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Report to the Chairman, Subcommittee on Forests and Forest Health, Committee on Resources, House of Representatives

January 2005

WILDLAND FIRE MANAGEMENT

Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy

GAO-05-147

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GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-05-147, a report to the Chairman, Subcommittee on Forests and Forest Health, Committee on Resources, House of Representatives

Why GAO Did This Study

Over the past two decades, the number of acres burned by wildland fires has surged, often threatening human lives, property, and ecosystems. Past management practices, including a concerted federal policy in the 20th century of suppressing fires to protect communities and ecosystem resources, unintentionally resulted in steady accumulation of dense vegetation that fuels large, intense, wildland fires. While such fires are normal in some ecosystems, in others they can cause catastrophic damage to resources as well as to communities near wildlands known as the wildland-urban interface.

In 1999, GAO recommended that the Forest Service develop a cohesive strategy for responding to wildland fire threats. As a follow-up, 5 years later, GAO was asked to identify the (1) progress the federal government has made in responding to wildland fire threats and (2) challenges it will need to address within the next 5 years.

What GAO Recommends

GAO recommends that the Secretaries of Agriculture and the Interior provide the Congress with a plan outlining the critical steps and time frames for completing a cohesive strategy that identifies the options and funding needed to address wildland fire problems.

Commenting on the draft report, the Forest Service and Interior generally agreed with GAO's findings and recommendation.

www.gao.gov/cgi-bin/getrpt?GAO-05-147.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Robin M. Nazzaro at (202) 512-3841 or nazzaror@gao.gov.

What GAO Found

Over the last 5 years, the Forest Service in the Department of Agriculture and land management agencies in the Department of the Interior, working with the Congress, have made important progress in responding to wildland fires. The agencies have adopted various national strategy documents addressing the need to reduce wildland fire risks; established a priority for protecting communities in the wildland-urban interface; and increased efforts and amounts of funding committed to addressing wildland fire problems, including preparedness, suppression, and fuel reduction on federal lands. In addition, the agencies have begun improving their data and research on wildland fire problems, made progress in developing long-needed fire management plans that identify actions for effectively addressing wildland fire threats at the local level, and improved federal interagency coordination and collaboration with nonfederal partners. The agencies also have strengthened overall accountability for their investments in wildland fire activities by establishing improved performance measures and a framework for monitoring results.

While the agencies have adopted various strategy documents to address the nation's wildland fire problems, none of these documents constitutes a cohesive strategy that explicitly identifies the long-term options and related funding needed to reduce fuels in national forests and rangelands and to respond to wildland fire threats. Both the agencies and the Congress need a comprehensive assessment of the fuel reduction options and related funding needs to determine the most effective and affordable long-term approach for addressing wildland fire problems. Completing a cohesive strategy that identifies long-term options and needed funding will require finishing several efforts now under way, each with its own challenges. The agencies will need to finish planned improvements in a key data and modeling system—LANDFIRE—to more precisely identify the extent and location of wildland fire threats and to better target fuel reduction efforts. In implementing LANDFIRE, the agencies will need more consistent approaches to assessing wildland fire risks, more integrated information systems, and better understanding of the role of climate in wildland fire. In addition, local fire management plans will need to be updated with data from LANDFIRE and from emerging agency research on more cost-effective approaches to reducing fuels. Completing a new system designed to identify the most cost-effective means for allocating fire management budget resources—Fire Program Analysis—may help to better identify long-term options and related funding needs. Without completing these tasks, the agencies will have difficulty determining the extent and location of wildland fire threats, targeting and coordinating their efforts and resources, and resolving wildland fire problems in the most timely and cost-effective manner over the long term.

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Abbreviations

FPA	Fire Program Analysis

GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, D.C. 20548

January 14, 2005

The Honorable Greg Walden
Chairman, Subcommittee on Forests and Forest Health
Committee on Resources
House of Representatives

Dear Mr. Chairman:

The national trend in recent years of increasing wildland fire threats to communities and ecosystems has been continuing. The average number of acres burned by wildland fires annually from 2000 through 2003 was 56 percent greater than the average amount burned annually during the 1990s. While an increase in wildland fires may often be necessary to restore ecosystems, some fires also can cause catastrophic damages to communities and ecosystems. Experts believe that catastrophic damages from wildland fires likely will continue to increase until an adequate long-term federal response, coordinated with others, is implemented and has had time to take effect. In this context, you asked us to report on the progress that the federal government has made over the last 5 years and the key challenges it faces in developing and implementing a response to wildland fire problems.

This report is primarily based on over 25 reviews dealing with federal wildland fire issues that we have conducted in recent years. (App. I lists our reports and testimonies on these reviews.) These reviews focused largely on the activities of the Forest Service in the Department of Agriculture and the land management agencies in the Department of the Interior, which together manage over 95 percent of all federal lands.[1] We also interviewed officials and obtained data from the Forest Service, Interior, Congressional Research Service, Brookings Institution, and National Academy of Public Administration. Appendix II contains a more complete description of our methodology. We conducted our work between May and November 2004 in accordance with generally accepted government auditing standards.

[1]The Interior land management agencies are the Bureau of Land Management, Fish and Wildlife Service, and National Park Service. Also, Interior's Bureau of Indian Affairs participates in federal wildland fire management activities.

Results in Brief

In the past 5 years, the federal government has made important progress in putting into place the basic components of a framework for managing and responding to the nation's wildland fire problems, including

- establishing a priority to protect communities near wildlands—the wildland-urban interface;
- increasing the amount of effort and funds available for addressing wildland fire issues, such as fuel reduction on federal lands;
- improving data and research on wildland fire, local fire management plans, interagency coordination, and collaboration with nonfederal partners; and
- refining its performance measures and results monitoring for wildland fire management.

While the federal government has made important progress to date, many challenges lie ahead for addressing the wildland fire problem in a timely and effective manner. Most notably, the land management agencies need to complete and refine a cohesive strategy that identifies the long-term options and related funding needed to reduce fuels and respond to the nation's wildland fire problems. The agencies and the Congress need such a strategy to help make decisions about an effective and affordable long-term approach for addressing problems that have been decades in the making and will take decades more to resolve. However, to complete and begin implementing such a strategy, the agencies must complete several tasks, each with its own challenges, including

- finishing data systems needed to identify the extent, severity, and location of wildland fire threats to our national forests and rangelands;
- updating local fire management plans to better specify the actions needed to effectively address these threats; and
- identifying long-term implementation options and related funding needed to respond to the wildland fire problems.

Recently, the land management agencies initiated a new wildland fire strategic planning effort that might provide a useful framework for developing a cohesive strategy that includes long-term options and related

funding needed to reduce and maintain fuels at acceptable levels and respond to the nation's wildland fire problems.

