire for WFU or suppression, and once a fire has been fought for suppression it can never again be managed for WFU. Since FS bears considerable pressure to begin fire operations as suppression, these restrictions increase the likelihood that even potentially beneficial fires will be suppressed. Further, even in cases where WFU is deemed appropriate, FS managers have access to far fewer teams for WFU (7) than teams for suppression (55). Similarly, although FS estimates it needs 300 fire use managers to select WFU for all eligible fires⁶, the agency currently has only 83.

The restrictive policies and lack of qualified personnel contribute to the overwhelming predisposition for FS to suppress fires rather than let them burn as WFU. Of almost 80,000 natural ignitions that occurred on FS land from 1998 through 2005, only about 1,500, or 2 percent, were allowed to burn as WFU. Consequently, FS may have missed opportunities to reduce the hazardous fuels that contribute to large, expensive fires, and may have unnecessarily spent millions of dollars suppressing wildland fires.

FS Cost-Containment Controls Need To Be Strengthened

For the FS, the primary criterion for choosing suppression strategies is to minimize cost without compromising safety. Towards that end, FS has developed internal controls to strengthen financial accountability for line officers and incident commanders. Line officers have been made responsible for wildfire financial oversight (which cannot be delegated). Incident commanders also become responsible for managing fire costs effectively when they assume command via a delegation of authority letter from the line officer (though, line officers still maintain financial

⁵ WFU is the management of naturally-ignited wildland fires to accomplish specific resource management objectives such as fuels reduction in pre-defined geographic areas outlined in fire management plans.

⁶ Eligible fires are those that meet the specific WFU criteria established by each National Forest.

oversight). We found, however, that although line officers are responsible for maintaining financial oversight of a fire and for approving overall expenditures, the actual cost effectiveness of their oversight is neither tracked during the fire, nor evaluated afterwards. Similarly, while incident commanders assume responsibility for using cost effective means to suppress wildfires when it does not interfere with safety, the cost effectiveness of their tactics are neither routinely nor thoroughly evaluated.

In addition, the agency's performance measures and reporting mechanisms do not adequately allow FS management to assess the effectiveness of its wildfire suppression cost-containment efforts. Only one of the three performance measures developed by the FS as part of its current strategic plan addressed cost containment during extended wildfire suppression operations⁷ (which accounted for about 80 percent of the agency's suppression expenditures in 2003 and 2004); however, it was never implemented. The information FS summarizes at the end of each fire season contains useful data such as total suppression costs, acres burned, and structures lost, but lacks essential information such as the kinds of critical infrastructure, communities, or natural resources lost or saved that policy makers need to understand FS suppression activities in relation to the monies spent.

Finally, we determined that FS' national and regional wildfire cost-containment reviews have limited effectiveness in identifying and correcting suppression cost inefficiencies because they (1) did not sufficiently address large cost drivers such as the selection of suppression alternatives and the effectiveness of tactics, (2) did not ensure improved performance because identified problems were not required to be corrected and communicated to affected parties, and (3) did not occur with sufficient frequency.

Recommendations In Brief

To ensure non-Federal entities pay an equitable share of WUI protection costs, we recommend that FS:

Seek clarification from Congress as to the responsibilities of both FS and States in protecting expanding WUI developments and other private properties threatened by wildfires and renegotiate wildfire protection agreements as appropriate.

To address the need to optimize wildland fire use, we recommend that FS:

⁷ For the purposes of this report, an extended suppression operation is when a wildfire is not contained or controlled during the initial attack and additional firefighting resources have to be ordered by the Initial Attack Incident Commander to combat the fire.

- Modify current policies to allow (1) concurrent management of wildland fires for both WFU and suppression, (2) transitioning between WFU and suppression, and (3) managing wildfire suppressions to accomplish fuel reductions.
- Prioritize funding to accomplish staffing and training needed to implement an expanded WFU program.

To address the need for more cost effective controls, we recommend that FS:

- Develop a reporting mechanism to gather and summarize more meaningful wildfire suppression information to adequately evaluate wildland fire suppression activity cost effectiveness.
- Increase the financial accountability of line officers and incident commanders by incorporating into their evaluations an assessment of strategic and tactical cost effectiveness.
- Formalize newly developed wildfire cost assessment review procedures in FS directives and provide audit training to FS staff that perform the reviews.

**Agency
Response**

In its written response to the draft report, dated November 16, 2006, FS concurred with all of our findings and recommendations and stated its belief that our recommendations will assist FS as it continues to improve its management efficiencies to save taxpayer's dollars while still providing safe and effective suppression of wildfires. The complete written response is shown in exhibit C of the audit report.

OIG Position

Based on FS' written response, OIG accepts FS' management decision for all the audit recommendations.

Abbreviations Used in This Report

AMR	Appropriate Management Response
DPA	Direct Protection Areas
FS	Forest Service
FSM	Forest Service Manual
FY	Fiscal Year
IC	Incident Commander
IMT	Incident Management Team
NAPA	National Academy of Public Administration
NFPA	National Fire Protection Agency
OIG	Office of Inspector General
OMB	Office of Management and Budget
USDA	United States Department of Agriculture
WFSA	Wildland Fire Situation Analysis
WFU	Wildland Fire Use
WUI	Wildland Urban Interface

Table of Contents

Executive Summary	i
Abbreviations Used in This Report.....	vi
Background and Objectives.....	1
Findings and Recommendations.....	5
Section 1. Wildfire Protection Costs.....	5
Finding 1 FS Should Ensure Non-Federal Entities Pay Equitable Share of Wildfire Suppression Costs	5
Recommendation 1	11
Recommendation 2	12
Recommendation 3	12
Recommendation 4	13
Section 2. Wildland Fire Use.....	14
Finding 2 Existing Policies Unduly Restrict FS from Using Wildland Fire to Reduce Hazardous Fuels	14
Recommendation 5	17
Recommendation 6	18
Recommendation 7	18
Finding 3 FS Does Not Have Sufficient Fire-Use Staff To Take Advantage of Wildland Fire Use Opportunities	19
Recommendation 8	21
Recommendation 9	21
Section 3. Cost-Effective Controls	22
Finding 4 FS Needs Better Performance Measures and Tracking System to Properly Evaluate Cost Effectiveness of Its Firefighting Efforts	22
Recommendation 10	25
Recommendation 11	26
Recommendation 12	26
Finding 5 Controls Were Not Established To Assess Performance of Line Officers and Incident Commanders in Controlling Costs	27
Recommendation 13	28
Recommendation 14	29
Recommendation 15	29
Finding 6 Wildfire Cost-Containment Review Process Was Ineffective	30

Recommendation 16	34
Recommendation 17	35
Recommendation 18	35
Scope and Methodology.....	36
Exhibit A – Audit Sites Visited	39
Exhibit B – Active and Historical Fires Reviewed.....	40
Exhibit C – FS Response to Draft Report.....	41

Background and Objectives

Background

FS is a major partner in the Federal wildland fire management community, protecting life, property, and natural resources on national forest system land since 1905. It currently controls nearly two-thirds of all Federal fire management resources.⁸ While the vast majority of fires occurring on FS lands (about 98 percent) are controlled and suppressed during initial attack, the small percentage that escape have enormous financial consequences, accounting for nearly 80 percent of the agency's suppression expenditures in 2003 and 2004.

When fires escape initial attack, the responsible line officer must organize and implement an appropriate suppression response.⁹ Using a wildland fire situational analysis (WFSA) the line officer evaluates various suppression strategies and approves the strategy that best provides for firefighter and public safety, minimizes suppression costs and resource damages, and has an acceptable expected probability of success. An incident management team (IMT), lead by an Incident Commander (IC), is assigned to manage the day-to-day suppression operations. The IC is the individual responsible to the line officer for all incident activities, which include developing strategies and tactics, and ordering, deploying, and releasing resources. The responsible line officer transfers authority for suppression actions on a wildfire to the IC through a written delegation of authority. The delegation of authority identifies the line officer's selected suppression strategy and cost objectives and places performance expectations on the IC and the IMT.

Wildfires on FS land are becoming larger and more expensive. From FY 2000 to FY 2005, FS suppression costs averaged \$900 million annually, and exceeded \$1 billion in 3 of those 6 years. As suppression costs continue to escalate, in some years FS has had to borrow funds from its programs to pay for its wildfire suppression activities. Again in FY 2006, FS has had to resort to funding transfers in order to pay more than \$1 billion in fire suppression costs, affecting its ability to accomplish work in other areas. Some of the negative effects of these funding transfers were documented in a previous GAO report.¹⁰ Increasing wildfire suppression costs have also generated a number of reviews by FS, other fire management agencies, and independent organizations who have generally attributed cost increases to a long-term drought, an unprecedented buildup of hazardous fuels, and the increasing number of homes being developed in the wildland urban interface

⁸ FS suppression operations also support non-fire emergency management activities conducted in support of the Department of Homeland Security and Federal Emergency Management Agency. These support activities were not included in this audit.

⁹ In FS, regional foresters, forest supervisors, and district rangers are all referred to by the general title of line officer. Line officers are administratively responsible for a land management unit (i.e., region, national forest, ranger district).

¹⁰ Wildfire Suppression: Funding Transfers Cause Project Cancellations and Delays, Strained Relationships, and Management Disruptions, GAO-04-612, June 2, 2004

(WUI).¹¹ The policies and concerns of neighboring State or local jurisdictions and landowners can also impact the strategies and resources FS uses to suppress wildfires, which in turn affect suppression costs.

To reduce the threat of catastrophic wildfires, potentially serious ecological deterioration, and risks to public and private property values, the 1995 Federal Wildland Fire Management Policy, and its 2001 update, directed that fire be allowed, as nearly as possible, to function in its natural ecological role to reduce hazardous fuels in the wildlands. The policy further stated that while protection of human life remained the overriding suppression priority, protection of property and natural/cultural resources would now be based on the relative values to be protected and the costs of protection. Giving property and natural/cultural resources equal consideration represented a shift in policy because, until that time, protection of property had always been given a higher priority than natural/cultural resources. Finally, the policy recognized that the WUI had become an escalating fire problem with enormous financial and safety implications. Accordingly, the policy specified that the primary responsibility for protecting structures in the WUI rested with State and local governments.

Congress and OMB were also concerned about FS wildfire suppression activities and cost accountability. OMB assessed FS' wildland fire management program in 2002 and 2006 and concluded that the agency did not regularly collect timely and credible performance information, that Federal managers were not held accountable for suppression costs and performance, and that the program did not demonstrate improved efficiencies and cost effectiveness in achieving program goals.

