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

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FEDERAL WILDFIRE ACTIVITIES

Current Strategy and Issues Needing Attention

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Resources, Community, and
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The Honorable Helen Chenoweth
Chairman, Subcommittee on Forests
and Forest Health
Committee on Resources
House of Representatives

Dear Madam Chairman:

Each year, wildfires on federal lands consume millions of acres of forests, grasslands, and desert areas. Wildfires also threaten human lives and property on state and private lands adjacent to federal lands. In 1998, more than 81,000 fires consumed over 2.3 million acres of land. To manage fires on federal lands, the Forest Service, within the Department of Agriculture, and the Bureau of Land Management, within the Department of the Interior, spend hundreds of millions of dollars annually on preparing for and controlling wildfires. These agencies rely, in part, on the National Interagency Fire Center to carry out their fire management responsibilities.

Concerned about the rising costs of preparing for and controlling wildfires, you asked us to provide information on how the Forest Service and the Bureau of Land Management manage their wildfire programs. Specifically, this report provides information on (1) the process the Forest Service and the Bureau of Land Management use to determine the amount of funds needed to prepare for fighting fires; (2) the roles and responsibilities of the National Interagency Fire Center in mobilizing firefighting resources; and (3) the types of agreements reached among federal, state, and local firefighting organizations. We also looked at several issues that could affect the agencies' ability to manage their firefighting programs in the future.

Results in Brief

The Forest Service and the Bureau of Land Management use the same process to develop their wildfire preparedness budgets. This includes the use of a model that determines, on the basis of historical data such as fire activity, weather, and suppression costs, the most efficient funding level for a firefighting organization. The most efficient funding level is based on a calculation that minimizes fire suppression costs and the loss of natural resources on the lands. For fiscal years 1996 through 1999, the agencies

received about 85 percent of the wildfire preparedness funds they estimated they would need.

While the National Interagency Fire Center does not play a role in determining where firefighting resources should be located before a fire season begins, it is the nation's logistical support center for controlling and extinguishing wildfires. As such, it coordinates the mobilization of firefighting supplies, equipment, and personnel at the federal, regional, and local levels. As local and regional firefighting resources are depleted during a fire season, regional geographic coordination centers located throughout the United States obtain additional firefighting personnel and equipment through the National Interagency Coordination Center at the Fire Center.

To provide mutual support in suppressing wildfires, the Forest Service and the Bureau of Land Management have entered into numerous agreements and other types of cooperative efforts with other federal, state, and local firefighting organizations. While no single type of agreement appears to be better than another, agency officials agreed that without these agreements and other types of cooperative efforts, it would be virtually impossible for any firefighting organization, including the Forest Service and the Bureau of Land Management, to manage its firefighting program.

Several issues could affect the agencies' ability to manage their firefighting programs in the future. First, the agencies' firefighting workforce is shrinking because some workers are no longer willing to take on firefighting as a collateral duty while employees with expertise in fire management are nearing retirement age. Second, the Forest Service and Bureau of Land Management are implementing a new radio technology but are purchasing different radio systems that may not be able to communicate with each other or with the systems used by other firefighting organizations. Finally, the Forest Service is using an outdated test to measure the physical fitness of its firefighters. Although it plans to use the same up-to-date physical fitness test that the Bureau of Land Management uses, when it will do so is uncertain. We are making recommendations to address these issues.

Background

The Forest Service manages about 192 million acres of land in 155 national forests and grasslands, and the Bureau of Land Management (BLM) manages about 264 million acres of land. While the national forests are located nationwide, BLM lands are generally located in the 11 contiguous

western states and Alaska. Much of this federal acreage is susceptible to potentially catastrophic wildfires, particularly where the natural vegetation has been altered by past uses of the land and a century of fire suppression. The Forest Service estimates that 39 million acres on national forests in the western states are at high risk of catastrophic wildfire.

Planning for and suppressing fires involves determining how much funding is needed to initiate prompt and effective actions to control fires. Wildfire preparedness funds are used to place firefighting resources, before each fire season begins, in locations where they can most effectively respond to fires that may occur. Wildfire preparedness activities are actions, including planning and purchasing, that are taken before the onset of a fire season. Fire suppression activities include actions taken to control and extinguish wildfires, including those involving the use of firefighting personnel and equipment.

The federal land management agencies maintain and operate the National Interagency Fire Center at Boise, Idaho.[1] The Center provides firefighting support by mobilizing and coordinating the movement of firefighting resources for both wildfires and prescribed fires when local capabilities are depleted and when local agencies request assistance.