We are recommending that the Secretaries of Agriculture and the Interior provide the Congress, in time for its consideration of the agencies' fiscal year 2006 wildland fire management budgets, with a joint tactical plan outlining the critical steps the agencies will take, together with related time frames, to complete a cohesive strategy that identifies long-term options and needed funding for reducing and maintaining fuels at acceptable levels and responding to the nation's wildland fire problems. In responding to a draft of this report, the Forest Service, commenting on behalf of Agriculture, and Interior generally agreed with our findings and recommendation. However, both departments expressed concern about their ability to provide the recommended joint tactical plan in time for the Congress's consideration of their fiscal year 2006 budget requests. The Forest Service's and Interior's comment letters are included in appendixes III and IV, respectively.

Background

Wildland fire triggered by lightning is a natural, inevitable, and necessary ecological process. Such fires periodically consume excess vegetation and renew the productivity of our nation's ecosystems. However, in ecosystems that are adapted to frequent small, low-intensity fires, uncharacteristically large and intense wildland fires increasingly threaten catastrophic damage to such ecosystems. Large intense fires in these and other ecosystems also increasingly threaten human lives, health, property, and infrastructure in the wildland-urban interface.

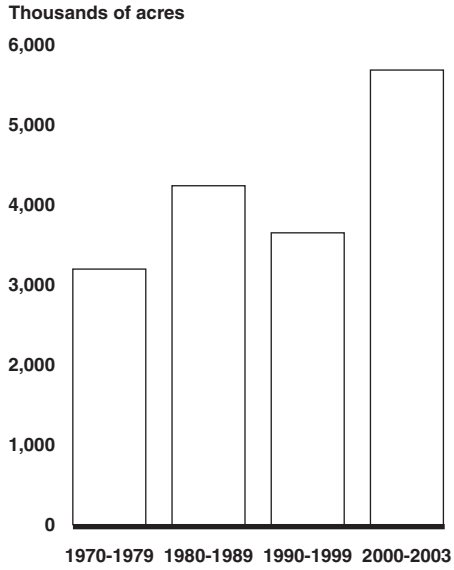
Uncharacteristically large, intense fires often are fueled by abnormally dense accumulations of vegetation in many forest and rangeland ecosystems. This excess vegetation is the result of several human land use and management practices, including several decades of effective fire suppression activities that have reduced the normal frequency of wildland fires that nature had periodically used to clear undergrowth and small trees. This vegetation, in turn, provides abnormally large amounts of fuel for fires, causing some to spread more rapidly, burn larger areas, and burn more intensely than normal. Such uncharacteristic fires are more common in warmer, drier climates such as the interior western United States and during periods of drought. Federal researchers estimate that these vegetative conditions exist on approximately 190 million acres (or more than 40 percent) of federal lands in the contiguous United States, but could

vary from 90 million to 200 million acres, and that these conditions also exist on many nonfederal lands.

Wildland Fire Has Continued to Increase in Recent Years

The acreage burned by wildland fire—after having declined nationally throughout most of the 20th century due to land management practices, including fire suppression—increased in the latter decades of the century. This increase was the result of more large fires, most of which were located in the inland western United States, where many of the forests historically had frequent, smaller, and less intense fires. The trend toward increased acreage burned by wildland fire has continued into the 21st century as illustrated in figure 1. For 2000 through 2003, the average number of acres burned annually on all lands nationally was 56 percent greater than the average acres burned annually during the 1990s.

Figure 1: Average Number of Acres Burned Annually by Wildland Fire in Each Decade Since 1970



Sources: Congressional Research Service and the National Interagency Fire Center.

Increases in Wildland Fire Exposed Weaknesses in the Federal Response

Our reviews over the last 5 years identified several weaknesses in the federal government's management response to wildland fire. Specifically, we found that the land management agencies lacked an effective national strategy to respond to wildland fire, had shortcomings in addressing wildland fire issues at the local level, and had an ineffective system for accounting for wildland fire management efforts and monitoring results.

We noted in a 1999 report that the federal government lacked a national strategy for reducing excessive national forest fuel levels and associated catastrophic wildland fires.[2] Such a strategy was needed by the agencies to address numerous policy, programmatic, and budgetary factors that presented significant barriers to accomplishing fuel reduction goals. Among these barriers were program incentives that tended to focus on areas that may not present the greatest wildland fire hazards and very high costs for removing hazardous fuels. We also reported in 2003 that the Forest Service and Interior had issued national guidance on fuel reduction, but it was not specific enough for prioritizing fuels reduction projects.[3] Lacking such guidance, agencies could not ensure that local land management units were implementing the highest-priority fuels reduction projects nationwide.

Our reviews also found shortcomings in the federal government's implementation at the local level of various wildland fire management activities, such as preparedness, suppression, and rehabilitation.[4] Over half of all local federal land management units had no fire management plans that met the requirements of the 1995 Federal Wildland Fire Management Policy. This national policy, jointly adopted by Agriculture and Interior and updated in 2001, established a goal to restore fire's natural role in ecosystems consistent with human health and safety. The fire management plans are intended to help ensure the effective integration of local wildland fire management activities with planned uses of agencies' lands so that unwanted wildland fire does not impair accomplishment of desired future conditions on these lands. The Forest Service and Interior also lacked basic

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

[3]GAO, *Wildland Fire Management: Additional Actions Required to Better Identify and Prioritize Lands Needing Fuels Reduction*, GAO-03-805 (Washington, D.C.: Aug. 15, 2003).

[4]GAO, *Wildland Fire Management: Improved Planning Will Help Agencies Better Identify Fire-Fighting Preparedness Needs*, GAO-02-158 (Washington, D.C.: Mar. 29, 2002).

data, such as the amount and location of lands needing fuel reduction, and research on the effectiveness of different fuel reduction methods on which to base their fire management plans and specific project decisions. Furthermore, coordination among federal agencies and collaboration of these agencies with nonfederal entities were ineffective. Such coordination and collaboration are needed because wildland fire is a shared problem that transcends land ownership and administrative boundaries, requiring cooperation among all parties.[5]

Finally, we found that better accountability in federal wildland fire management efforts was needed. Although the agencies had begun developing results-oriented performance measures to assess the effectiveness of treatments in reducing the risk of catastrophic wildland fires, they had no baseline from which to assess program performance. They also could not establish any meaningful performance measure and goal for reducing fuels because they lacked sufficient data on the location of lands at high risk of catastrophic fires as well as data on the cost-effectiveness of fuel reduction methods and their effects on other ecosystem resources. In particular, the agencies needed to develop performance measures that would focus their actions on reducing priority hazards and to better monitor the results of those actions.[6]

Important Progress Has Been Made in Addressing Federal Wildland Fire Management Problems over the Last 5 Years

The federal government has made important progress over the last 5 years in improving its management of wildland fire. Nationally, it has worked to formulate a comprehensive strategy, established a priority to protect communities in the wildland-urban interface, and increased funding for wildland fire management activities, including fuels reduction and suppression. At the local level, it enhanced its data and research on wildland fire problems, made significant progress in developing local fire management plans, and improved coordination among federal agencies and collaboration with nonfederal partners. In addition, it strengthened its overall accountability for investments in wildland fire activities by establishing more meaningful goals and performance measures.