FS has implemented policies and procedures designed to contain wildfire suppression expenditures and to increase accountability for its suppression operations. These include but are not limited to the following:

- Strategic Performance Measures: To meet the requirements of the Government Performance and Results Act, FS developed a strategic plan and performance measures that focused on reducing the risks of catastrophic wildfire by (1) reducing hazardous fuels on lands with the greatest potential for catastrophic wildfire, (2) suppressing wildfires at minimum cost, considering firefighter and public safety, benefits, and values to be protected, and (3) assisting communities in developing and implementing hazardous fuel reductions on non-FS lands.

¹¹ The WUI is the area where structures and other human development meet or intermingle with undeveloped wildland. Wildland urban interface is any area containing human developments, such as a rural subdivision, that may be threatened by wildland fires. Wildland intermix is an interspersing of developed land with wildland where there are no easily discernible boundaries between the two systems, such as an isolated cabin surrounded by forest. In this report, references to "WUI" will connote both wildland urban interface and wildland intermix.

- Emphasis on Cost Accountability: FS modified directives to specify that line officers are responsible for all aspects of fire management, including financial oversight of wildland fire incidents. Unlike other responsibilities, financial oversight cannot be delegated. Line officers are also directed to issue delegations of authority to the IC that includes suppression cost objectives. Incident Management Teams (IMT) in turn are evaluated on how well they meet the cost objectives.
- Increased Management Oversight: FS established guidelines regarding approval and certification of the line officer's chosen suppression alternative in the WFSA. The regional forester must certify the WFSA for any fire with estimated suppression costs of more than \$10 million, while the FS Chief must approve the WFSA for any fire greater than \$50 million.
- Wildfire Cost-Containment Reviews: FS conducts regional cost-containment reviews of wildfires exceeding \$2 million and national reviews of wildfires exceeding \$5 million. The primary purpose of both reviews is to evaluate the incident for cost efficiencies.
- Reducing Fuels With Fire: FS sought to better integrate fire as a natural process in the landscape by emphasizing the need for increased wildland fire use (WFU). WFU involves allowing naturally ignited fires to burn in designated sections of the forests to help restore forest health and mitigate the escalating costs of fire suppression.

FS is also developing a Fire Program Analysis system that should eventually provide an economically sound method of allocating resources (i.e., people and equipment) and a joint LANDFIRE system that is expected to provide data for fire and land managers to use to target fire and resource management projects most effectively. Further, the FS is creating a Wildland Fire Decision Support System to enable cost effective wildfire suppression decisions and will soon begin using a stratified cost index to measure the cost effectiveness of wildfire suppression operations. These planned improvements led OMB to conclude that FS is taking meaningful steps to address its management deficiencies and to give FS an "adequate" rating in its 2006 assessment of the wildland fire management program.

In March 2005, FS' Director of Fire and Aviation Management requested that OIG take an objective and unbiased look at FS' current large fire management practices to ensure all areas for significant cost savings were identified. The Director also requested that OIG's review overlap with the 2005 fire season so that we could observe fire operations in process.

Objectives

The overall objective of this review was to evaluate the controls FS had in place to contain wild fire suppression costs. To arrive at this conclusion, we followed these subobjectives: (1) determine whether FS ensured non-Federal entities paid an equitable share of wildfire suppression costs, (2) evaluate whether wildland fire use was optimized, and (3) assess the cost effectiveness of FS wildfire suppression activities.

Details of our audit methodology can be found in the Scope and Methodology section at the end of this report.

Findings and Recommendations

Section 1. Wildfire Protection Costs

Finding 1

FS Should Ensure Non-Federal Entities Pay Equitable Share of Wildfire Suppression Costs

FS has not consistently followed guidance designed to ensure that it equitably allocates financial responsibility for its fire suppression activities. First, FS managers have not renegotiated wildfire protection agreements between FS and non-Federal entities to equitably apportion State and local wildland urban interface (WUI) protection responsibilities. Second, FS, without considering the relative values at risk, continues to give the protection of privately-owned property a higher priority than the protection of natural resources. These circumstances exist because FS perceives States as unwilling to voluntarily expand their protection responsibilities to include a greater share of WUI protection costs and because political and public expectations compel FS to make protecting property its highest priority. Consequently, FS has borne much more than its share of the expenses associated with fighting wildfires, which causes its costs to escalate while losing valuable natural resources in favor of private structures. Some FS estimates would put the cost of WUI protection at between \$547 million to \$1 billion in FYs 2003 and 2004.

The 1995 Federal Wildland Fire Management Policy and its 2001 update defines the operational role of Federal agencies in the WUI as assisting non-Federal entities in wildland firefighting but makes Tribal, State, and local governments responsible for structural fire protection. The policy also directs Federal agencies to ensure that WUI areas are covered by fire protection agreements. These agreements are to be renegotiated as needed to ensure that they remain compatible with Federal policy and that they equitably apportion State and local responsibilities.

The Federal Wildland Fire Management Policy also directed Federal wildland fire management agencies to give public and firefighter safety first priority, and to suppress fires at minimum cost, giving due consideration to the values of both property and natural/cultural resources at risk. Making natural resources and properties equal protection priorities was a shift in wildfire suppression direction. Prior to 1995, FS policy had prioritized wildfire protection objectives in the order of life, property, and natural resources. Consequently, wildfire suppression resources were often diverted to protect private properties while more valuable natural resources burned.

In effect, the current Federal policy no longer gives private property automatic priority over the protection of natural resources.

Together, these criteria allow FS to adopt a more cost effective approach to fighting fires. By sharing financial responsibility for WUI protection with State, Tribal, and local governments, FS should bear only that portion of the costs related to its protection efforts for Federal property. By weighing the relative value of the natural resources endangered against that of private property, FS should be able to utilize strategies that are cost effective. However, since this guidance has not been consistently implemented, FS continues to pay more than its share of fire suppression costs.

Below, we analyze FS' use of fire protection agreements in relation to the WUI, and its prioritization of private property over natural resources for fire suppression purposes without consideration of the relative values at risk.

Protection Agreements Do Not Equitably Apportion WUI Protection Responsibilities

The protection of homes and other property in the WUI is an escalating fire problem. WUI development has been steadily increasing with housing starts in the WUI being three times greater than elsewhere. In the fire-prone areas of the western Rocky Mountains, 2.2 million homes are expected to exist in the WUI by the year 2030—a 40 percent increase over current levels. Independent research by the National Academy of Public Administration has found that the majority of landowners moving in take no actions to reduce their home's vulnerability to wildfire and that many local governments do not require homeowners to implement wildfire mitigation activities or regulate growth in these areas.¹²



Figure 1 –FS protecting a WUI home from wildfire. (FS photo)

¹² National Academy of Public Administration reports “Wildfire Suppression: Strategies for Containing Costs”, September 2002; and “Managing Wildland Fire: Enhancing Capacity to Implement the Federal Interagency Policy”, December 2001

The increase in homes and lack of wildfire defense for them are significant in the WUI because FS bears a disproportionate share of protection costs. As the number of private homes in the WUI increase, FS costs rise.

Although approximately 85 percent of all WUI acreage is on non-Federal lands, an analysis done by the National Fire Protection Agency (NFPA)¹³ in 1994 concluded that approximately one-third of the Federal wildfire suppression spending that year (\$250 million to \$300 million) went towards the protection of the WUI. Over the intervening decade, FS' WUI protection expenditures have similarly increased. FS managers and staff stated that WUI protection was the major driver of FS suppression costs, with some staff estimating that between 50 to 95 percent of large wildfire suppression expenditures were directly related to protecting private property and homes in the WUI. If these estimates are presumed to be accurate for the FS' suppression efforts nationwide, the cost of protecting privately-owned properties in the WUI would total about \$547 million to \$1 billion in 2003 and 2004.¹⁴

Under FS directives, cooperative wildland fire protection agreements must be reviewed and updated on an annual basis to maintain compatibility with Federal policies.¹⁵ These agreements with Federal and non-Federal fire management agencies are to improve the efficiency and effectiveness of fire management and protection of State, private, and Federal lands.¹⁶ Wildfire protection responsibilities may be delineated on the basis of jurisdictional boundaries or through the negotiation of direct protection areas (DPAs) that are defined by boundaries based on logical protection responsibilities rather than ownership patterns. Once responsibility for protecting lands is determined, the protecting agency assumes full financial responsibility for associated firefighting costs.

Protection agreements based on jurisdictional boundaries or outdated DPAs place FS wildfire suppression responsibilities directly adjacent to homes and communities on non-FS land. Protection agreements based on periodically updated DPAs, on the other hand, can extend State and county protection responsibilities to include FS land surrounding WUI developments. We reviewed cooperative wildland fire protection agreements negotiated between FS regions 1, 5, and 6 and the States of Oregon, Washington, California, Montana, and Idaho and concluded that FS is subject to an inequitable wildfire protection burden because the agreements had not been renegotiated to reflect appropriate WUI protection responsibilities. For example, the Region 6 master agreement

¹³ NFPA is an international nonprofit organization that serves as the world's leading advocate of fire prevention and is an authoritative source on public safety.

¹⁴ This calculation is based on our characterization of "large wildfires" as those exceeding \$1 million as recorded in FS' financial information system.

¹⁵ FSM 5121.4, effective July 7, 1998

¹⁶ FSM 3170.02, effective July 22, 1998

defined wildfire protection responsibilities based on jurisdictional boundaries rather than DPAs. The Region 1 and 5 master agreements defined protection responsibilities based on DPAs but the defined protection areas had not been significantly altered or updated for an average of 12 years. The combination of these two circumstances has the potential to significantly increase the FS' wildfire suppression costs by expanding the agency's role in WUI protection beyond that directed by the 2001 Federal Wildland Fire Management Policy.

In addition, when FS protection responsibilities are directly adjacent to WUI development, FS line officers feel compelled to aggressively suppress wildfires because the fires threaten privately-owned structures, even if the fires pose no threat to FS resources. However, FS directives define structure protection as "the suppression of wildfires that are threatening improvements."¹⁷ Under this definition, each time a FS line officer implements a wildfire suppression strategy with the purpose of protecting privately-owned structures from wildfires advancing across FS lands, that line officer is engaging in structure protection, a circumstance the 1995 Federal Policy specifically sought to avoid and which the 2001 policy only permits under formal agreements that specify protection and funding responsibilities.