Location of Firefighting Resources Depends on Budgets Received

The Forest Service and BLM use the same analytical process to determine the level of wildfire preparedness funds they need before the start of a wildfire season. Appropriations for wildfire preparedness have generally been lower than the amounts determined to be needed by the budget planning process for each agency—by about 15 percent for fiscal years 1996 through 1999. Even though the Forest Service and BLM have received less wildfire preparedness funding than needed according to their budget planning processes, the agencies' initial efforts to control fires have been over 90 percent successful.[2]

[1]The agencies that occupy the Fire Center include BLM, the Forest Service, the National Park Service, the Fish and Wildlife Service, the Bureau of Indian Affairs, the National Weather Service, the Office of Aircraft Services, and BLM's national law enforcement office.

[2]A measure of the effectiveness of a firefighting program is whether the initial efforts to control a fire succeed in putting it out. Generally, if a fire is not controlled within the first 24 hours, more extensive firefighting efforts, in terms of personnel and equipment, may be needed.

Forest Service and BLM Use the Same Process to Budget for Wildfire Preparedness

The Forest Service and BLM use the National Fire Management Analysis System, which includes a computer model, to develop their wildfire preparedness budget requests.[3] The model is designed to determine, on the basis of historical data such as fire activity, weather, and suppression costs, the most efficient funding level for a firefighting organization. The most efficient funding level is based on a calculation that will minimize fire suppression costs and the loss of natural resources on the lands.

Before determining the most efficient funding level, fire personnel who are preparing the analyses calibrate the computer model to ensure that once the data are entered and run in the model, the results will replicate actual fire history within 5 percent. According to Forest Service and BLM officials we spoke with, calibrating the model is a critical step in the National Fire Management Analysis System process because it ensures that the data going into the model are accurate and reliable.

To ensure the integrity of the analysis process, Forest Service regional and BLM national officials certify the national forests' and BLM field offices' National Fire Management Analysis System analyses. In certifying the analyses, Forest Service and BLM officials verify that consistent and reliable data are used in the model and that the data are consistent across forest and regional office boundaries. Forest Service and BLM officials we spoke with stated that the certification process is useful for ensuring that the National Fire Management Analysis System process is being implemented properly and that all units are on a level playing field through having their data and process independently reviewed.

After determining the most efficient funding level, the national forests and BLM field offices develop operational plans to show how they plan to allocate the amounts determined to be needed by the budget planning process to such firefighting resources as personnel, supplies, and equipment. Then, when the national forests and BLM field offices receive their annual funding for wildfire preparedness, they revise their operational plans for the year to reflect the funds actually received. With these funds, the national forests and BLM field offices decide what firefighting resources will be positioned before the start of the fire season and where these resources will be located. From year to year, the physical location of firefighting resources generally does not change. What does change with the available funding are the numbers and types of firefighting

[3]While we did not evaluate the computer model and how it works, the Forest Service has used it since 1980 and BLM since 1986. Agency officials believe that the process has resulted in a consistent procedure for evaluating the probable effectiveness and efficiency of fire programs.

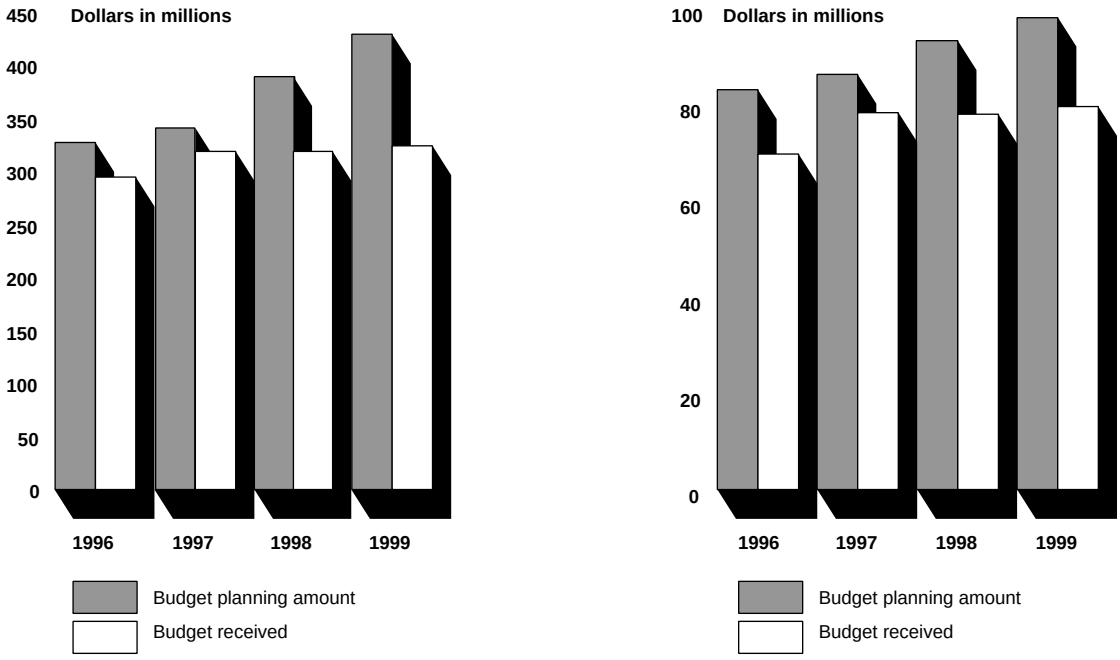
personnel and equipment that are positioned at these locations and the length of time they are stationed there.