[5]GAO, *National Fire Plan: Federal Agencies Are Not Organized to Effectively and Efficiently Implement the Plan*, GAO-01-1022T (Washington, D.C.: July 31, 2001).

[6]GAO/RCED-99-65; GAO-03-805; and GAO, *Wildland Fires: Better Information Needed on Effectiveness of Emergency Stabilization and Rehabilitation Treatments*, GAO-03-430 (Washington, D.C.: Apr. 4, 2003).

Progress in National Strategy: Priorities Have Been Clarified and Funding Has Been Increased for Identified Needs

Over the last 5 years, the federal government has been formulating a strategy known as the National Fire Plan, clarifying its priorities and increasing funding for wildland fire management activities. The National Fire Plan is not a single document. Rather, it is composed of several strategic documents that set forth a priority to reduce wildland fire risks to communities.[7] To address this priority, the agencies, working with the states, identified a list of communities nationwide that are considered most at risk of wildland fire damage. While the recently enacted Healthy Forests Restoration Act of 2003 addresses risks to both communities and ecosystems, it emphasizes a priority for protecting wildland-urban interface communities by directing that at least 50 percent of funding for fuel reduction projects authorized under the act be allocated to wildland-urban interface areas.[8] Although we have raised concerns about how the agencies have defined these interface areas, the accuracy and process they used in designating these communities and wildland-urban interface areas, and the specificity of their prioritization guidance, the act's clarification of the priority for protecting communities provides a starting point for identifying and prioritizing funding needs.[9]

Forest Service and Interior appropriations for fuel reductions, as well as for other wildland fire management activities such as preparedness and suppression, have increased substantially over the past 5 years. In 1999, the Forest Service had not requested increased funding to meet the growing fuel reduction needs it had identified.[10] As shown in table 1, overall appropriations for wildland fire management activities for both the Forest Service and Interior have nearly tripled in the past 5 years, from about $1 billion in fiscal year 1999 to over $2.7 billion in fiscal year 2004. While these increases include significant amounts for unanticipated suppression costs

[7]The various documents that make up the National Fire Plan include (1) a September 2000 report from the Secretaries of Agriculture and the Interior to the President in response to the wildland fires of 2000, (2) congressional direction accompanying substantial new appropriations in fiscal year 2001, and (3) several approved and draft strategies to implement all or parts of the plan. For a description of these strategy documents, including the National Fire Plan, and their contents, goals, and relationships to one another, see GAO, *Severe Wildland Fires: Leadership and Accountability Needed to Reduce Risks to Communities and Resources*, GAO-02-259 (Washington, D.C.: Jan. 31, 2002).

[8]Pub. L. No. 108-148, 117 Stat. 1887 (2003).

[9]GAO-02-259 and GAO-03-805.

[10]GAO/RCED-99-65.

and preparedness funding, fuel reduction funding has quadrupled since 1999.

Table 1: Appropriations to Wildland Fire Management Accounts, Fiscal Years 1999 through 2005 (million of dollars)

	Fiscal years						
	1999	2000	2001	2002	2003	2004 (enacted)	2005 (requested)
Fuel reduction	$98.8	$117.0	$400.1	$395.2	$422.3	$442.2	$475.5
Preparedness	522.7	561.3	887.9	875.7	867.2	925.8	920.9
Suppression	276.8	297.3	472.4	382.7	577.3	790	906.9
Emergency funds	152.0	590.0	624.6	320.0	1114.0	397.6	0.0
Site rehabilitation	0.0	20.0	246.6	82.7	26.9	31.1	27.3
Nonfederal land protection	0.0	0.0	118.5	87.1	89.3	69.1	47.2
Other fire management appropriations[a]	9.0	13.3	109.8	95.4	68.1	74.7	60.4
Total[b]	**$1,059.3**	**$1,598.9**	**$2,859.9**	**$2,238.8**	**$3,165.1**	**$2,730.6**	**$2,438.2**

Source: Congressional Research Service.

[a]Includes appropriations for research, fire facilities, and forest health.

[b]Figures may not add because of rounding.

Additionally, through the Healthy Forests Restoration Act of 2003, the Congress authorized $760 million per year to be appropriated for hazardous fuels reduction activities, including projects for reducing fuels on up to 20 million acres of land.

Progress in Local Implementation: Data and Research, Fire Management Planning, and Coordination and Collaboration Have Been Strengthened

The federal government also has improved the implementation of its wildland fire management activities at the local level. In particular, significant improvements in federal data and research on wildland fires have been made during the past 5 years. In 1999, the federal government lacked adequate data on the location and extent of hazardous fuels to use in selecting and designing fuel reduction projects.[11] Since then, the agencies have jointly completed a mapping of fuels nationwide that classifies lands by differing fuel hazard levels. Although this mapping is not done at a small enough geographic scale to support decisions on the

[11]GAO/RCED-99-65.

location and design of individual fuel reduction projects, it nevertheless represents a significant improvement over the information that was available in the past.

In 2003, Agriculture and Interior approved funding for development of a geospatial data and modeling system, called LANDFIRE, to identify wildland fire hazards with more precision and uniformity than the existing hazardous fuels mapping and to enable comparisons of conditions between different field locations nationwide. When operational, LANDFIRE data and enhanced models of likely fire behavior thus will help identify the nature and magnitude of the wildland fire risks confronting numerous community and ecosystem resources, such as residential and commercial structures, species habitat, air and water quality, and soils. The agencies plan to use this information to better support their strategic decisions on preparedness, suppression, the location and design of fuel reduction projects, and other land management activities. Initial results from LANDFIRE have been promising. For example, a Forest Service official, who had used LANDFIRE to choose an approach for suppressing a fire in an area of Montana where the prototype system was developed, said he found it much better at identifying suppression options and their consequences than any other currently available data. LANDFIRE—estimated to cost $40 million—is scheduled for nationwide implementation in 2009.

Local fire management planning also has been strengthened. As we reported in 2002, over half of the agencies' land management units had not completed local fire management plans in accordance with the 1995 federal wildland fire management policy.[12] They subsequently adopted an expedited schedule to complete all of these plans in 2004, and agency officials told us that they believed they would meet this schedule. The agencies also adopted a common interagency template for preparing these plans to ensure greater consistency in their contents.

Other critical improvements have been made in coordination among federal agencies responsible for wildland fire management and in collaboration with nonfederal partners.[13] In 2001, as a result of

[12]GAO-02-158.

[13]GAO-02-259; and *Managing Wildland Fire: Enhancing Capacity to Implement the Federal Interagency Policy*, a report by the National Academy of Public Administration for the Department of the Interior, December 2001.

congressional direction to the agencies to involve the states as full partners in their efforts, Agriculture and Interior jointly adopted a 10-Year Comprehensive Strategy with the Western Governors Association.[14] This strategy, and an implementation plan adopted in 2002, detail goals, time lines, and responsibilities of the different parties for various actions related to a wide range of activities, including collaboration at the local level to identify fuel reduction priorities in different areas. Also, in 2002, the agencies established an interagency organizational body, the Wildland Fire Leadership Council, to improve coordination of their activities with each other and with nonfederal parties. The council is composed of senior Agriculture and Interior officials and nonfederal representatives. The council meets regularly to provide policy direction on a wide range of issues and decisions to foster necessary coordination and consistency among federal approaches, activities, and funding of various efforts.