In order to reflect the fact that the Federal Government is not primarily responsible for structure protection in the WUI, FS managers need to delineate Federal protection responsibilities using DPAs that are annually reviewed and updated. Renegotiating the wildfire protection agreements would not impact wildfire operations or suppression effectiveness. FS would still be committed to participating in mutual aid agreements that dispatched Federal resources to wildfire incidents to protect life and public safety. The updated protection agreements would serve only to more equitably allocate financial responsibility for WUI protection to States and local governments.

Assigning the financial responsibility for WUI wildfire protection to State and local government is critical because Federal agencies do not have the power to regulate WUI development. Zoning and planning authority rests with State and local government. Unregulated WUI development increases FS wildfire suppression costs. Under the terms of current protection agreements, FS and Federal taxpayers bear the wildfire cost implications of development decisions made by local governments about where and how structures will be built in the WUI. The inequity of this situation is further exacerbated by the fact that only a small portion of the WUI is in FS or Federal ownership. A recent study conducted by the Wilderness Society estimated that most WUI acreage is owned by private, State, or Tribal entities.

¹⁷ FSM 5137, effective July 7, 1998

With current wildfire suppression funding levels nearing \$1 billion annually, the cost of protecting private property in the WUI has significant financial implications. However, while FS spends record amounts protecting private landowners from advancing wildfires, these individuals have done little to protect themselves. According to a July 2000 report by the National Association of State Foresters, people moving into the WUI give little thought to the threat posed by wildfires, expecting to be provided with urban type emergency services if and when a wildfire occurs. Other WUI residents believe that insurance companies or Federal disaster assistance will cover any property losses.

Homeowner reliance on the Federal government to provide wildfire suppression services places an enormous financial burden on FS, as the lead Federal agency providing such services. It also removes incentives for landowners moving into the WUI to take responsibility for their own protection and ensure their homes are constructed and landscaped in ways that reduce wildfire risks. FS research has found that it is the fuel conditions within 200 feet of structures that determine whether or not those structures will burn. Other FS research concluded that home losses in the WUI are largely independent of both FS wildfire suppression efforts and fuel reduction activities because effective wildfire protection depends almost solely on the fuel reduction activities that take place on privately-owned land.

Linking wildfire suppression responsibility to jurisdictional authority is important because studies have shown that Federally-sponsored voluntary programs have not been sufficient in changing landowner behavior. Mandatory zoning and building regulations may be needed to compel landowners to take the actions necessary to protect their homes and property from wildfire. If State and local agencies became more financially responsible for WUI protection, it would likely encourage these agencies to more actively implement land use regulations that minimize the risk to people and structures from wildfire. Once State and local agencies enact and enforce appropriate zoning and building regulations, much of the cost associated with protecting WUI areas incurred by Federal, State, and local firefighting agencies will be reduced.

We discussed this issue with FS officials at the national office who agreed that State and local agencies are largely insulated from the cost implications of their WUI development decisions. While recognizing the current financial inequality of WUI protection, FS officials believe that States will not renegotiate protection agreements that increase States' WUI protection costs. FS officials added that States generally believe the FS is responsible for all fire suppression costs incurred on FS lands even when fires are suppressed in order to protect private property on sometimes distant State and county lands.

FS Managers Continue to Focus on Property Protection With Little Consideration of the Values at Risk

In addition to bearing an inequitable portion of fire suppression costs for protecting private property, FS continues to prioritize private property over natural resource protection with little to no consideration of their relative values.

For nearly 90 years, FS policy prioritized wildfire protection objectives in the order of life, property, and natural resources. Wildfire suppression resources were often diverted to protect private properties while more valuable natural resources burned for lack of timely fire-suppression action. However, in the 1995 and 2001 Federal policies, protection of private property was no longer given de facto priority over the protection of natural resources. Instead, the policies directed Federal wildland fire management agencies to give public and firefighter safety first priority, and to suppress fires at minimum costs giving due consideration to the values of both property and natural/cultural resources at risk. Assigning natural resources and properties equal protection priorities represented a shift in wildfire suppression direction and was due, in part, to the increasingly complex nature of the WUI, and the public's wildfire protection expectations.

We concluded, however, that the Federal policy was not being implemented. FS managers and staff we interviewed either believed that protection of property continued to have priority over the protection of natural resources, or said public and political pressures required them to give property protection a higher priority. An analysis of 37 wildfires occurring in 2003 and 2004 indicated an emphasis on property protection. Approximately 87 percent of these fires referenced the protection of private property as a major strategy for the suppression effort—suppressing these fires cost about \$435 million.

FS managers and staff said that the public expects FS to protect structures and residences regardless of the values involved and that aggressive suppression actions must be taken (even when ineffectual) in order to demonstrate to the public that FS is doing everything it can to suppress the fire. Giving natural resource protection a higher priority than property, or conducting any sort of cost/benefit analysis would, they contended, undermine FS' credibility with the public and its fire management partners and would not be politically feasible.

FS' emphasis on protecting private property had a direct impact on the agency's suppression expenditures. FS managers and staff estimated that approximately 50 to 95 percent of the costs for many large wildfire suppression operations derived directly from protecting private property. Further, giving property de facto priority over natural resources allows

valuable natural resources like threatened and endangered species, old growth forests, and cultural resources to be damaged or destroyed by wildfires. For example, the suppression objectives of one wildfire we reviewed included protecting private property, tribal timber, cultural sites, recreation areas, infrastructures, and endangered species habitat. However, while nearly all of the suppression objectives relating to private interests were met, more than half of the known activity areas for the endangered species were destroyed because the protection of private property was given priority.

The cost implications of continuing to protect the WUI from wildfire are enormous. Two different fires on the Bitterroot National Forest in 2000 illustrate how much more costly it is to fight a fire to protect property. The first fire, fought to protect structures located within the WUI, burned 64,000 acres and cost FS \$7.2 million. The second fire, which burned roughly the same number of acres, was fought in a wilderness area of the forest and cost only \$710,000 to suppress. With the increasing development in the WUI, more houses and more people will be threatened by wildfire and FS' protection of them will likely result in the continued escalation of its fire suppression costs as well as the Government's loss of natural resources.

Since the protection of the WUI has enormous financial and program implications for FS, the agency should seek clarification from Congress that delineates the responsibilities of both FS and States in protecting expanding WUI developments and other private properties. If Congress does not expect the FS to continue bearing the financial cost of protecting WUI developments under State and local control, then the current wildfire protection agreements should be renegotiated and periodically updated to better allocate WUI protection responsibilities. Since States are not required to enter into or renegotiate master protection agreements with FS, FS may need to create incentives to encourage States to extend their protection boundaries so that master protection agreements are equitable to FS and its non-Federal partners. Together, these measures will help FS lower its suppression costs while protecting its own resources. In addition, to ensure natural resources are afforded the same protection as private property FS should reiterate the Federal Wildland Fire Management Policy that gives protection of natural resources and property equal consideration.

Recommendation 1

Request clarification from Congress as to the responsibilities of both FS and States in protecting expanding WUI developments and other private properties threatened by wildfires.

Agency Response

FS will work through its Legislative Affairs Office and Office of General Counsel to attempt to determine if Congressional intent already exists in current laws regarding WUI protection responsibilities. If it does not, the agency will seek to obtain clarification from Congressional committees with FS jurisdiction regarding protection responsibilities in the WUI and on other private properties that are threatened by wildfires. FS' estimated completion date for this action is April 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 2

If Congress does not expect FS to continue bearing the financial cost of protecting WUI developments under State and local control, direct each Region to renegotiate WUI protection responsibilities in master protection agreements to ensure the financial cost of WUI protection is equitably and appropriately allocated between FS and its non-Federal partners.

Agency Response

If Congress determines that protection of private property in the WUI is primarily a State responsibility, then the Washington Office will direct each Region to review their master protection agreements and renegotiate WUI protection responsibilities where needed. FS' estimated completion date for this action is May 31, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the direction it issues the Regions if Congress determines that protection of private property in the WUI is primarily a State responsibility.

Recommendation 3

In partnership with other Federal wildland fire management agencies, modify national direction that requires updates of the master protection agreements to require WUI protection responsibilities be periodically assessed and renegotiated. Create incentives to encourage States to enter into new master protection agreements and to help ensure that the master protection agreements are equitable to FS and its non-Federal partners.

Agency Response

FS will work with its Federal fire management agency partners to establish national direction to determine an appropriate schedule to periodically assess and renegotiate master protection agreements with States. FS has begun discussions regarding instituting appropriate incentives to encourage States to enter into equitable agreements. The agency will expand these discussions to include its Federal wildland fire management partners and Office of Management and Budget. Any agreed upon incentives will be included in national direction so that they will be considered as each Region renegotiates agreements with States. FS' estimated completion date for this action is October 31, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of national direction it establishes.

Recommendation 4

Reiterate the Federal Wildland Fire Management Policy that gives protection of natural resources and property equal consideration.

Agency Response

FS will issue a letter to Regional Foresters, Forest Supervisors, and Geographic Area Coordination Centers reiterating the 2001 Federal Wildland Fire Management Policy that directs agencies to give equal consideration to natural resources and property when developing a suppression strategy. In addition, this policy was reiterated at FS' Fire Director's meeting in October. FS' estimated completion date for this action is November 30, 2006.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the letter it issues to Regional Foresters, Forest Supervisors, and Geographic Area Coordination Centers reiterating the 2001 Federal Wildland Fire Management Policy.

Section 2. Wildland Fire Use

Decades of fire exclusion efforts and other land-use practices have in many places dramatically increased the amount of hazardous fuels on national forest system lands so that fires tend to be larger and more severe than in the past. Conditions on millions of acres of FS wildlands increase the probability of large, intense fires. In order to address the continuing accumulation of fuels and the increasing risk to humans, property, and natural resource values, FS needs to better integrate fire into the landscape by modifying current policies that unduly restrict wildland fire use (WFU, a fire managed for resource benefits such as fuels reduction) and by increasing the number of staff qualified to manage WFU events.

Finding 2

Existing Policies Unduly Restrict FS from Using Wildland Fire to Reduce Hazardous Fuels

Even though it is to FS' advantage to use unplanned wildland fires to reduce hazardous fuels whenever possible, several existing policies unduly restrict FS managers from doing so. Under current fire policies FS managers cannot concurrently manage wildland fire incidents for both suppression and WFU, cannot move between suppression and WFU tactics as conditions change on an incident, and cannot accomplish and report hazardous fuel reductions during wildfire suppression operations. Although FS, in collaboration with other Federal wildland fire management agencies,¹⁸ could modify these policies to increase opportunities for WFU, it has not done so because FS believes State agencies would protest such policy revisions. As a result, FS' opportunities to reduce the hazardous fuels that are a major component of large, expensive wildfires remain unnecessarily limited. Furthermore, it can cost significantly more to suppress a wildfire than use the fire to achieve resource objectives.