Appendix I contains more detailed information on the National Fire Management Analysis System and the wildfire preparedness budget process.

Funding for Wildfire Preparedness Falls Short of Identified Needs

Neither the Forest Service nor BLM received as much funding for wildfire preparedness activities as determined to be needed by the budget planning process for fiscal years 1996 through 1999. As shown in figure 1, the agencies consistently received, on average, about 15 percent less than the amount of funds determined to be needed by the budget planning process during these 4 fiscal years. The figure also shows that the differences between the amounts determined to be needed by the budget planning process and the amounts received by both agencies have generally increased during the 4 fiscal years.

Figure 1: Wildfire Preparedness Funds Determined to be Needed by the Budget Planning Process and Received by the Forest Service and BLM, Fiscal Years 1996 Through 1999



Source: GAO's analysis of data from the Forest Service and BLM.

Once the national forests and BLM field offices receive their appropriations for wildfire preparedness, they take measures to ensure that the funds received are used most effectively in support of their firefighting responsibilities. The operational plans, which the national forests and BLM field offices prepared using the results of their National Fire Management Analysis System analyses, are reviewed to determine what firefighting resources can be funded. Because the level of funding received has been less than the level of funds determined to be needed by the budget planning process, the national forests and BLM field offices have taken measures to compensate for the reduced funding. For example, they have (1) removed fire engines from service, (2) not fully staffed fire engines, (3) reduced the time that fire engines were on-call from 7 days per week to 5 days per week, (4) not hired seasonal firefighters and/or hired seasonal

firefighters for less than the entire fire season, and (5) placed employees on involuntary unpaid leave or temporarily transferred them to other work locations. According to Forest Service and BLM officials, these examples show that the ability of the national forests and BLM field offices to fight fires is diminished when they do not receive as much funding for wildfire preparedness as determined to be needed by the budget planning process.

Neither Forest Service nor BLM officials we spoke with could provide examples of fires that have burned out of control because the funding for wildfire preparedness was insufficient. However, Forest Service and BLM officials identified examples of equipment and items that were not purchased because of limited funds. For example, the Forest Service and BLM each contract for one large airplane for the fire season to transport firefighters and equipment throughout the country as needed. In 1998, BLM had to discontinue its contract because of rising costs and the Forest Service may have to do the same in 2000. BLM officials also cited instances in which a lack of funds has delayed the replacement of fire engines at the end of their useful life or the purchase of new engines identified as needed.

The Forest Service and BLM have an additional tool at their disposal to improve their initial efforts to control fires—severity funding. The agencies receive two types of appropriations for wildfire activities—preparedness funds and suppression funds. Preparedness funds are used for activities undertaken before the onset of wildfires. Suppression funds are used for actions taken to control and extinguish wildfires, including those involving the use of firefighting personnel and equipment. When the Forest Service and BLM approve severity requests, funds from the suppression appropriation are used in an emergency mode to supplement preparedness resources. Typical uses of severity funds include

- temporarily increasing firefighter staffing,
- prepositioning firefighting resources in areas of abnormally high fire danger, and/or
- increasing the availability of aircraft.

In fiscal year 1998, the Forest Service used about $11.4 million in severity funding, primarily to help put out the fires that occurred in Florida. For the same period, BLM used about $1.8 million in severity funding.

National Interagency Fire Center Has Multiple Responsibilities

The ability to use resources from federal, state, and local firefighting agencies is crucial to the success of any firefighting program. The National Interagency Fire Center (Fire Center) is the nation's primary logistical support center for mobilizing firefighting resources. Although not involved in positioning firefighting resources before the start of a fire season, the Fire Center does–depending on the extent to which local and regional firefighting organizations suppress fires–take an active role in coordinating the mobilization of firefighting resources from anywhere in the country to help control or extinguish fires. As part of its support function, the Fire Center establishes standard firefighting and training standards and conducts both pre-and post-fire-season evaluations of the types and numbers of firefighting resources that were available and actually mobilized. Appendix II shows the organization of the National Interagency Fire Center.