Progress in Accountability: Better Performance Measures and a Results Monitoring Framework Have Been Developed

The federal government also made progress in accounting for the results it achieves from its investments in wildland fire management activities. In 1999, the Forest Service's performance measure for fuel reductions, which measured only the total acres of fuel reductions accomplished, created an incentive to treat less costly acres rather than the acres that presented the greatest hazards.[15] To rectify this shortcoming, the agencies adopted a performance measure that identifies the amount of acres moved from high-hazard to low-hazard fuel conditions. This measure will allow them to better determine the extent to which their fuel reduction efforts accomplish the key goal of reducing risks to communities and ecosystems.

The agencies also made progress in developing a system to monitor the effects of wildland fires. Without such information, they cannot determine the nature of threats or the likely effectiveness of different actions taken to address threats. In May 2004, the Wildland Fire Leadership Council approved a nationwide monitoring framework for wildland fire data, including data on fire severity that may help address this problem. While we also have said that an implementation plan for this monitoring framework is needed, the adoption of the framework nonetheless

[14]Departments of Agriculture and the Interior and the Western Governors Association, *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy* (Washington, D.C., August 2001).

[15]GAO/RCED-99-65.

represents a critical step toward enhancing wildland fire management accountability for results.[16]

Agencies Face Several Challenges to Completing a Long-Needed Cohesive Strategy for Reducing Fuels and Responding to Wildland Fire Problems

While federal land management agencies have made important progress over the past 5 years in addressing wildland fire management issues, they continue to face a number of challenges that will need to be met if they are to complete development of a cohesive strategy that explicitly identifies available long-term options and funding needed to reduce fuels on national forests and rangelands and respond to the nation's wildland fire threats. The nation's wildland fire problems have been decades in the making and will take decades more to resolve. Without a cohesive strategy and better data, agencies will have difficulty determining the extent and severity of the wildland fire problem, targeting and coordinating their efforts and resources, and resolving the problem in a timely and cost-effective manner. Moreover, without such a strategy and better data, the Congress will not have reliable information on when, how, and at what cost wildland fire problems can be brought under control.

The federal government's strategy documents adopted thus far, such as those associated with the National Fire Plan, establish a good framework for addressing our nation's wildland fire problems, but these documents still need to identify the long-term options and funding needed to reduce and maintain fuels at acceptable levels. A clear understanding of the options and funding needs are essential to both the agencies and the Congress for determining the most effective and affordable approach. However, the agencies are not currently in a position to develop these options and identify related funding needs with any precision or reliability because they need to complete several steps, each with its own challenges. These steps include (1) completing and implementing the LANDFIRE data and modeling system so that the extent and location of wildland fire threats are more precisely known, (2) updating local fire management plans with more precise LANDFIRE information and the latest research so that the most promising wildland fire management practices are included to effectively address wildland fire threats, and (3) based on these plans, identifying the various national options and related funding needed to reduce fuels and respond to wildland fire threats. Recently, the agencies

[16]GAO, *Wildland Fires: Forest Service and BLM Need Better Information and a Systematic Approach for Assessing the Risks of Environmental Effects*, GAO-04-705 (Washington, D.C.: June 24, 2004).

began an assessment of wildland fire threats that may provide a useful framework for completing a long-needed cohesive wildland fire management strategy.

Completing and Implementing the LANDFIRE System Is Essential to Identifying and Addressing Wildland Fire Threats

LANDFIRE is critical to identifying and addressing wildland fire threats to communities and ecosystems, but the agencies face several challenges completing and implementing LANDFIRE. The agencies need LANDFIRE to more precisely identify the extent and location of wildland fire threats and better target fuel reduction efforts. LANDFIRE is also needed to better reconcile the effects of fuel reduction activities with the agencies' other stewardship responsibilities for protecting ecosystem resources, such as air, water, soils, and species habitat. Fuel reduction activities, such as controlled burning or mechanical treatments (using chainsaws and heavy equipment), can adversely affect these ecosystem resources if not done at the proper time and place. For example, mechanically removing fuels with heavy equipment can adversely affect wildlife habitat and water quality in many areas and controlled burning can cause air quality problems. The agencies also need LANDFIRE to help them better measure and assess their performance. For example, such data will enable the agencies to better identify the relative importance of reducing fuels on the highest-hazard lands versus maintaining conditions on low-hazard lands. As we have noted, a separate performance measure for maintaining conditions on these low-hazard lands is important so that their conditions do not deteriorate to more hazardous conditions while funding is being focused on lands with high-hazard conditions.[17]

The agencies, however, face several challenges in implementing LANDFIRE. As we recently reported, the agencies lack a consistent approach to assessing the risks of wildland fires to ecosystem resources[18] and an integrated, strategic, and unified approach to managing and using information systems and data, including those such as LANDFIRE, in wildland fire decision making. Currently, software, data standards, equipment, and training vary among the agencies and field units in ways that hamper needed sharing and consistent application of the data.[19]

[17]GAO-03-805.

[18]GAO-04-705.

[19]GAO, *Geospatial Information: Technologies Hold Promise for Wildland Fire Management, but Challenges Remain*, GAO-03-1047 (Washington, D.C.: Sept. 23, 2003).

Although the Wildland Fire Leadership Council has recently chartered a National Wildfire Enterprise Architecture Steering Group to implement an action plan for more effectively sharing and using these data, these system and implementation problems are not yet resolved.

Moreover, the agencies may have to re-examine the LANDFIRE data and models before implementing them. Recent research suggests that the effects of climate change on wildland fire might more adversely affect the nature, extent, and geographical distribution of hazards identified in LANDFIRE, as well as the costs for addressing them, than previously understood. In August 2004, a panel—appointed by the Wildland Fire Leadership Council to investigate escalating suppression costs—reported that recent agency research suggested that climate change could have significant implications for the occurrence of wildland fire and the costs required to contain it.[20] The research suggests that part of the recent increase in wildland fire has been caused by a shift in climate patterns, and that this new pattern may likely continue for decades, resulting in further increases in the amount of accumulated vegetation consumed nationally by wildland fire.

Fire Management Plans Will Need to Be Updated with Latest Data and Research on Wildland Fire

Incorporating LANDFIRE data and recent research on addressing wildland fire threats into local fire management plans will be central to completing a cohesive long-term fuels reduction strategy. The fire management plans are important for identifying the fuel reduction, preparedness, suppression, and rehabilitation actions needed at the local level to more effectively address wildland fire threats. While these plans now are all scheduled for completion in December 2004, they will be based on outdated data once LANDFIRE is available. To improve the accuracy and usefulness of these plans, the agencies will need to update them when more detailed, nationally consistent LANDFIRE data become available within 5 years. The Forest Service indicated that this updating could occur during the agency's annual review of fire management plans to determine whether any changes to plans may be needed.