The 1995 Federal Wildland Fire Management Policy, updated and revised in 2001, recognized that fire had not been sufficiently reintroduced into the landscape and advocated shifting fire emphasis from reactive to proactive—from attempting to suppress wildland fires to working to reduce the buildup of hazardous vegetation that fuels severe fires. The policy recognized that if fire was not reintroduced fuel conditions on millions of acres of wildlands increased the probability of large, intense fires “beyond any scale yet witnessed.”¹⁹

¹⁸ The policies were created by consensus of the five wildland fire management agencies that include FS, the Bureau of Land Management, the Bureau of Indian Affairs, the Fish and Wildlife Service, and the National Park Service.

¹⁹ Review and Update of the 1995 Federal Wildland Fire Management Policy (2001)

A wildfire cost review conducted by the National Academy of Public Administration (NAPA) in 2002²⁰ analyzed all large wildfires occurring that fire season and found that 95 percent involved lands with hazardous fuel conditions. The report concluded that reducing fuels was the best way of controlling increasing wildfire hazards and the attendant costs. FS is acutely aware of the costs and safety risks associated with fuel accumulation and has conducted large scale fuel treatment programs in an attempt to reduce the hazardous fuel conditions on its lands. Although FS reduced more than 8.5 million acres of hazardous fuels from 2001 through 2005, that accomplishment is far less than what is needed to reduce the risk of catastrophic wildfires. According to the 2005 Quadrennial Fire and Fuel Review Report²¹, the Federal fire management agencies have to treat between 10 and 12 million acres annually in order to have a significant impact on reducing fire risk.

A 2001 FS study estimated there were 68 million acres in fire regime condition class 2 and 34 million acres in fire regime condition class 3 on national forest land in the lower 48 States.²² That equates to about 102 million acres of FS land that have missed two or more expected burning cycles, leading to systemic forest health problems and, in areas where frequent, low intensity fire should occur, hazardous fuel accumulation and an increased chance of uncharacteristically severe fire. If the objective were to restore all national forest lands to fire regime condition class 1 it would take 60 years to initially treat condition class 2 and 3 fuels, and 90 years if the agency also wished to keep the relatively safe condition class 1 fuels from growing into dangerous conditions.²³

Despite the Federal Wildland Fire Management Policy directing the reintroduction of fire into the landscape, and abundant evidence that natural fire reduces hazardous fuels, the majority of natural ignitions on FS land are still suppressed. Of the 78,857 natural ignitions that occurred on FS land from 1998 through 2005, only 1,590, or 2 percent, were allowed to burn as WFU.

The agency's emphasis on suppression is mirrored in a number of fire management policies.²⁴

- A wildland fire cannot be managed for both suppression and WFU objectives concurrently—the fire is either WFU or a wildfire that

²⁰ NAPA report "Wildfire Suppression: Strategies for Containing Costs", September 2002

²¹ The Quadrennial Fire and Fuel Review is an internal assessment of current fire management capabilities and future needs that includes the five federal fire management agencies (FS, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, and U.S. Fish and Wildlife Service), and their state, local, and tribal partners.

²² Fire regime condition classes measure a landscape's departure from the conditions that would have existed had fire been allowed to perform its natural role: Condition Class 1 (functioning as expected ecologically), Condition Class 2 (moderate departure from expected conditions) and Condition Class 3 (high degree of departure from conditions that support appropriate fire size and severity).

²³ Restoration of FS lands to condition class 1 may be inconsistent with other management objectives like wildlife habitat.

²⁴ Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, June 2003

must be suppressed. If two wildland fires converge, they must be managed as a single wildland fire.

- Once a wildland fire has been managed for suppression objectives, it may never be returned to WFU and managed for resource benefits.
- Under no circumstances are suppression strategies and tactics to be tailored to achieve resource benefits (e.g., fuels reduction). Even if resource benefits may result in some areas of the wildfire, do not spend suppression dollars with the objective of achieving resource benefits.²⁵

Even though the FS should be taking every opportunity to reduce hazardous fuels, we determined that the above policies reduced its ability to do so by unduly restricting WFU and by prohibiting deliberate fuel reduction during wildfire suppression events.

FS fire managers and staff we interviewed at the regional and national forest levels believed that modifying the policies would increase their ability to reduce hazardous fuels.

- Some staff told us, for example, that they had been involved in suppression efforts that could have been managed to reduce hazardous fuels but that the current policy prevented it.
- Other FS staff told us that they had been involved in fire events that could have been concurrently managed for both wildfire suppression and fire use but the fire operations had to suppress the entire fire due to current policy.
- FS fire staff also said that some line officers have elected to use indirect containment strategies during suppression efforts in order to reduce hazardous fuels in some areas of the fire. However, such conduct is contrary to policy and can only be justified by claiming that the indirect attack saves money and represents the safest approach to fighting the wildfire.

In addition, the current fire policies do not allow the line officers to claim hazardous fuels reductions that occur during suppression efforts. This practice results in hazardous fuel reductions being understated. FS fire staff believed the existing policies should be modified to allow line officers to report hazardous fuel accomplishments that occur as a result of wildfire suppression in addition to traditional fuel reduction activities.

²⁵ FSM 5130.3, effective July 24, 1998

We discussed modifying current FS policies with an FS official at the national office so that the policies would allow for (1) managing wildland fires for both WFU and suppression concurrently, (2) transitioning between WFU and suppression, and (3) managing wildfire suppressions to accomplish fuel reductions. The official indicated that FS has considered modifying the policies but has not done so because State agencies are generally opposed to WFU and would likely protest any changes to current Federal WFU policies. States agencies fear fires managed as WFU will escape from approved boundaries and threaten communities or State-owned resources. States are also concerned about the smoke and compromised air quality that can occur when wildland fires are allowed to burn over long durations. However, we conclude that while FS should consider input from State fire management agencies, FS' primary responsibility is to develop policies that promote the effective management of FS lands.

Although the policies discussed above perpetuate a culture of fire suppression, FS recognizes the benefits of flexibility when managing wildfires. To allow greater flexibility and encourage using the most effective techniques possible in light of the restrictive policies discussed above, FS encourages the use of "Appropriate Management Response" (AMR). Under AMR, FS officials have more latitude in making fire management decisions. For example, using AMR, a fire threatening a community can be aggressively suppressed on one side while it is only monitored on another side when moving toward a wilderness area. However, AMR does not allow FS to use WFU to the full extent possible or report hazardous fuels reductions accomplished during wildfire suppression operations. Until FS modifies its restrictive policies on using fire to achieve resource objectives, opportunities to reduce hazardous fuels will remain limited. Increasing fuel reduction activities are critical. Otherwise, natural resource loss, private property loss, environmental damage, and wildland fire suppression costs are certain to escalate as fuels continue to accumulate and more acres become at risk.

Recommendation 5

In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to concurrently manage wildland fire incidents for both suppression and WFU.

Agency Response

FS will begin working with its Federal and State partners in an attempt to reach agreement and modify the current Federal Wildland Fire Management Policy to reflect the desire to move toward Appropriate Management Response, which allows multiple strategies to be used on a single fire. In addition, FS will review and modify its own policies to better reflect the

principles of Appropriate Management Response. FS' estimated completion date for this action is April 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the modified policy.

Recommendation 6

In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to move between suppression and WFU tactics as conditions change on an incident.

Agency Response

The policy modifications reflecting Appropriate Management Response under Recommendation 5 will allow FS managers to employ multiple strategies concurrently and move between various tactics as conditions change. FS' estimated completion date for this action is April 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the modified policy.

Recommendation 7

In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to accomplish and report fuel reductions during wildfire suppression operations.

Agency Response

FS will work with its Federal wildland fire management partners in an attempt to reach agreement on modifying the current Federal Wildland Fire Management Policy to allow accomplishment and reporting of fuel reductions during wildfire suppression activities. FS will also review and modify its own policies to allow reporting of hazardous fuel reductions that meet forest plan objectives, regardless of the method under which it was accomplished. FS' estimated completion date for this action is April 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the modified policy.

Finding 3

FS Does Not Have Sufficient Fire-Use Staff To Take Advantage of Wildland Fire Use Opportunities

Expanding current levels of WFU is hindered due to a lack of qualified staff available to manage the fires. Fire-use staffing levels and training are only sufficient to meet current fire-use activity. FS has recognized the need for more specialized personnel and is considering actions to increase WFU staff. Without sufficient fire-use staff, FS will miss opportunities to use fire to reduce hazardous fuels that contribute to high suppression costs.

The 2001 Federal Wildland Fire Management Policy states that agencies must ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate staffing and training. In addition, a 1999 NAPA analysis of FS' workforce recognized that the agency's increased emphasis on reintroducing fire into the landscape would require more skilled FS staff capable of integrating fire with other land management strategies.

When a natural ignition is identified on a forest, fire management staff use the unit's fire management plan to determine if WFU is an appropriate response. When permitted, WFU events progress through three stages that depend on the fire's activity, potential duration, and relative risk. Once completing either the second or third stage, a fire-use manager must be assigned to the event. If conditions extend to the highest difficulty levels, the manager can order a formal fire-use management team. National fire-use management teams are available on a rotational basis and consist of seven core positions: incident commander, planning chief, operations chief, logistics chief, safety officer, information officer and long-term fire behavior analyst. If either the incident commander or two or more core members are not available, the fire-use management team will be considered unavailable.²⁶

The Federal Wildland Fire Management Policy gave WFU equal consideration to wildland fire suppression and directed Federal wildland fire management agencies, including FS, to reintroduce fire into the landscape as a means to reduce hazardous fuels. The number of fire-use management teams, however, is still much smaller than the number of incident

²⁶ The deputy incident commander may lead the team if the incident commander is unavailable.

management teams used to suppress wildfires. As of June 2006, FS had only 7 fire-use management teams compared to 55 incident management teams. Similarly, FS has relatively few fire-use managers. Although the FS estimates that 300 such managers are needed to select WFU for all eligible ignitions, the agency currently has only 83 qualified staff. As a result, FS risks not having adequate staff to affect WFU when appropriate. FS staff in Regions 1 and 4, which have large wilderness areas designated for WFU, said that in some years they had come close to not having sufficient fire-use management teams available while staff in Region 3 informed us that they missed one opportunity to use WFU in the 2003 fire season because a team was not available.