National Interagency Fire Center Supports Multiple Operations

The Fire Center is the national headquarters for managing BLM's firefighting program. In addition, managers from each of the other four federal land management agencies, including the Forest Service, and representatives from state fire management organizations are represented at the Fire Center. To make the firefighting task more efficient and cost-effective, agency managers at the Fire Center work together to coordinate and support the mobilization of their firefighting supplies, equipment, and personnel.

The Fire Center, which is located on BLM land, is jointly funded and operated by the federal agencies that occupy space at the Fire Center. The federal agencies, for fiscal years 1996 through 1999, will have paid BLM more than $1.3 million, with the Forest Service paying about $442,600, or almost 34 percent, of this amount.

To help with fire suppression efforts, the Fire Center maintains two types of caches, or warehouses, of firefighting radios, equipment, and supplies:

- The National Incident Radio Support Cache is jointly operated by the departments of the Interior and Agriculture. This is the only totally compatible national radio cache of its kind in a single location. The cache contains 7,000 hand-held radios, as well as a variety of other communications equipment, such as telephones and microwave radio stations.
- The equipment and supply cache, which is 1 of the 11 national caches, is the largest federal cache of firefighting equipment and supplies. Operated

by BLM, the cache sends equipment and supplies to the other caches, operated by both BLM and the Forest Service, throughout the nation.

In addition, several other functions are housed at the Fire Center that play an important role in fire management. For example, the Remote Automatic Weather Stations provide up-to-date weather data from about 775 weather stations. The Automatic Lightning Detection System aids agencies in pinpointing the location of lightning strikes and thus identifying sites where new fires may occur. Through the Fire Center, agencies can request infrared mapping of burning areas to aid in firefighting and aerial mapping to aid in natural resource management activities.

Agencies Follow an Established Process for Mobilizing Firefighting Resources

Fires are attacked using three levels of management responsibility—local, regional, and national. Generally, efforts to control and extinguish a fire are handled initially by the local agency responsible for protecting an area from fire, whether that area is administered by a national forest, a BLM field office, or a state land management agency. Numerous federal, state, and local firefighting resources, including engines, ground crews, and air tankers carrying retardant, can be used to initially control and extinguish a fire. Various local agencies may work together, sharing personnel and equipment, to fight new fires as well as those that escape initial suppression efforts. If a fire grows to the point where local firefighting personnel and equipment are not sufficient to suppress the fire—usually when 65 percent of all available firefighting resources have been committed to ongoing fires—the local agency contacts its geographic area coordination center. There are 11 such centers—9 of which are located west of the Mississippi River—as shown in figure 2.

Figure 2: Location of the 11 Geographic Area Coordination Centers

Source: National Interagency Fire Center.

Each geographic area coordination center is responsible for locating additional firefighters, equipment, and supplies within the geographic area and dispatching the resources to the local fire protection agencies that requested assistance. For example, in the Northwest Geographic Area Coordination Center–consisting of the states of Oregon and Washington—46 local firefighting resource centers are available to dispatch firefighting resources to any of the other local resource centers in the geographic area that request assistance. In addition, each geographic area coordination center can contract with private suppliers for additional firefighting resources if federally provided firefighting resources are not available.

During a busy fire season, wildfires may deplete the capacity of the local and geographic area coordination center personnel to provide the firefighting resources requested by the local firefighting agencies. When this happens, the geographic area coordination center orders additional resources through the National Interagency Coordination Center at the Fire Center. The National Interagency Coordination Center locates the closest available firefighting resources–no matter what agency they are affiliated with or where they are located–and dispatches them to the local agency requesting resources. Besides dispatching firefighting resources, the National Interagency Coordination Center gathers, analyzes, and reports information to all federal and state land management agencies about specific wildfire incidents and the overall fire situation. (App. III describes and illustrates the process for ordering wildland firefighting supplies and resources.)

When the national fire situation becomes severe and the National Interagency Coordination Center has trouble finding firefighting resources available for mobilization, the Fire Center's Multi-agency Coordination Group is activated.[4] The role of the this group is to identify—on the basis of information provided by the National Interagency Coordination Center—national or interagency issues related to the current fire situation. In addition, when firefighting resources are scarce and there are competing demands for the resources, the Multi-agency Coordination Group sets priorities for the National Interagency Coordination Center's mobilization of firefighting resources.

National Wildfire Coordinating Group Establishes Firefighting Standards

The National Wildfire Coordinating Group[5] is responsible for ensuring that consistent firefighting practices, standards, and training programs are developed for all federal firefighting organizations. State and local firefighting organizations follow their own firefighting practices, standards, and training programs, which have been accepted by both the Forest Service and BLM. Before federal, state, and local firefighting resources can be mobilized, they must comply with accepted firefighting practices, standards, and training programs. Forest Service and BLM

[4]The Multi-agency Coordination Group consists of the directors of the agencies housed at the Fire Center. In addition, depending on the severity of the situation, a representative from the General Services Administration, a military liaison, and a state forester will be added to the Multi-agency Coordination Group.