The agencies also will need to update their local fire management plans with recent agency research on the best approaches for more effectively

[20]"Large Fire Suppression Costs: Strategies for Cost Management," a report of the Strategic Issues Panel on Large Fire Suppression Costs, Wildland Fire Leadership Council, August 26, 2004.

addressing wildland fire threats. For example, a 2002 interagency analysis found that protecting wildland-urban interface communities more effectively—as well as more cost-effectively—might require locating a higher proportion of fuel reduction projects outside of the wildland-urban interface than currently envisioned, so that fires originating in the wildlands do not become too large to suppress by the time they arrive at the interface.[21] Additionally, other agency research being field-tested in California and elsewhere suggests that placing fuel reduction treatments in specific geometric patterns can more effectively reduce the spread rate and intensity of wildland fires. As a result, agency officials believe the approach could provide more protection across the landscape than other approaches to locating and designing treatments, such as placing fuel breaks around communities and ecosystems resources. Moreover, these geometric fuel reduction patterns, because they are more efficient, reportedly may provide protection for up to three times as many community and ecosystem resources as other approaches do for the same cost.[22]

Identifying Long-Term Fuel Reduction Options and Needed Funding Is Key to Completing a Cohesive Strategy

As LANDFIRE is developed and fire management plans are updated, the agencies should become better positioned to formulate and communicate to the Congress a cohesive, long-term federal strategy that identifies various options and the related funding needed to reduce fuels and respond to our nation's wildland fire problems. The agencies have several efforts under way that should help them identify these options and funding needs.

In 2002, a team of Forest Service and Interior experts produced an estimate of the funds needed to implement eight different fuel reduction options for protecting communities and ecosystems across the nation over the next century. Their analysis also considered the impacts of fuels reduction activities on likely future costs for other principal wildland fire management activities, such as preparedness, suppression and

[21]Hann, Wendell et al., *A Cohesive Strategy for Protecting People and Sustaining Natural Resources: Predicting Outcomes for Program Options* (a paper presented at the Fire, Fuel Treatments, and Ecological Restoration Conference, a meeting of national wildland fire experts convened by the Forest Service's Rocky Mountain Research Station, Fort Collins, Colorado, April 2002).

[22]Mark A. Finney, "Design of Regular Landscape Fuel Treatment Patterns for Modifying Fire Growth and Behavior," *Forest Science*, vol. 47, no. 2 (May 2001).

rehabilitation, if fuels were not reduced.[23] The team concluded that reducing the risks to communities and ecosystems across the nation could require an approximate tripling of current fuel reduction funding to about $1.4 billion for an initial period of a few years. These initially higher costs would decline after fuels had been reduced enough to use less expensive controlled burning methods in many areas and more fires could be suppressed at lower cost, with total wildland fire management costs, as well as risks, being reduced after 15 years. Alternatively, the team said that not making a substantial short-term investment using a landscape focus could increase costs, as well as risks to communities and ecosystems, in the long term. More recently, however, Interior has said that the costs and time required to reverse current increasing risks may be less when other vegetation management activities are considered that were not included in the interagency team's original assessment but also can influence wildland fire. The interagency experts said their estimates of long-term costs could only be considered an approximation because the data used for their national-level analysis were not sufficiently detailed. They said a more accurate estimate of the long-term federal costs and consequences of different options nationwide would require applying this national analysis framework in smaller geographic areas using more detailed data, such as that produced by LANDFIRE, and then aggregating these smaller-scale results.

Agency officials told us that another management system under development—Fire Program Analysis (FPA)—also could be used to help identify long-term fuel reduction options and related funding needs. FPA, which is being developed in response to a congressional committee direction to improve budget allocation tools,[24] is designed to identify the most cost-effective allocations of annual preparedness funding for implementing agency field units' local fire management plans. Eventually, FPA will use LANDFIRE data and provide a smaller geographical scale for analyses of fuel reduction options. Thus, like LANDFIRE, FPA will be critical for updating fire management plans. Officials said that the FPA preparedness budget allocation system—when integrated with an additional component that is now being considered for allocating annual fuel reduction funding—could be instrumental in identifying the most cost-effective long-term levels, mixes, and scheduling of these two wildland

[23]Hann et al., *A Cohesive Strategy.*

[24]GAO-02-158.

fire management activities. The agencies began training employees in October 2004 for initial implementation of the preparedness budget component in February 2005. However, completely developing FPA, including the fuel reduction funding component, is expected to cost about $40 million and take until at least 2007 and perhaps as long as 2009.

Finally, in May 2004, Agriculture and Interior began the initial phase of a wildland fire strategic planning effort that also might contribute to identifying long-term options and needed funding for reducing fuels and responding to the nation's wildland fire problems. This effort—the Quadrennial Fire and Fuels Review—is intended to result in an overall federal interagency strategic planning document for wildland fire management and risk reduction and to provide a blueprint for developing affordable and integrated fire preparedness, fuels reduction, and fire suppression programs. Because of this effort's consideration of affordability, it may provide a useful framework for developing a cohesive strategy that includes identifying long-term options and related funding needs. The preliminary planning and analysis phases of this effort are scheduled to be completed in December 2004, followed by an initial report expected in March 2005.

Conclusions

In our initial reporting on the wildland fire problem 5 years ago, we concluded that it would take many years for the federal government to successfully address all of the complex management challenges that wildland fire presents. Accordingly, as expected, much important work remains to be done. Nevertheless, federal agencies over the last 5 years have laid a sound foundation for success, including initial data development and planning and establishing a constructive, collaborative dialogue with the states and others. This foundation will be important for meeting the key challenges the agencies face in completing a cohesive strategy for addressing the nation's wildland fire problems.

If the agencies' progress to date toward developing a cohesive strategy is to be of enduring value, the agencies will need to complete ongoing efforts such as LANDFIRE, research, and local fire management plans. The agencies need the results of these ongoing efforts so that they can develop a sufficiently detailed blueprint of the various available and realistic long-term options and related funding needed for addressing our nation's wildland fire problems. Without such a blueprint, wildland fire will likely pose increasing risks to not only the nation's communities and ecosystems, but also to tens of billions of dollars of federal budgetary resources that

will be spent to respond to wildland fire over the coming decades. If these budgetary resources are not cost-effectively applied, then the risks to communities and ecosystems will not be reduced as much as intended or in ways that are needed and desired. Critical to determining cost-effectiveness will be understanding the optimal timing of appropriation investments over the long term. Thus, a focus on long-term options and their costs provides necessary realism about available choices for protecting communities and ecosystems and required cohesiveness among the actions needed to implement them. Conversely, without such a long-term focus, agencies cannot ensure that the numerous collaborative efforts they undertake locally each year will add up to a cost-effective, affordable, long-term national solution.