Fire staff in each of these regions agreed that more fire-use management teams will be needed to support planned WFU expansion projects. FS staff at a national forest in Region 1, for example, said that they are drafting a proposal that would allow WFU on an additional 1.2 million acres. Region 4 staff indicated that they had increased WFU acreage by 55 percent in one wilderness area and had plans for further WFU expansion. However, if fire-use management teams are not available when fires start in these areas, the fires will have to be suppressed even though they may be suitable for WFU.

Further, as more people move into the WUI, the complexity of conducting WFU increases.²⁷ In such situations accurately predicting and managing the long-term behavior of a fire takes on added importance because lives and private property could be at risk. According to FS staff, however, the agency currently has a shortage of long-term fire behavior analysts trained to undertake such duties. Since these analysts are core members of fire-use management teams, this shortage threatens to limit some regions WFU expansion efforts.

FS' expansion of WFU, together with the complexity of managing fire use in the growing WUI, will require an increased number of fire-use management teams in order to meet its objective of reducing hazardous fuels. The additional costs associated with such actions may be offset by the savings that can result when WFU is selected rather than suppression. FS has recognized these issues and is considering cross-training incident-management teams to add WFU functions to their fire suppression activities. According to FS, these dual-use teams would be able to transition between fire suppression and WFU (see finding 2). In addition, it may be more cost-effective for FS to train personnel in WFU who already possess many of the required fire management skills.

²⁷ From 1990 to 2000, the total interface area in the United States has increased about 19 percent, with the number of homes increasing to 44 million. (This calculation excludes Alaska and Hawaii.)

Recommendation 8

Prioritize funding to accomplish staffing and training needed to implement an expanded WFU program.

Agency Response

WFU teams and incident management teams are comprised of similar positions, with the exception of two positions, the Long-Term Analyst (LTAN) and the Fire Use Manager (FUMA). FS recognized the need for a greater number of qualified LTAN positions. It has already taken steps to accomplish the needed staffing and training, including offering the required class more frequently, so that more people can be qualified and available for these important positions. By adding these two positions, when necessary, an IMT has all of the skills needed to manage WFU events. FS' estimated completion date for this action is November 1, 2006.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 9

Cross-train incident management teams to perform WFU assignments.

Agency Response

As discussed in the previous response, incident management teams already have the expertise available to them through requesting an LTAN and FUMA to assist in managing fires for wildland fire use. The agency will continue to work on increasing capacity by developing the capability of all teams to manage all types of fire events appropriately through increased training opportunities and availability of people with specialized skills. FS' estimated completion date for this action is November 1, 2006.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Section 3. Cost-Effective Controls

FS' wildfire suppression expenditures have averaged almost \$1 billion annually, yet FS management cannot adequately demonstrate the success of steps it has taken to institute cost-effective suppression. Specifically:

- FS does not have performance measures that adequately characterize the success of its cost-containment efforts;
- FS does not collect and report meaningful program accomplishments;
- FS does not have controls to effectively assess the cost implications of line officers' and incident commanders' wildfire suppression decisions; and
- FS does not conduct reviews that support material program improvements.

Finding 4

FS Needs Better Performance Measures and Tracking System to Properly Evaluate Cost Effectiveness of Its Firefighting Efforts

FS does not currently have sufficient information for evaluating the overall cost effectiveness of its wildfire suppression activities because it lacks adequate performance measures and an effective system for tracking its accomplishments. Although it had developed performance measures, only one related to the cost effectiveness of extended wildfire suppression operations and it had not been implemented. Furthermore, current data being summarized and reported lack information managers need to adequately assess how well FS is doing in achieving its stated objectives while controlling costs. Without both adequate performance measures and an effective system to track its accomplishments, FS cannot demonstrate to Congress that the funds it receives for wildland fire suppression are spent in a cost-effective manner and that the benefits of its firefighting outweigh its costs.

OMB Circular A-123²⁸ holds agency managers responsible for assessing the effectiveness of their internal controls by requiring them to continuously monitor and improve the effectiveness of internal controls associated with their programs. Recognizing the need to control the cost of wildfire suppression, FS has instituted several measures over the last several years that are designed to make cost containment an important consideration when planning and carrying out firefighting activities. Partly to help monitor the effectiveness of its instituted cost controls, FS tracks information related to

²⁸ OMB Circular A-123, Management's Responsibility for Internal Control, December 21, 2004

its fire suppression accomplishments and costs via performance measures and end-of-fire-season reporting.

The information gathered, though, is inadequate to allow FS management to assess the effectiveness of its efforts to control wildfire suppression costs. Neither the performance measures nor reporting process capture information essential to evaluating the effectiveness of cost containment on a given fire such as the type and number of structures (e.g., houses versus sheds) and natural resources (e.g., watersheds and endangered species habitat) affected by wildfires. Knowing that \$5 million was spent protecting 10 homes rather than 10 sheds, or a valuable natural resource like a watershed or endangered species habitat is essential to evaluating the cost-effectiveness of firefighting operations.

Performance Measures

Currently, FS tracks the cost effectiveness of its wildfire suppression operations through three performance measures cited in its 2004-2008 strategic plan:

- “percent of unplanned and unwanted wildland fires controlled during initial attack,”
- “number of acres burned by unplanned and unwanted wildland fires,” and
- “percent of large fires in which the value of resources protected exceeds the cost of suppression.”

The first two performance measures focus on saving money by keeping fires small. The third measure is the only one designed to track the cost effectiveness of extended wildfire attacks but it has not been implemented because FS was concerned that the information needed to be tracked (i.e., the monetary or intrinsic values associated with structures, watersheds, endangered species habitat, etc.) could not be accurately and consistently determined. However, the cost effectiveness of extended attacks is an important component of the agency’s performance. While large wildfires (those with costs exceeding \$1 million) accounted for only 2 percent of the wildfires during 2003 and 2004, they represented about 80 percent of total suppression costs.²⁹

FS has taken some steps to address the weakness of its fire suppression performance measures. The Consolidated Appropriations Act of 2005 required FS to establish appropriate performance measures for wildland

²⁹ Of the approximately 12,000 wildfires FS fought in 2003 and 2004, 235 fires had costs exceeding \$1 million and accounted for nearly 80 percent of the agency’s suppression expenditures, or about \$1 billion. As was previously noted, we characterized large wildfires as those costing more than \$1 million.

fire suppression and to implement such measures in FY 2006. FS responded by developing interim performance measures that include quantifying the percent of unwanted fires not contained in initial attack that exceed a stratified cost index. This measure, which FS will begin using at the end of the 2006 fire season, is intended to (1) determine which fires fall above and below normal cost parameters, (2) identify the reasons for the lower and higher suppression costs to improve performance, and (3) hold senior officials accountable for controlling fire costs. The stratified cost index, developed using fire characteristics such as size, intensity, values at risk, suppression strategies and resource availability, will potentially allow FS managers to track the cost effectiveness of extended attack activities and thus is a marked improvement over performance measures cited in the 2004-2008 strategic plan.

End-of-Fire-Season Reporting

Wildfire suppression data reported by FS does not sufficiently describe wildfire suppression accomplishments and losses. At the end of each fire season, FS reports the total number of fires, suppression costs, acres burned, and structures lost. This data does not adequately provide policymakers with the information necessary to understand program activities in relation to cost such as the number of residences affected by the fire, the kind of resources threatened and their values, and the communities or critical infrastructure placed at risk. Without this kind of information, the cost effectiveness of FS' wildfire suppression operations is indeterminable. For example, a fire that cost millions of dollars to suppress may have involved only a few hundred acres, but was a cost-effective operation due to the value of the communities and natural resources the fire threatened.

The FS does possess a mechanism that could be used to gather this type of useful information—Individual Fire Reports (FS-5100-29). These reports are completed at the end of each fire and record suppression actions taken by management. The National Interagency Fire Management Integrated Database then consolidates the reports' information to help managers improve program performance.

After determining the kinds of information optimal to assessing firefighting accomplishments and cost effectiveness, FS can add these elements to the report format and summarize them at the end of the year. This type of reporting mechanism will give FS the tools it needs both to evaluate the cost effectiveness of individual fires and to report meaningful accomplishments. To reduce the resources needed to quantify and summarize such data, FS can limit its assessment to fires that surpass a certain dollar threshold. (We determined that while most of FS' fire suppression expenses come from fires that cost over \$1 million,

they only represented 2 percent of fires in 2003 and 1.6 percent of fires in 2004.)

The cost effectiveness of FS wildfire suppression activities has come under intense scrutiny in the last several years. FS has spent over \$1 billion suppressing wildfires in three of the past six fire seasons. These large expenditures have raised questions about the accountability and cost effectiveness of the agency's suppression operations. Without effective performance measures and reporting mechanisms, FS does not have critical information needed to justify and contain its costs. This may partially explain why OMB determined in 2006 that FS lacked procedures to measure and achieve cost efficiencies in fire suppression. We agree with OMB that the information currently reported by FS has limited usefulness to policymakers.

To address the need for more effective assessment tools to evaluate wildfire suppression costs, FS must determine what types of data it needs to track in order to evaluate its cost effectiveness in relationship to its accomplishments. At a minimum, FS needs to quantify and track the number and type of isolated residences and other privately-owned structures affected by the fire, the number and type of natural/cultural resources threatened, and the communities and critical infrastructure placed at risk. FS should also determine and track whether or not it was successful in its protection efforts. Further, FS should modify its individual fire reports to gather this information and summarize it at the end of the fire season. Finally, with OMB guidance, FS must establish a dollar threshold to identify those fires for which it needs to report the additional information described above.

Recommendation 10

Determine what types of data are necessary to track in order to adequately measure and evaluate wildfire suppression accomplishments and cost effectiveness. At a minimum, track for each fire the number and type of isolated residences and other privately-owned structures affected by the fire, the number and type of natural/cultural resources threatened, and the communities and critical infrastructure placed at risk. Also document whether FS was successful in its protection efforts.

Agency Response

As an interim step, FS will modify the current Individual Fire Report to include the categories specified in the above recommendation before the next fire season. However, the agency has some longer-term initiatives being worked on that would more effectively determine the appropriate data and tracking mechanism. These include work already started on the fire report system, Incident Automation and the Wildland Fire Situation Analysis. FS' estimated completion date for this action is October 31, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing its determination on the types of data that needs to be tracked.

Recommendation 11

Modify the Individual Fire Reports (FS-5100-29) to document and track the information determined necessary in Recommendation 10 and summarize and report it at the end of each fire season.