[5]The National Wildfire Coordinating Group was formed in Mar. 1976 as an umbrella organization to facilitate the development of practices, standards, and training throughout the wildland fire community. Representatives are drawn from the Forest Service, BLM, the Fish and Wildlife Service, the National Park Service, the Bureau of Indian Affairs, the National Association of State Foresters, and the Federal Emergency Management Agency's U.S. Fire Administration.

officials told us that to respond efficiently, effectively, and safely to fires, federal, state, and local firefighting resources must be usable interchangeably. They said that without accepted firefighting practices, standards, and training programs, attempts to use federal, state, and local firefighters interchangeably would not only make it difficult to successfully manage fires, but could also put firefighters at risk of being injured or killed.

Efforts to Improve Mobilization of Firefighting Resources

The Forest Service and BLM conduct local, regional, and national pre-fire-season readiness reviews to determine the preparedness levels of each national forest, including its ranger districts, and each BLM field office. The readiness reviews evaluate such factors as the preparedness levels of fire engines, dispatch centers, and fire crews. Readiness reviews also determine whether firefighters have received the proper training and have met physical fitness requirements.

The Forest Service and BLM also conduct post-fire-season reviews to evaluate, among other things, how the firefighting resource mobilization system provided by the Fire Center contributed to the agencies' fire suppression efforts and what improvements need to be made before the next fire season. For example, at the conclusion of the 1998 fire season, coordinators from the 11 geographic coordination centers and the National Interagency Coordination Center reviewed the impact on the Fire Center's firefighting mobilization system once the southeastern states activated their state compact[6] firefighting mobilization system during the 1998 Florida wildfires.

On the basis of the results of their evaluation, the coordinators agreed that the activation of the state compact firefighting mobilization system resulted in the implementation of a second firefighting mobilization system and the mobilization of duplicate firefighting resources. The coordinators also agreed on a need to investigate the feasibility of combining the state compact mobilization system with the Fire Center's wildfire mobilization system. Consequently, the coordinators are now drafting an issue paper that outlines each of the state compacts, explains how they can complement the Fire Center's firefighting mobilization system, and discusses how the Fire Center's mobilization system can be modified to incorporate the positive features of the state compact firefighting mobilization system.

[6]Before the Fire Center was established, states in the eastern portion of the nation entered into "compacts" that allow for the movement of firefighting resources between states.

Types of Coordination Agreements Vary but Appear to be Working Well

To provide for mutual support in managing fires, the Forest Service and BLM have entered into numerous and varied coordination agreements with other federal, state, and local firefighting organizations throughout the nation. The coordination agreements start at the national level between federal agencies and cascade down to state and local firefighting organizations. The coordination agreements define the fire management responsibilities of the signatories and provide that local firefighting personnel and organizations will meet identified physical fitness and equipment standards.

The Forest Service and BLM recognize that coordination agreements are vital to implementing the objectives of their fire management programs and ensuring that the duties and procedures of each federal, state, and local firefighting organization are defined and understood. The Forest Service and BLM were, at the time of our audit work, reviewing their coordination agreements with the local firefighting organizations to ensure that the agreements provided for the discussion of applicable fire operations standards. The Forest Service and BLM were reviewing the local coordination agreements after a wildfire in which two fatalities occurred. Specifically, two firefighters from a rural fire district in Idaho were killed in 1995 when a wildfire they were helping to extinguish on BLM lands consumed their stalled fire engine. BLM did not have a coordination agreement with the rural fire district. In a subsequent legal decision, BLM was found to be partially—35 percent—responsible for the two deaths because it had not fulfilled its responsibility to instruct the rural firefighters about fire operations, such as the nature of the fire, fuel conditions, and weather.

We found that each of the three geographic regions we visited during our review had coordination agreements. However, each of the regions had different types of agreements:

- The Pacific Northwest has a Master Cooperative Fire Protection Agreement between the five federal land management agencies and the states of Washington and Oregon. While the agreement establishes consistency in wildfire management policies and procedures, as well as fiscal relationships and responsibilities, the Forest Service and BLM still enter into separate cooperative agreements with local firefighting organizations. For example, on the Central Oregon Fire Management System, two national forests and one BLM field office entered into separate agreements with 12 counties and 34 rural fire districts.