To date there have been no clear actions or a commitment by the agencies to explicitly identify and communicate to the Congress long-term options and the funding needed to pursue them. In order for the Congress to make informed decisions about effective and affordable long-term approaches for addressing our nation's wildland fire problems, it should have, as soon as possible, a broad range of long-term options and related funding needed to reduce and maintain wildland fuels at acceptable levels and respond to wildland fire threats.

Recommendation for Executive Action

We recommend that the Secretaries of Agriculture and the Interior provide the Congress, in time for its consideration of the agencies' fiscal year 2006 wildland fire management budgets, with a joint tactical plan outlining the critical steps the agencies will take, together with related time frames, to complete a cohesive strategy that identifies long-term options and needed funding for reducing and maintaining fuels at acceptable levels and responding to the nation's wildland fire problems.

Agency Comments and Our Evaluation

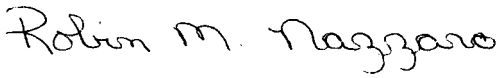
We received written comments on a draft of this report from the Forest Service on behalf of Agriculture and from Interior. Both departments generally concurred with our findings and recommendation, but expressed concern about the time frame within which we recommended they provide the Congress with a joint tactical plan for completing a cohesive strategy to respond to wildland fire problems. We did not change our recommendation because we believe that the departments misunderstood this time frame and what we recommended that they provide within this period. The departments also provided technical comments that we have incorporated

into the report, as appropriate. The Forest Service's and Interior's letters are included in appendixes III and IV, respectively, together with our evaluation of them.

As arranged with your office, unless you publicly announce the contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies of this report to other interested congressional committees. We also will send copies to the Secretaries of Agriculture and the Interior and the Chief of the Forest Service. We will make copies available to others upon request. In addition, this report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have questions about this report, please contact me at (202) 512-3841 or at nazzaror@gao.gov or David Bixler at (202) 512-7201 or bixlerd@gao.gov. Key contributors to this report are listed in appendix V.

Sincerely yours,



Robin M. Nazzaro
Director, Natural Resources
and Environment

GAO Products Related to Federal Wildland Fire Management

Wildland Fires: Forest Service and BLM Need Better Information and a Systematic Approach for Assessing the Risks of Environmental Effects. GAO-04-705. Washington, D.C.: June 24, 2004.

Federal Land Management: Additional Guidance on Community Involvement Could Enhance Effectiveness of Stewardship Contracting. GAO-04-652. Washington, D.C.: June 14, 2004.

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

Biscuit Fire: Analysis of Fire Response, Resource Availability, and Personnel Certification Standards. GAO-04-426. Washington, D.C.: April 12, 2004.

Forest Service: Information on Appeals and Litigation Involving Fuel Reduction Activities. GAO-04-52. Washington, D.C.: October 24, 2003.

Geospatial Information: Technologies Hold Promise for Wildland Fire Management, but Challenges Remain. GAO-03-1047. Washington, D.C.: September 23, 2003.

Wildland Fire Management: Additional Actions Required to Better Identify and Prioritize Lands Needing Fuels Reduction. GAO-03-805. Washington, D.C.: August 15, 2003.

Wildland Fires: Forest Service's Removal of Timber Burned by Wildland Fires. GAO-03-808R. Washington, D.C.: July 10, 2003.

Wildland Fires: Better Information Needed on Effectiveness of Emergency Stabilization and Rehabilitation Treatments. GAO-03-430. Washington, D.C.: April 4, 2003.

Results-Oriented Management: Agency Crosscutting Actions and Plans in Border Control, Flood Mitigation and Insurance, Wetlands, and Wildland Fire Management. GAO-03-321. Washington, D.C.: December 20, 2002.

Wildland Fire Management: Reducing the Threat of Wildland Fires Requires Sustained and Coordinated Effort. GAO-02-843T. Washington, D.C: June 13, 2002.

Wildland Fire Management: Improved Planning Will Help Agencies Better Identify Fire-Fighting Preparedness Needs. GAO-02-158. Washington, D.C.: March 29, 2002.

Severe Wildland Fires: Leadership and Accountability Needed to Reduce Risks to Communities and Resources. GAO-02-259. Washington, D.C.: January 31, 2002.

The National Fire Plan: Federal Agencies Are Not Organized to Effectively and Efficiently Implement the Plan. GAO-01-1022T. Washington, D.C.: July 31, 2001.

Forest Service Roadless Areas: Potential Impact of Proposed Regulations on Ecological Sustainability. GAO-01-47. Washington, D.C.: November 8, 2000.

Reducing Wildfire Threats: Funds Should be Targeted to the Highest Risk Areas. GAO/T-RCED-00-296. Washington, D.C.: September 13, 2000.

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

Fire Management: Lessons Learned from the Cerro Grande (Los Alamos) Fire. GAO/T-RCED-00-257. Washington, D.C.: August 14, 2000.

Forest Service: Actions Needed for the Agency to Become More Accountable for Its Performance. GAO/T-RCED-00-236. Washington, D.C.: June 29, 2000.

Park Service: Agency Is Not Meeting Its Structural Fire Safety Responsibilities. GAO/RCED-00-154. Washington, D.C.: May 22, 2000.

Forest Service: A Framework for Improving Accountability. GAO/RCED/AIMD-00-2. Washington, D.C.: October 13, 1999.

Federal Wildfire Activities: Issues Needing Future Attention. GAO/T-RCED-99-282. Washington, D.C.: September 14, 1999.

Federal Wildfire Activities: Current Strategy and Issues Needing Attention. GAO/RCED-99-233. Washington, D.C.: August 13, 1999.

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

Forest Service Priorities: Evolving Mission Favors Resource Protection over Production. GAO/RCED-99-166. Washington, D.C.: June 17, 1999.

Western National Forests: A Cohesive Strategy Is Needed to Address Catastrophic Wildfire Threats. GAO/RCED-99-65. Washington, D.C.: April 2, 1999.

Scope and Methodology

To identify the progress that federal land management agencies have made in addressing the threat posed by wildland fires over the past 5 years and the challenges that remain over the next 5 years, we reviewed past GAO, Congressional Research Service, and National Academy of Public Administration reports on wildland fires. We interviewed officials from the Forest Service and Department of the Interior agencies that are responsible for wildland fire management and obtained data on acres burned from the National Interagency Fire Center in Boise, Idaho. We also interviewed and obtained data from Forest Service and Interior officials responsible for developing long-term fuel treatment options and costs, LANDFIRE, the Fire Program Analysis system, climate change estimates, fire management plans, performance measures, and the Quadrennial Fire and Fuels Review. In addition, we interviewed officials and obtained data from the National Academy of Public Administration and the Brookings Institution. We conducted our work between May 2004 and November 2004 in accordance with generally accepted government auditing standards.