Agency Response

FS will modify the current Individual Fire Report form to capture the data deemed appropriate in Recommendation 10. However, a more comprehensive modification of the Individual Fire Report (or the next generation as determined by the Fire Occurrence Reporting System - FORS Project) will be undertaken once the longer term initiatives mentioned above are completed. FS' estimated completion date for this action is October 31, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the modified Individual Fire Report.

Recommendation 12

With OMB guidance, establish a dollar threshold to determine those fires for which FS needs to track and report the additional information developed in Recommendation 10.

Agency Response

FS will work with OMB to establish the appropriate threshold at which tracking and reporting data to effectively measure and evaluate wildfire suppression accomplishments and effectiveness is warranted. FS' estimated completion date for this action is December 31, 2006.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that a threshold was established.

Finding 5

Controls Were Not Established To Assess Performance of Line Officers and Incident Commanders in Controlling Costs

FS had not established controls to effectively assess the cost implications of line officers' and incident commanders' wildfire suppression decisions. Although line officers are responsible for maintaining financial oversight of a fire and for approving overall expenditures, the actual cost effectiveness of their oversight is neither tracked during the fire, nor evaluated afterwards. Similarly, while incident commanders assume responsibility for using cost-effective means to suppress wildfires when this does not interfere with safety, the cost effectiveness of their tactics are neither routinely nor thoroughly evaluated. Such evaluations did not occur because FS lacked the means to evaluate and compare performances under widely disparate circumstances. Without a decision making process that is documented and tracked, FS cannot hold line officers and incident commanders accountable for their decisions through the evaluation process and identify and promote more effective and cost-efficient strategies and tactics when fighting wildfires.

Under FS policy, the primary criterion for choosing suppression strategies is to minimize costs without compromising safety. Towards that end, FS has developed internal controls to strengthen financial accountability for line officers and incident commanders. Line officers have been made responsible for wildfire financial oversight (which cannot be delegated). Incident commanders also become responsible for managing fire costs effectively when they assume command via a delegation of authority letter from the line officer (though, again, line officers maintain financial oversight).

Although line officers and incident commanders are responsible for containing the costs associated with fighting a fire, FS does not adequately evaluate their success in doing so. FS policy directs that wildfire suppression cost objectives be included as a performance measure in IMT evaluations. However, during our review of active and historical wildfires we concluded that the team evaluations focused on operational efficiencies such as timely deployment of expensive aerial resources, or renegotiating the price of contractual services. While these do relate to the cost of wildfire suppression, they do not address the cost effectiveness of the day-to-day tactics employed by the incident commander who has been made responsible for enacting cost effective measures where safety allows (via delegation),

and whose tactical decisions most immediately affect wildfire suppression expenditures on the ground.

Line officers' duties during the course of a fire are explicitly linked to FS' cost-containment efforts. Line officers ultimately control the cost of the wildfire through their selection of protection objectives and strategies, authorization of expenditure limits, and responsibility for financial oversight. However, the impact of their financial management of a fire is not a significant factor in their evaluations.

As it stands, neither the line officer nor the incident commander are sufficiently evaluated for the performance of cost-containment duties. Further, FS lacks the type of data it needs to develop a fair evaluation. For example, incident commanders do not document the projected cost and probability of success of the tactical decisions they make during a fire, or whether the tactics used enabled FS to achieve its stated objectives. Making the decision-making process more transparent by documenting each tactic's probability of success and cost would enable the line officers to timely consider more cost-effective strategies. Tracking this information would also enable FS to adequately evaluate both the line officer's and incident commander's performance in containing costs and enable FS to identify and promote more cost-effective firefighting strategies and tactics while discouraging ineffective ones.

We discussed the evaluation process with FS officials at the national office who stated that the FS intends to begin using a stratified cost index at the end of the 2006 fire season to increase line officer and incident commander accountability. This index takes into account known fire characteristics that affect expenditures such as fire intensity and suppression strategy, and then uses historical fire costs as a basis for comparison. Fires with actual costs that fall outside normal parameters will be reviewed by national office staff and the results incorporated into line officer and incident commander evaluations.

The stratified cost index appears to be a useful tool for increasing the cost accountability of line officers and incident commanders. We believe this accountability would be further enhanced if the index is used in conjunction with the strategy and tactical assessments discussed above.

Recommendation 13

Determine and track the additional information needed to adequately measure and evaluate the success of day-to-day tactics and strategic decision-making by line officers and incident commanders on a fire in terms of cost effectiveness. At a minimum, track for each fire the line officer's suppression strategy and protection objectives, the tactical decisions that are

made, each tactic's projected cost and probability of success, and whether the tactics used enabled FS to achieve its stated objectives.

Agency Response

A summary form ICS 214 Unit Log can be used to document data currently displayed in the Incident Action Plan, Delegation of Authority and WFSA. This form is compiled daily and will be updated to reflect the strategic and significant tactical decisions summarized in the recommendation above for fires that exceed \$5.0 million. Analysis of the success or failure of specific actions will be accomplished by the Incident Management Team. FS' estimated completion date for this action is April 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 14

Develop incident commander evaluations (based on the information obtained in Recommendation 13 and the stratified cost index) that include performance standards that assess whether the tactics employed represented a cost effective use of resources.

Agency Response

FS, working through its senior leadership groups, will develop a standard incident commander performance evaluation form that will be used to evaluate incident commander performance during an incident. The performance standards will include evaluating the incident commander's cost effective use of resources. FS' estimated completion date for this action is October 31, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the standard incident commander performance evaluation form that it develops.

Recommendation 15

Develop line officer evaluations (based on the information obtained in Recommendation 13 and the stratified cost index) that include performance

standards that assess the line officer's success at maintaining financial oversight and affecting cost containment.

Agency Response

FS will amend the current line officer evaluations to include an additional competency to evaluate the line officer's success at maintaining financial oversight and affecting cost containment. The strategy adopted by the line officer has a significant impact on costs. Therefore, it will also be evaluated as part of the line officer's overall success at affecting cost containment on an incident. FS' estimated completion date for this action is December 31, 2006.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the amended line officer evaluation containing the additional competency.

Finding 6

Wildfire Cost-Containment Review Process Was Ineffective

National and regional cost-containment reviews were not effective. Reviews did not address critical cost drivers, the results of the reviews did not ensure improved performance, and the number of reviews conducted was insufficient. An ineffective cost-containment review process reduces FS' ability to materially improve the cost-effectiveness of its wildfire suppression operations.

Two cost control mechanisms FS developed were national and regional large incident cost-containment reviews. These reviews are assigned at the discretion of the regional forester (for regional cost reviews), or the Associate Deputy Chief for State and Private Forestry (for national reviews). The reviews have overlapping potential triggers (e.g., significant political, social, natural resource, or policy concerns) but the primary differences are that regional reviews can come at the request of a forest supervisor, or when expected or actual expenditures exceed \$2 million, while national reviews can come at a regional forester's request, or when actual or expected costs exceed \$5 million.

We examined six cost-containment reviews conducted during the 2003 and 2004 fire seasons. These consisted of three national and three regional reviews conducted on four wildfires with total suppression costs of about \$70 million, and represented about half of the cost-containment reviews conducted during that period. We found that the reviews had limited effectiveness in identifying and correcting suppression cost inefficiencies

because they (1) did not sufficiently address large cost drivers such as the selection of suppression alternatives and the effectiveness of tactics, (2) did not ensure improved performance because identified problems were not required to be communicated or corrected, and (3) did not occur with sufficient frequency.

Reviews Do Not Sufficiently Address Large Cost Drivers

The six cost-containment reviews we examined did not sufficiently focus on large cost drivers such as the reasonableness of the line officer's protection strategies and the effectiveness of the IMT's tactics, even though both factors are major components of a wildfire's total suppression costs. For example, one national review of a \$21 million wildfire suppression operation noted that the unit's fire management direction allowed a greater range of suppression alternatives and cost-containment measures than those presented to the line officer. The review also noted that WFU was permitted in the unit's fire management plan and was a potentially appropriate response to the fire, but was not considered due to the unit's perception that regional policy prohibited fire use in that area. Yet when the team evaluated the incident's costs with respect to strategic decisions, they did not address the cost implications of these identified issues. The review team also did not address the cost effectiveness of IMT tactics.

In another case, a regional cost-containment review was conducted on a wildfire with total suppression costs of about \$9 million. The fire's wildland fire situation analysis (WFSAs) estimated suppression costs of \$200 per acre. According to the regional review, the fire brought a significant amount of political pressure on the forest supervisor and the incident commander to suppress the fire as quickly as possible due to the presence of State timber, giant sequoias, and the perceived threat to a number of small communities. In response to this pressure, the regional forester issued a letter emphasizing the need to throw "everything but the kitchen sink" at the fire. Accordingly, the fire was fought with much more intense tactics that involved larger and more aggressive use of suppression resources. As a result, FS spent about \$3,000 per acre to contain it, or about 15 times the per acre cost estimated in the WFSAs.

The regional team reviewed the IMT's decisions and concluded that the high costs "were justified." The team did not, however, explain how or why the costs were justified, or address the effectiveness of the team's tactics. Further, since the regional forester's involvement in this incident impacted the team's objectivity, a national review should have been conducted. However, we found no evidence that it was.

The insufficient attention to large cost drivers occurred on a national basis as well. An independent research group contracted by the FS in

2005 to prioritize recommendations made in national and regional cost-containment reviews and other reports concluded that in many cases the review teams appeared to have expended considerable energy to make recommendations that would save fairly small amounts of money, while applying comparatively little attention to very significant cost centers. According to one FS manager, many cost-containment reviews focus on “easy targets” and do not address broad policy questions. Also, review teams are composed of FS staff that lack audit training and may therefore not understand how to identify material operational deficiencies.

Reviews Do Not Ensure Improved Performance

The cost-containment review process did not ensure improved performance because line officers were not required to correct identified problems and because FS did not routinely summarize and report review findings to other FS units. Further, review results are not always communicated to the staff responsible for managing the wildfire. For example, one national review team member told us that he spoke to the wildfire’s deputy incident commander several months after the cost-containment review report was issued. The deputy had never received a copy of the report and was unaware that any review had occurred. This lack of follow-up and accountability for improvement allowed these same, or similar, procedural weaknesses to continue to occur.

Even when FS undertook special efforts to consolidate and analyze the findings contained in various national and regional cost-containment reviews, improvements in wildfire suppression activities still did not occur because the consolidated recommendations and corrective actions were not incorporated into program policies and procedures. In September 2003, FS consolidated findings contained in five national and four regional cost-containment reviews conducted during the 2003 fire season. Some of these consolidated findings and recommended corrective actions had the potential to significantly increase FS’ wildfire suppression effectiveness. However, in our interviews with FS staff we determined that these and other recommendations have not yet been implemented because there was no requirement that they be implemented. As noted later in this finding, the FS recently issued new direction requiring that all recommendations from cost containment reviews be implemented within one year of report issuance.