- In Arizona, the Forest Service, BLM, and the state have entered into the Joint Powers Agreement. Under this agreement, Arizona enters into separate agreements with each of the 200 rural fire districts in the state and certifies that the rural fire districts comply with firefighting standards, such as those for physical fitness and equipment maintenance. The Joint Powers Agreement eliminates the need for the Forest Service and BLM to enter into cooperative agreements with individual rural fire districts in Arizona.
- In the southeast, the Forest Service does not have either a master or an umbrella cooperative agreement with the states.[7] Each national forest enters into cooperative agreements with state and local firefighting organizations as needed. In addition, the states have entered into "compacts" that provide for moving firefighters and equipment across state lines when needed. For example, 10 southeastern states are party to the Southeastern Interstate Forest Fire Protection Compact, which allows for, among other things, mutual aid in fighting forest fires among the states that are party to the compact, as well as with states that are party to other regional compacts.

Our review of these different types of coordination agreements and discussions with federal and state firefighting officials suggest that no one single type of coordination agreement or coordination process is better than another. Forest Service, BLM, and state officials told us that, except for an occasional disagreement over the reimbursement of firefighting costs, their coordination agreements and processes are working well and they do not see a need for changes. The officials universally agreed that it would be virtually impossible for them to manage their firefighting programs without the coordination agreements.

Several Issues Could Affect the Management of the Federal Wildfire Fighting Program

We identified several issues that could affect the Forest Service's and BLM's ability to manage their firefighting programs in the future. First, the federal firefighting workforce is shrinking because some Forest Service and BLM employees no longer choose to become qualified to fight fires as a collateral duty, as they did in the past. With fewer firefighters, not as many Forest Service and BLM fire crews will be available to fight fires. Second, the Forest Service and BLM are implementing new radio technology, but each agency has taken a different approach to implementation. Forest Service and BLM officials in the field are concerned that this could

[7]Because BLM lands are generally located in the 11 contiguous western states, BLM does not play a role in fire-related activities in the southeast. The Department of the Interior's National Park Service and Fish and Wildlife Service have lands in the southeast and interact with the Forest Service on fire-related activities.

compromise communications and firefighters' safety. Third, the agencies are currently using two different tests to determine whether firefighters are physically fit to fight fires. While the Forest Service plans to begin using the test that BLM uses, it has not determined when it will implement the change.

Firefighting Workforce Is Shrinking Because of Attrition and Competing Demands

The firefighting workforces of both the Forest Service and BLM are shrinking, leaving fewer firefighters to handle the workload. According to both Forest Service and BLM officials, the firefighter workforce is getting smaller because many workers whose primary job responsibilities are not fire related are not interested in becoming qualified to fight fires as a collateral duty. Also, according to both Forest Service and BLM officials, the firefighting workforce is getting older and nearing retirement age. If these firefighters are not replaced, the agencies may not have enough qualified individuals to fill critical fire management positions. This situation could have a direct impact on firefighters' safety.

According to Forest Service and BLM officials, there are several reasons why some employees no longer become qualified to fight fires as a collateral duty. First, staff who do not fight fires as a primary duty—such as resource specialists—are committed to carrying out their primary job duties and do not want to spend time fighting fires. Second, many families have dual careers, and the additional income they would earn from fighting fires would not, in their view, offset the inconvenience and expense involved in, for example, rearranging their schedules and providing for additional child care. Third, family values have changed to the extent that many employees today are unwilling to abandon family commitments to fight fires. Finally, for many employees, the rate of overtime pay while fighting fires is less than the regular base salary rate.

While not requiring staff to become qualified to fight fires, the Forest Service does encourage all of its employees to do so. For example, in a June 1998 memorandum, the Forest Service's Deputy Chief for State and Private Forestry said that all employees should be encouraged to become active in the fire organization and should be offered training in firefighting duties. While this memorandum does not require all Forest Service employees to become qualified to fight fires, it does note that all employees have roles and responsibilities during fire emergencies and that firefighting is the most visible activity of the Forest Service. In a July 1998 memorandum, the Chief of the Forest Service reinforced the message that all employees should become fire qualified. The Chief also stated that

resource program targets are not a justifiable reason for keeping qualified firefighters from fighting fires and that allowances must be made to meet fire suppression requests.

Having fewer firefighters and other staff could be especially difficult for national forests and BLM field offices that rely on agency personnel to fight fires rather than hiring seasonal firefighters. For example, one Forest Service region we visited relies entirely on its firefighters and other fire-qualified staff to control fires; it does not hire seasonal firefighters. Because of the decrease in firefighters and other staff, this region is now contemplating hiring seasonal firefighters. Other locations told us that they were using contract firefighting crews to make up for the shortfall in firefighters on large fires. Using contract firefighting crews on large fires is an option, but contractors must still be managed by agency personnel because contractors cannot replace top-level Forest Service and BLM managers on firefighting crews.