Comments from the Department of Agriculture

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

United States Department of Agriculture | Forest Service | Washington Office | 14th & Independence SW, P.O. Box 96090, Washington, DC 20090-6090

File Code: 1310/1930
Date: December 10, 2004

Mr. Barry T. Hill
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Hill:

Thank you for the opportunity to review and comment on the draft Government Accountability Office (GAO) Report, GAO-05-147, "Wildland Fire Management: Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy." Overall, the report correctly recognizes that important progress has been made in addressing wildland fire management issues. However, it should be noted that the progress has occurred during the last four years, not five as the report indicates. While the cohesive strategy was completed in 1999, significant progress was only possible with the passage of the 2001 appropriations.

See comment 1.

Notably, GAO acknowledges that priorities have been clarified and funding increased for identified needs; coordination and collaboration strengthened; and better performance measures and results monitoring framework have been developed. The report also identifies three components that GAO considers key to long term success for wildland fire management: completing and implementing LANDFIRE; updating Fire Management Plans with latest data and research; and identifying long term fuel reduction options and needed funding as part of a cohesive strategy.

The report makes several specific points that the Forest Service would like to see clarified.

See comment 2.

- Under the heading "Increases in Wildland Fire Exposed Weaknesses in the Federal Response," the GAO comments that the Forest Service and Interior had issued no specific national level guidance on the prioritization of treatments, based upon a 2003 GAO report. However, the Chief of the Forest Service and the DOI Assistant Secretary for Policy Management and Budget issued national direction in January 2003, to establish a collaborative process for prioritization and selection of fuel treatment projects for 2004.

See comment 3.

- The section "Progress in Local Implementation: Data and Research, Fire Management Planning and Coordination and Collaboration Have Been Strengthened" includes a statement that requires clarification of several points. The report states that LANDFIRE "will help identify numerous community and ecosystem resources at risk from wildland fire such as residential and commercial structures, species habitat, air and water quality, and soils and enhanced models of likely fire behavior to better identify the nature of these risks." However, because LANDFIRE will produce data at a 30-meter resolution, the data is better suited to inform strategic decisions about fire, fuels and other land management activities.

See comment 4.

- Under the section "Fire Management Plans Will Need to Be Updated with Latest Data and Research on Wildland Fire," the report states that "agencies have yet to establish a schedule or procedures for updating fire management plans to incorporate the LANDFIRE data and models." However, all Fire Management Plans are reviewed on a yearly basis to determine whether any changes may be needed. Therefore, it will be unnecessary to develop a separate schedule or procedure to update the Fire Management Plans with LANDFIRE data and models.

See comment 5.

Finally, the report recommends that the Secretaries provide Congress a joint tactical plan that identifies long term options and needed funding for reducing and maintaining fuels at acceptable levels in time for the FY 2006 budget considerations. While the Forest Service concurs with the premise of the recommendation, there is simply insufficient time to develop a tactical plan as described in the report. Two of the essential elements for such a plan, LANDFIRE and Fire Program Analysis (FPA), are still under development. Ground verification and collaborative interagency involvement at the field level to ensure accuracy and usefulness, are just beginning. A better alternative is to let the LANDFIRE and FPA processes become more fully operational. Assuming there are no major problems encountered with implementation of the two elements, producing a plan such as GAO suggests may be possible in time for the 2007 budget.

Again, we thank GAO for the fair and balanced review of the progress made to date in Federal wildland fire management. If you have any questions, please contact Sandy Coleman, Agency Audit Liaison, at (703) 605-4940

Sincerely,

Dale N. Bosworth

DALE N. BOSWORTH
Chief

cc: Jesse L. King, Sandra Cantler, Sandy T. Coleman and Christine Roye

The following are GAO's comments on the USDA Forest Service's letter dated December 10, 2005.

GAO Comments

1. We did not change our characterization of the period over which progress was made because efforts made earlier than 4 years ago provided an important basis for subsequent progress, including (1) the September 8, 2000, report to the President from the Secretaries of Agriculture and the Interior that was used to inform the 2001 appropriation request and (2) the Forest Service's formulation of its own fuel reduction strategy that was initiated in 1999.

2. We clarified the language of our report to make clearer our meaning that, although national guidance was issued, this guidance—as we have previously reported—was not specific enough for prioritizing fuels reduction projects.

3. We clarified the language in our report to make clearer our meaning that, by identifying landscape fuel hazards, LANDFIRE will help identify the risks to those resources.

4. We have included this observation in our report. However, we note that the agencies will need to ensure this is done because of (1) the likely impacts that the LANDFIRE and FPA systems will have on the fire management plans, (2) the importance of the plans for identifying aggregate national fuel reduction options and costs, and (3) agencies' past failures to keep these plans up-to-date, as our report notes.

5. We did not recommend that the long-term options and associated costs be identified in the joint tactical plan. Rather, we said that this joint tactical plan should specify the steps and related time frames that the agencies will take in completing a cohesive strategy containing options and costs. In addition, we did not recommend that the joint tactical plan be provided concurrently with the agencies' fiscal year 2006 budget submissions, but only that it be provided in time for the Congress's deliberation of the agencies' appropriations for fiscal year 2006. Should the agencies subsequently identify adjustments that need to be made to the tactical plan because of evolving LANDFIRE and FPA processes, they can so inform the Congress of those adjustments and the reasons for them. Because this is a long-term effort in which each year's progress can have significant long-term fiscal, resource, and human safety consequences, we believe it is important from this point

forward that the agencies more transparently identify for the Congress the specific steps they will undertake, and their associated time frames, for identifying long-term options and costs. Accordingly, we made no change to our recommendation.

Comments from the Department of the Interior

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

United States Department of the Interior
OFFICE OF THE ASSISTANT SECRETARY
POLICY, MANAGEMENT AND BUDGET
Washington, DC 20240

TAKE PRIDE IN AMERICA

DEC 1 0 2004

Barry T. Hill, Director
Natural Resources and Environment
United States Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Hill:

Thank you for giving us the opportunity to review the draft report, *Wildland Fire Management: Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy (GAO-05-147).* This report provides much needed and appreciated broad overview of the strides taken to improve community protection from catastrophic wildfire under the National Fire Plan, as well as reinforcing our view of how to improve wildland fire management in the coming 5 years. GAO is to be commended for cutting through a multitude of issues and facts to see and describe the big picture accurately.

Overall the report is straightforward and conforms to a large extent with our view of where progress has been made and some specific actions that need to be taken. This Department and our major Federal partner, the U.S. Forest Service, have indeed clarified our program priorities and increased the funding for them. Fire management collaboration, cooperation, and planning are better than ever and continuing to improve. Program accountability has improved as well, as better performance measures have been established and results documented.

See comment 1.

The sole recommendation for executive action, that the Secretaries provide Congress with a joint tactical plan outlining the critical steps, long-term options, and necessary funding "for reducing and maintaining fuels at acceptable levels and responding to the Nation's wildland fire problems" in time for consideration in the 2006 budget does present some serious challenges. There is not sufficient time to prepare a joint detailed plan in time to be included in the 2006 budget request, and it would be premature to develop a detailed plan. Two of the essential elements for defining and weighing the most critical problems and determining long-term options to deal with them most effectively, LANDFIRE and Fire Program Analysis (FPA), are under development. The report correctly recognizes the central importance of LANDFIRE and FPA to the future of wildland fire management planning.