Not Enough Reviews Are Conducted

FS considers its cost-containment reviews to be an important tool in increasing the accountability of its wildfire suppression expenditures. For example, in the 2002 wildland fire management program assessment conducted by OMB, FS cited its cost-containment reviews as an independent, quality evaluation that supported program improvements

and evaluated effectiveness. The agency also cited cost-containment reviews as a control over FS' wildfire suppression expenditures in its FY 2005 and FY 2007 budget justifications.

The number of cost-containment reviews currently being conducted, however, is not sufficient to improve wildfire suppression cost effectiveness. During FYs 2003 and 2004, FS records showed that only 7 national cost-containment reviews were conducted, and 11 regional reviews (see table below), even though the number of fires exceeding \$2 million (a trigger for regional reviews) and \$5 million (a trigger for national reviews) during that same period numbered 91 and 50, respectively.

Number of Wildfires vs. Cost-Containment Reviews 2003 and 2004 Fire Seasons			
Fire Season	2003	2004	Total
Number of Wildfires Between \$2 and \$5 million	47	44	91
Number of Regional Reviews	7	4	11
Percentage of Total	15%	9%	12%
Number of Wildfires Exceeding \$5 million			
Number of National Reviews	5	2	7
Percentage of Total	13%	18%	14%

As seen in the table above, in 2003 and 2004 the FS reviewed an average of 12 percent of the wildfires with costs between \$2 and \$5 million, and 14 percent of the wildfires exceeding \$5 million. This review frequency is not sufficient to identify program deficiencies and needed corrective actions to improve performance.

We discussed these issues with FS officials at the national office who stated that they formalized the wildfire cost-containment review process in 2003. In the intervening years, they have analyzed the contents of both regional and national reports and also identified weaknesses in the review process. To strengthen the review function, the national office recently issued new direction to its regional offices. The revised wildfire cost-containment review direction requires:

- Regional reviews of all fires exceeding \$5 million, independent panel reviews of all fires exceeding \$10 million, and national office reviews of all fires significantly higher or lower than the statistical average as identified using a stratified cost index.

- Use of a standardized questionnaire that focuses on large cost drivers like strategic and tactical decisions made by line officers and incident commanders.
- Consolidation of individual fire reviews into single year-end regional reports that identify trends with particular emphasis on strategic and tactical decisions made during the fires.
- All recommendations to be addressed and implemented within one year from the date of the report with action plans submitted to the national office.
- National office identification of nationwide trends in areas for improvement as well as innovative or best practices that will be distributed to the regional foresters, forest supervisors and fire directors and posted on internal agency websites.

FS' national office also stated that the agency intends to continuously evaluate the effectiveness of the regional, national, and independent wildfire cost-containment reviews at the end of each fire season and to modify the process as necessary to ensure these controls work as efficiently and effectively as possible.

FS has placed considerable emphasis on containing the costs of its wildfire suppression. The cost-containment reviews are a key control to help FS identify and correct poor performance with respect to cost effectiveness as well as to promote methods that have achieved success in containing costs. The new procedures developed by the FS appear to address the deficiencies we identified. To further enhance the effectiveness of this new review process, FS should formalize the revised procedures in agency directives. FS should also emphasize the need for team members to communicate any significant findings to line officers while the review is being conducted to ensure necessary corrective actions are immediately implemented. Finally, FS should provide some form of audit training to at least one member of each regional and national review team to ensure teams conduct sufficient, independent analysis of fire suppression activities.

Recommendation 16

Formalize newly developed cost-containment review procedures in FS directives.

Agency Response

This is the first year FS used the new cost-containment review procedures. The agency plans to review how well the new procedures worked, identify any weaknesses, and make modifications to improve the process. Once this

has been completed the new procedures will be formalized in FS directives. FS' estimated completion date for this action is June 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the FS directives formalizing the new cost-containment review procedures.

Recommendation 17

Direct cost-containment teams to communicate any significant findings to line officers during the review to affect immediate corrective action.

Agency Response

FS will include this action when it reviews and modifies its cost-containment review procedures for FY 2007. It will be part of the direction that is sent to the field and will also be included in the updated FS directives. FS' estimated completion date for this action is June 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer a copy of the direction it sends to the field and the updated FS directives.

Recommendation 18

Provide audit training to at least one member of each regional and national review team.

Agency Response

FS has identified appropriate training and will ensure that at least one member of each regional and national review team has completed the audit training before the teams begin cost-containment reviews next year. This requirement will also be included in the updated FS directives. FS' estimated completion date for this action is June 30, 2007.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Scope and Methodology

The purpose of our review was to determine the adequacy of FS controls to contain wildfire suppression costs. We also evaluated the impact FS efforts to protect resources on non-Federal lands had on its overall costs. The scope of our review was from FY 2003 to the present.

To accomplish our audit objectives, we performed audit work at the FS Washington Office in Washington, D.C., the National Interagency Fire Center in Boise, Idaho, and at three regional offices and six national forests (see exhibit A). We also reviewed six of the costliest fires from the 2003 and 2004 fire seasons and visited three large active wildfires in Oregon and Montana where costs exceeded \$5 million to observe FS' cost-containment efforts during fire suppression operations (see exhibit B). In addition, we analyzed Incident Status Summaries (ICS-209s) for wildfires occurring in 2003 and 2004 with costs over \$5 million to determine if structure protection was a major objective of the suppression effort. To accomplish this, we reviewed available ICS-209s in an FS database. These ICS 209s provided data for 37 of the 50 wildfires that exceeded \$5 million in 2003 and 2004. The ICS-209s identified the number of homes and communities threatened by each of the 37 wildfires. Fieldwork was performed between June 2005 and June 2006.

Regions 1, 5 and 6 were selected for review because their wildfire expenditures were the highest of all the regions' expenditures in FYs 2003 and 2004. Combined, the wildfire expenditures for the three regions totaled almost 70 percent of the FS' overall wildfire suppression costs in both years. The six national forests were selected because they were administratively responsible for managing the six historical fires we selected for review from the 2003 and 2004 fire seasons. The six historical fires were judgmentally selected based on their cost, the amount of non-Federal resources affected by the fire, and whether other Federal and State organizations were involved in the firefighting effort.

In developing the findings in this report, we performed the following steps and procedures:

At Washington Office

- Reviewed applicable laws, regulations, policies and procedures pertaining to FS' wildland fire suppression program, particularly those relating to cost containment.

- Interviewed key FS Washington Office staff including the Fire and Aviation Management Director to identify and evaluate FS' cost-containment controls.
- Reviewed national statistics on the number and cost of the wildfires FS fought during the 2003 and 2004 fire seasons.
- Evaluated prior reviews, studies, and analysis FS and other Federal and non-Federal entities conducted relating to cost containment.
- Interviewed staff from the Office of General Counsel to ascertain their views on FS' wildfire protection responsibilities.
- Contacted both OMB and USDA's Office of Budget and Program Analysis to obtain their views on FS' cost-containment efforts.

At National Interagency Fire Center

- Interviewed key staff to obtain information about the WFSA process, the role of incident business advisors who are assigned to large fires, and the process for ordering and deploying fire suppression resources.

At Selected Regional Offices (see exhibit A)

- Interviewed key Fire and Aviation Management staff to determine the Region's policies and procedures relating to cost containment including its WUI protection responsibilities, use of wildland fires to reduce excessive fuels, and cost-containment review process. Also contacted staff from two additional FS Regions (Southwestern and Intermountain) to assess the adequacy of the number of fire use teams needed to use wildland fires to reduce excessive fuels.
- Reviewed wildfire protection agreements between FS and non-Federal entities.

At Selected National Forests (see exhibit A)

- Interviewed key Fire and Aviation Management staff including the line officers to determine the National Forest's policies and procedures relating to cost containment including its WUI protection responsibilities, use of wildland fires to reduce excessive fuels, and cost-containment review process.
- Reviewed a judgmental sample of wildfires from the 2003 and 2004 fire seasons to determine whether the selected fires were suppressed in

the most cost efficient manner possible and that cost-containment objectives were met.

At Active Wildfires (see exhibit B)

- Observed FS' wildfire suppression operations on three of FS' largest fires during the 2005 fire season for cost efficiencies.

Our audit was conducted in accordance with generally accepted government auditing standards.

Exhibit A – Audit Sites Visited

AUDIT SITE	LOCATION
FS Washington Office	Washington, DC
National Interagency Fire Center	Boise, ID
<u>Region 1</u> Northern Regional Office Custer National Forest Flathead National Forest	Missoula, MT Billings, MT Kalispell, MT
<u>Region 5</u> Pacific Southwest Regional Office San Bernardino National Forest Mendocino National Forest	Vallejo, CA San Bernardino, CA Willows, CA
<u>Region 6</u> Pacific Northwest Regional Office Deschutes National Forest Wenatchee National Forest	Portland, OR Bend, OR Wenatchee, WA

Exhibit B – Active and Historical Fires Reviewed

FIRE NAME	NATIONAL FOREST
<u>Active Fires</u>	
School Fire	Umatilla National Forest
I-90 Fire	Lolo National Forest
Blossom Complex	Siskiyou National Forest
<u>Historical Fires</u>	
Cathedral Peak Fire	Custer National Forest
Robert Fire	Flathead National Forest
Old Fire	San Bernardino National Forest
Grindstone Complex	Mendocino National Forest
B & B Complex	Deschutes National Forest
Pot Peak/ SiSi Ridge Complex	Okanogan and Wenatchee National Forests

Exhibit C – FS Response to Draft Report



United States
Department of
Agriculture

Forest
Service

Washington
Office

1400 Independence Avenue, SW
Washington, DC 20250

File Code: 5100
Route To:

Date: NOV 16 2006

Subject: Response to the Office of Inspector General (OIG) Draft Audit Report No. 08601-44-SF, Large Fire Suppression Costs

To: Robert W. Young, Assistant Inspector for Audit, Office of the Inspector General

Thank you for the opportunity to review and comment on the official draft of OIG audit report number 08601-44-SF "Large Fire Suppression Costs." The Forest Service takes its large wildfire fiscal responsibilities very seriously. As stated in our spring 2005 letter to OIG requesting this audit, the Forest Service was looking for an objective, unbiased review of our large wildfire management practices. The OIG audit team accomplished this objective and is to be commended for its diligence and persistence in reviewing this very complex subject. The findings and recommendations in this report will assist the Forest Service as it continues to improve its management efficiencies to save taxpayer's dollars while still providing safe and effective suppression of wildfires.