The firefighting workforce is also shrinking because many older employees who are qualified to fight fires are unwilling to do so for several reasons. Some older employees have difficulty keeping up with the physical demands of firefighting, while other employees no longer derive satisfaction from fighting fires. Additionally, the Fair Labor Standards Act has created a pay equity issue for some older employees. Under this act, when employees are assigned to a fire, they are classified as being in either an exempt position (such as a supervisor) or a nonexempt position (such as a truck driver). Under the act, personnel in nonexempt positions are compensated for overtime work at 150 percent of their normal base pay. But for personnel in exempt positions, compensation for overtime work is capped at step 1 of the federal General Salary Level 10—about $16.50 per hour. According to Forest Service and BLM officials, it is routine for personnel with great responsibilities in exempt positions, such as incident commanders, to be paid less than truck drivers. The disparity in overtime compensation discourages the participation of more experienced employees in firefighting activities.

Officials from the Forest Service and BLM told us that the aging federal firefighting workforce is of increasing concern because fewer qualified personnel are available from the two agencies, not only to function as firefighters but also to fill critical fire management positions when wildfires continue to burn for an extended period of time before being controlled. According to agency officials, without a cadre of qualified personnel with the expertise to fill fire management positions, the ability

of the Forest Service and BLM to manage their firefighting programs could be diminished.

Forest Service and BLM employees whose primary job responsibility is firefighting are eligible to retire at the age of 50 and are required to retire at the age of 55. Many employees in fire management positions are either at or near retirement age. For example, the Forest Service has 53 "hot shot" crews throughout the nation. Hot shot crews consist of 20 specially trained firefighters and are used to attack fires when they first start and to suppress large fires in the most critical and highest-risk areas. On average, the superintendents of these hot shot crews are almost 43 years old, and they range in age from 29 to 54 years. Similarly, the BLM employees qualified to be commanders of either a Type I or Type II incident management team are, on average, 53 and 51 years old, respectively. These teams are dispatched, at the national level, to fires that have escaped initial efforts to control them when local agencies need additional help. The teams consist of 9 to 27 members, including the incident commander, who is responsible for the day-to-day management of a fire, a fire behavior specialist, and a comptroller. A Type I team differs from a Type II team in that it has more experience in managing large fires. Given the average age of the Forest Service's hot shot superintendents and BLM's incident commanders, employees are either eligible to retire now or will be eligible to retire in 7 years.

Developing a cadre of qualified fire management personnel could take many years, since an individual must receive approximately 600 hours of training to become a Type II incident commander and approximately 100 more hours, or 700 hours of training, to become a Type I incident commander. To gain the training and experience required to function successfully at the Type II level takes from 17 to 22 years and at the Type I level from 20 to 25 years. We were told that, because qualified personnel are lacking, Forest Service and BLM locations must request that the geographic area coordination centers provide qualified personnel to perform critical fire management functions sooner and more often than in the past.

Lack of Standardized Radio Technologies Is a Safety Issue

By January 2005, all federal land management agencies are required by the National Telecommunications and Information Administration to change their radio systems from wideband to narrowband.[8] The Department of the

[8]These agencies primarily use very high frequency radio transmissions for wildland fire operations, incident command operations, and aviation operations. Radio narrowbanding is the subdividing of existing radio channels into smaller segments in order to create more radio frequencies.

Interior decided that its agencies, including BLM, would purchase narrowband digital radios because, according to BLM officials, narrowband digital radios have capabilities over and above those of narrowband analog radios. For example, the digital radios can receive and transmit data while the analog radios cannot. The Forest Service, however, decided that it would purchase narrowband analog radios while it studies the merits of narrowband digital radios. The agency made this decision because narrowband digital radios are about twice as expensive as narrowband analog radios and narrowband digital technology is still being developed.

According to national forest and BLM field officials we spoke with, changing from wideband to narrowband radios could compromise firefighters' safety in several ways. First, these officials said, narrowband analog radios are not completely compatible with narrowband digital radios, meaning that after the conversion, Forest Service and BLM firefighters may find it difficult to communicate with each other. Second, state and rural firefighters may still be using wideband radios. The officials we spoke with believe that narrowband radios cannot communicate with wideband radios, meaning that federal firefighters may not be able to communicate with state and rural firefighters unless they use two independent radio systems. According to the Forest Service and BLM field officials we spoke with, if the agencies do not use standardized radios, firefighters' safety will be compromised. They said that the issue is critical for state and local firefighters, who may not be able to convert their radio systems to narrowband technology for several years because of the costs involved.

Forest Service and BLM headquarters officials we spoke with disagreed that narrowband analog and narrowband digital radios will not be compatible. According to these officials, simply changing the frequency setting on narrowband digital radios will make them compatible with narrowband analog radios.