Ground verification and collaborative interagency involvement at the field level to ensure the accuracy and usefulness of LANDFIRE and FPA are just beginning. A better alternative is to let the processes become more fully operational. If the transitions for these key integrative

programs are successful, producing a plan such as GAO suggests may be possible in the 2007 budget, the first that FPA will influence significantly across the Nation, not just within prototype areas.

In addition to those recommendations, the report includes several specific comments to which we would like to add further clarifications.

See comment 2.

- Under the heading "Increases in Wildland Fire Exposed Weaknesses in the Federal Response," the report states that as of 2003 the Forest Service and the Department of the Interior had not issued specific national level guidance on the prioritization of treatments. In fact, in January 2003, the Chief of the Forest Service and the DOI Assistant Secretary for Policy, Management and Budget issued national direction establishing a collaborative process to prioritize and select fuel treatment projects for 2004.

See comment 3.

- In the next section, "Progress in National Strategy: Priorities Have Been Clarified and Funding Has Been Increased for Identified Needs," the report points out that the Healthy Forests Restoration Act of 2003 (HFRA) directed that at least 50 percent of the project funding be used in the wildland urban interface. In this regard HFRA reinforces a goal that DOI has significantly exceeded every year since 2001. Under both the National Fire Plan and the HFRA, this Department has directed 60-65 percent of our fuels reduction project funding to the wildland urban interface.

See comment 4.

- In the section, "Progress in Local Implementation: Data and Research, Fire Management Planning and Coordination and Collaboration Have Been Strengthened," there is a statement that is not entirely accurate. The report states that LANDFIRE will locate "...numerous community and ecosystem resources, such as residential and commercial structures..." Since LANDFIRE has 30-meter resolution, only very large buildings could be identified as structures. It is more likely that LANDFIRE would distinguish between urban and suburban areas, such as housing developments, and surrounding forests or other areas covered by vegetation. The main value of LANDFIRE will be the ability to characterize the vegetation in many ways useful to land managers.

See comment 5.

- Under the heading, "Completing and Implementing the LANDFIRE System Is Essential to Identifying and Addressing Wildland Fire Threats," there is a discussion of the large-fire cost panel and their finding that climate change could have significant implications on wildland fire and suppression costs in the future. To this discussion we would like to add the point that forest thinning has the effect of increasing forest resilience to drought stress and tolerance to climatic variability. This should reduce the potential for outbreaks of insects and disease and extreme wildfires.

See comment 6.

In the section, "Identifying Long-Term Fuel Reduction Options and Needed Funding Is Key to Completing a Cohesive Strategy," there is a discussion of a 2002 interagency group's cost estimate for needed fuel reduction. It is important to note that this team did not include any non-National Fire Plan management of vegetation. After HFRA was passed, the Departments found that over 1 million acres benefited from treatments performed outside the National Fire Plan fuels reduction program. These additional acres would have substantially changed the outcome

reported in 2002 because the total cost and time before condition trends reversed would both have been reduced. The accuracy of the analysis was also significantly limited by the spatial resolution of satellite-derived vegetation conditions. Completion of LANDFIRE will permit this type of analysis to be performed with significantly greater accuracy, leading to much greater confidence in the outcomes.

In conclusion, we would like to say that the Department of the Interior is gratified that GAO has recognized the strides made since the beginning of the National Fire Plan and the President's Healthy Forests Initiative. We would have been proud if the improvements in fuels reduction, fire response capability, and cooperative partnerships had taken 5 full years to accomplish as noted in the report. However, it is only fair to point out that all that progress has taken only 4 years. We are now entering the fifth year of the National Fire Plan.

See comment 7.

Once again, we thank the GAO for a balanced and insightful overview of Federal wildland fire management.

Sincerely,

P. Lynn Scarlett
Assistant Secretary
Policy, Management and Budget

The following are GAO's comments on the Department of the Interior's letter dated December 10, 2005.

GAO Comments

1. We did not recommend that the long-term options and associated costs be identified in the joint tactical plan. Rather, we said that this joint tactical plan should specify the steps and related time frames that the agencies will take in completing a cohesive strategy containing options and costs. In addition, we did not recommend that the joint tactical plan be provided concurrently with the agencies' fiscal year 2006 budget submissions, but only that it be provided in time for the Congress's deliberation of the agencies' appropriations for fiscal year 2006. Should the agencies subsequently identify adjustments that need to be made to the tactical plan because of evolving LANDFIRE and FPA processes, they can so inform the Congress of those adjustments and the reasons for them. Because this is a long-term effort in which each year's progress can have significant long-term fiscal, resource, and human safety consequences, we believe it is important from this point forward that the agencies more transparently identify for the Congress the specific steps they will undertake, and their associated time frames, for identifying long-term options and costs. Accordingly, we made no change to our recommendation.

2. We clarified the language of our report to make clearer our meaning that, although national guidance was issued, as we have previously reported, this guidance was not specific enough for prioritizing fuels reduction projects.

3. In reporting on the progress that has been made in clarifying priorities, we are merely noting that the act provided a good starting point for undertaking analysis to identify and prioritize funding needs. We neither are criticizing the emphasis that the agencies previously placed on protecting wildland urban interface areas nor are making an assessment of the act's priorities, since our report notes that further analysis is needed to determine the most cost-effective allocation among priorities.

4. We clarified the language in our report to make clearer our meaning that, by identifying landscape fuel hazards, LANDFIRE will help identify the risks to those resources.

5. We agree these factors should be among those raised by climate change research that our report says should be considered in identifying long-term options and associated costs.

6. We have modified our draft to include the observation that Interior believes inclusion of this additional acreage would have substantially changed the outcome the team reported. Our report already noted the interagency team's view that the accuracy of the assessment's outcomes will be improved by use of more detailed data such as from LANDFIRE. However, we are encouraged by the departments' commitment, expressed in both of their comments on our draft report, to use this type of analysis to identify and communicate to the Congress long-term fuel reduction options and costs, reversing a June 2002 decision by the Wildland Fire Leadership Council not to do so. We believe that the fulfillment of this commitment is needed to provide the Congress with a sufficiently informed understanding of the long-term consequences of different appropriation choices that it will need to make over the coming years and decades to adequately and cost-effectively address wildland fire management issues.

7. We did not change our characterization of the period over which progress was made because efforts made earlier than 4 years ago provided an important basis for subsequent progress, including (1) the September 8, 2000, report to the President from the Secretaries of Agriculture and the Interior that was used to inform the 2001 appropriation request and (2) the Forest Service's formulation of its own fuel reduction strategy that was initiated in 1999.

GAO Contacts and Staff Acknowledgments

GAO Contacts

Robin M. Nazzaro, (202) 512-3841
David P. Bixler, (202) 512-7201

Staff Acknowledgments

In addition to those named above, Jonathan Altshul, Barry T. Hill, Richard Johnson, Chester Joy, and Jonathan McMurray made key contributions to this report.

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