The Agency's response to the audit recommendations is enclosed. If you have any questions on the technical content, please contact Sandy Cantler, F&AM Audit Lead, otherwise, contact Sandy Coleman, Assistant Director, AGO/OIG Audit Liaison Staff at 703-605-4699.


JESSE L. KING
Chief Financial Officer

cc: Sandra Cantler, Art Seggerson



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United States Department of Agriculture
Forest Service (FS)

Office of Inspector General (OIG) Audit Report No. 08601-44-SF
Large Fire Suppression Costs

November 7, 2006

FS Response to Official Draft

OIG Recommendation No. 1: Request clarification from Congress as to the responsibilities of both FS and States in protecting expanding WUI developments and other private properties threatened by wildfires.

FS Response to Recommendation No. 1: The Forest Service will work through its Legislative Affairs Office and Office of General Counsel to attempt to determine if Congressional intent already exists in current laws regarding WUI protection responsibilities. If it does not, the agency will seek to obtain clarification from Congressional committees with Forest Service jurisdiction regarding protection responsibilities in the WUI and on other private properties that are threatened by wildfires.

Estimated Completion Date: April 30, 2007

OIG Recommendation No. 2: If Congress does not expect the FS to continue bearing the financial cost of protecting WUI developments under State and local control, direct each Region to renegotiate WUI protection responsibilities in master protection agreements to ensure the financial cost of WUI protection is equitably and appropriately allocated between FS and its non-Federal partners.

FS Response to Recommendation No. 2: If Congress determines that protection of private property in the WUI is primarily a State responsibility, then the Washington Office will direct each Region to review their master protection agreements and renegotiate WUI protection responsibilities where needed.

Estimated Completion Date: May 31, 2007

OIG Recommendation No. 3: In partnership with other Federal wildland fire management agencies, modify national direction that requires updates of the master protection agreements to require WUI protection responsibilities be periodically assessed and renegotiated. Create incentives to encourage States to enter into new master protection agreements and to help ensure that the master protection agreements are equitable to FS and its non-Federal partners.

FS Response to Recommendation No. 3: The Forest Service will work with its Federal fire management agency partners to establish national direction to determine an appropriate schedule to periodically assess and renegotiate master protection agreements with States. The Forest Service has begun discussions regarding instituting appropriate incentives to encourage States to enter into equitable agreements. The agency will expand these discussions to include our Federal wildland fire management partners and Office of Management and Budget. Any agreed upon incentives will be included in national direction so that they will be considered as each Region renegotiates agreements with States.

Estimated Completion Date: October 31, 2007

OIG Recommendation No. 4: Reiterate the Federal Wildland Fire Management Policy that gives protection of natural resources and property equal consideration.

FS Response to Recommendation No. 4: The Forest Service will issue a letter to Regional Foresters, Forest Supervisors, and Geographic Area Coordination Centers reiterating the 2001 Federal Wildland Fire Management Policy that directs agencies to give equal consideration to natural resources and property when developing a suppression strategy. In addition, this policy was reiterated at the Forest Service Fire Director's meeting in October.

Estimated Completion Date: November 30, 2006

OIG Recommendation No. 5: In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to concurrently manage wildland fire incidents for both suppression and WFU.

FS Response to Recommendation No. 5: The Forest Service will begin working with its Federal and State partners in an attempt to reach agreement and modify the current Federal Wildland Fire Management Policy to reflect the desire to move toward Appropriate Management Response, which allows multiple strategies to be used on a single fire. In addition, the Forest Service will review and modify its own policies to better reflect the principles of Appropriate Management Response.

Estimated Completion Date: April 30, 2007

OIG Recommendation No. 6: In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to move between suppression and WFU tactics as conditions change on an incident.

FS Response to Recommendation No. 6: The policy modifications reflecting Appropriate Management Response under Recommendation 5 will allow FS managers to employ multiple strategies concurrently and move between various tactics as conditions change.

Estimated Completion Date: April 30, 2007

OIG Recommendation No. 7: In conjunction with other Federal wildland fire management agencies, modify current policy to allow FS managers to accomplish and report fuel reductions during wildfire suppression operations.

FS Response to Recommendation No. 7: The Forest Service will work with our Federal wildland fire management partners in an attempt to reach agreement on modifying the current Federal Wildland Fire Management Policy to allow accomplishment and reporting of fuel reductions during wildfire suppression activities. The Forest Service will also review and modify its own policies to allow reporting of hazardous fuel reductions that meet forest plan objectives, regardless of the method under which it was accomplished.

Estimated Completion Date: April 30, 2007

OIG Recommendation No. 8: Prioritize funding to accomplish staffing and training needed to implement an expanded WFU program.

FS Response to Recommendation No. 8: WFU teams and incident management teams are comprised of similar positions, with the exception of two positions, the Long-Term Analyst (LTAN) and the Fire Use Manager (FUMA). The Forest Service recognized the need for a greater number of qualified LTAN positions. It has already taken steps to accomplish the needed staffing and training, including offering the required class more frequently, so that more people can be qualified and available for these important positions. By adding these two positions, when necessary, an IMT has all of the skills needed to manage WFU events.

Estimated Completion Date: November 1, 2006

OIG Recommendation No. 9: Cross-train incident management teams to perform WFU assignments.

FS Response to Recommendation No. 9: As discussed in the previous response, incident management teams already have the expertise available to them through requesting an LTAN and FUMA to assist in managing fires for wildland fire use. The agency will continue to work on increasing capacity by developing the capability of all teams to manage all types of fire events appropriately through increased training opportunities and availability of people with specialized skills.

Estimated Completion Date: November 1, 2006

OIG Recommendation No. 10: Determine what types of data are necessary to track in order to adequately measure and evaluate wildfire suppression accomplishments and cost effectiveness. At a minimum, track for each fire the number and type of isolated residences and other privately-owned structures affected by the fire, and number and type of natural/cultural resources threatened, and the communities and critical infrastructure placed at risk. Also, document whether FS was successful in its protection efforts.

FS Response to Recommendation No. 10: As an interim step, the Forest Service will modify the current Individual Fire Report to include the categories specified in the above recommendation before the next fire season. However, the agency has some longer-term initiatives being worked on that would more effectively determine the appropriate data and tracking mechanism. These include work already started on the fire report system, Incident Automation and the Wildland Fire Situation Analysis.

Estimated Completion Date: October 31, 2007

OIG Recommendation No. 11: Modify the Individual Fire Reports (FS-5100-29) to document and track the information determined necessary in recommendation 10 and summarize and report it at the end of each fire season.

FS Response to Recommendation No. 11: The Forest Service will modify the current Individual Fire Report form to capture the data deemed appropriate in recommendation number 10. However, a more comprehensive modification of the Individual Fire Report (or the next generation as determined by the Fire Occurrence Reporting System – FORS Project) will be undertaken once the longer term initiatives mentioned above are completed.

Estimated Completion Date: October 31, 2007

OIG Recommendation No. 12: With OMB guidance, establish a dollar threshold to determine those fires which FS needs to track and report the additional information developed in recommendation 10.

FS Response to Recommendation 12: The Forest Service will work with OMB to establish the appropriate threshold at which tracking and reporting data to effectively measure and evaluate wildfire suppression accomplishments and effectiveness is warranted.

Estimated Completion Date: December 31, 2006

OIG Recommendation No. 13: Determine and track the additional information needed to adequately measure and evaluate the success of day-to-day tactics and strategic decision-making

by line officers and incident commanders on a fire in terms of cost effectiveness. At a minimum, track for each fire the line officer's suppression strategy and protection objectives, the tactical decisions that are made, each tactic's projected cost and probability of success, and whether the tactics used enabled the FS to achieve its stated objectives.

FS Response to Recommendation No. 13: A summary form ICS 214 Unit Log can be used to document data currently displayed in the Incident Action Plan, Delegation of Authority and WFA. This form is compiled daily and will be updated to reflect the strategic and significant tactical decisions summarized in the recommendation above for fires that exceed \$5.0 million. Analysis of the success or failure of specific actions will be accomplished by the Incident Management Team.

Estimated Completion Date: April 30, 2007

OIG Recommendation 14: Develop incident commander evaluations (based on the information obtained in recommendation 13 and the stratified cost index) that include performance standards that assess whether the tactics employed represented a cost effective use of resources.

FS Response to Recommendation No.14: The Forest Service, working through its senior leadership groups, will develop a standard incident commander performance evaluation form that will be used to evaluate incident commander performance during an incident. The performance standards will include evaluating the incident commander's cost effective use of resources.

Estimated Completion Date: October 31, 2007

OIG Recommendation No. 15: Develop line officer evaluations (based on the information obtained in recommendation 13 and the stratified cost index) that include performance standards that assess the line officer's success at maintaining financial oversight and affecting cost containment.

FS Response to Recommendation 15: The Forest Service will amend the current line officer evaluations to include an additional competency to evaluate the line officer's success at maintaining financial oversight and affecting cost containment. The strategy adopted by the line officer has a significant impact on costs. Therefore, it will also be evaluated as part of the line officers overall success at affecting cost containment on an incident.

Estimated Completion Date: December 31, 2006

OIG Recommendation No. 16: Formalize newly developed cost-containment review procedures in FS directives.

FS Response to Recommendation 16: This is the first year the Forest Service used the new cost-containment review procedures. The agency plans to review how well the new procedures worked, identify any weaknesses, and make modifications to improve the process. Once this has been completed the new procedures will be formalized in the FS directives.

Estimated Completion Date: June 30, 2007

OIG Recommendation No. 17: Direct cost-containment teams to communicate any significant findings to line officers during the review to affect immediate corrective action.

FS Response to Recommendation 17: The Forest Service will include this action when it reviews and modifies its cost-containment review procedures for FY2007. It will be part of the direction that is sent to the field and will also be included in the updated FS directives.

Estimated Completion Date: June 30, 2007

OIG Recommendation No. 18: Provide audit training to at least one member of each regional and national review team.

FS Response to Recommendation 18: The Forest Service has identified appropriate training and will ensure that at least one member of each regional and national review team has completed the audit training before the teams begin cost-containment reviews next year. This requirement will also be included in the updated Forest Service directives.

Estimated Completion Date: June 30, 2007

Informational copies of this report have been distributed to:

Office of the Chief Financial Officer	
Planning and Accountability Division	
Director	(1)
Government Accountability Office	(2)