Forest Service headquarters officials told us that "Project-25"—a short name for a series of standards supported by the telecommunications industry and federal agencies with a public safety mission, such as the Forest Service and BLM—is one of several digital modes of radio operations that will work in narrowband and wideband radio frequencies. According to the Forest Service officials, Project-25 equipment will ensure that after the conversion to narrowband technology, all parties—federal, state, and local—will be able to communicate with each other. However, manufacturers are just beginning to finalize the development of Project-25

equipment, whose production is expected to start in the summer or fall of 1999. This equipment is expected to cost two to three times as much as similar analog equipment. Also, the hardware needed to connect remotely located base radio stations to other broadcast sites has not yet been designed.

According to Forest Service and BLM officials, the National Interagency Fire Center in Boise, Idaho, has purchased narrowband radios and plans to test their use at fires this summer to verify the accuracy of the information provided by the manufacturers on the radios' capabilities. The results of this testing will be made available to all wildland firefighting agencies.

Forest Service and BLM headquarters officials made several other points about the radio issue. First, they said that state and local firefighters may continue to use wideband radios for many years. As is currently the case, state and local firefighting offices will need to ensure that communication plans identify what radio frequencies will be used for fires managed by the Forest Service and BLM. The plans should not only specify the frequencies to be used but also indicate whether wideband or narrowband radios will be used. Second, Forest Service and BLM officials stated that they have been discussing how best to manage the shortage of qualified telecommunications specialists because each agency must have qualified personnel to design, develop, and maintain the increasingly complex radio systems.

Forest Service and BLM field and headquarters officials differ in their opinions about the compatibility of narrowband digital and narrowband analog radios. They also differ as to whether narrowband radios can communicate with the wideband radios most commonly used by state and local firefighting organizations. If the radio systems cannot communicate with one another, firefighters' safety could be compromised. Forest Service and BLM officials have begun discussing an agreement, to be effective in 2003, under which both agencies would purchase only narrowband digital radios. Such an agreement would resolve the issue of compatibility between the Forest Service and BLM but still would not address the ability of narrowband radios to communicate with the wideband radios used by state and local firefighting organizations.

Similar Physical Fitness Tests Need to be Used

Wildland firefighters require a high level of physical fitness to safely perform physically demanding work in difficult conditions. All wildland firefighters must meet the minimum fitness standards for the type of

firefighting duty assigned to them. Tests of the physical fitness standards are designed to simulate the physical demands that a firefighter encounters while fighting a fire and to determine whether the firefighter is physically capable of handling these demands.

Currently, the Forest Service and BLM have the same physical standards but use different methods for determining the physical fitness of their firefighters. BLM requires that its firefighters pass the "work capacity test." This test is used to qualify individuals for three levels of wildland firefighting duty—arduous, moderate, and light. The work capacity test measures aerobic capacity, muscular strength, and muscular endurance. Testing wildland firefighters for work capacity is important for personal safety and health, coworkers' safety, and efficient operations. For each of the three levels of wildland firefighting duties, the testing is different. For example, to qualify for arduous duty, each firefighter must walk a 3-mile course in 45 minutes or less while carrying a 45-pound pack.

The Forest Service formerly used the work capacity test to measure physical fitness but stopped doing so after an employee died while taking the test in January 1999. Since that time, the Forest Service has used the "step test" to determine the physical fitness of its firefighters. After a 5-minute step test, the firefighter's pulse is measured and should not exceed a specified rate based on the firefighter's age. The step test is not as demanding or representative as the work capacity test, and, according to Forest Service officials, the results of the step test can be affected by outside factors, such as the use of products containing caffeine or nicotine.

The work capacity test more typically simulates the actual physical demands placed on firefighters because it requires the firefighters to walk specific distances within specific times while carrying varying amounts of weight to simulate carrying firefighting tools. Before taking the work capacity test, BLM employees must complete a physical screening questionnaire designed to identify risk factors such as age, a history of heart problems, and high blood pressure. Depending on their responses to the questionnaire, employees may be required to take a physical exam, including an electrocardiogram, before taking the work capacity test. According to a BLM official, this screening for the work capacity test will save lives. For example, the screening has already identified one firefighter with a potentially significant medical problem.

A Board of Review is looking into the events surrounding the death of the Forest Service employee while taking the work capacity test and plans to issue its findings in the next few months. According to a Forest Service headquarters official, when the board issues its findings, it will specify what measures the Forest Service must take to reinstate the use of the work capacity test. This official stated that the measures would include the type of screening procedure the Forest Service must use before administering the work capacity test.

Conclusions

Ensuring the success of future firefighting efforts will be difficult for the Forest Service and BLM unless they take steps to rebuild their firefighting ranks. Employees, for various reasons, no longer consider firefighting a collateral duty, which has thinned the firefighting ranks. Regardless of the reasons for the thinning, actions are needed to ensure that a sufficient number of qualified staff will be available to fill fire management positions. The federal firefighting workforce is also getting older, leaving fewer qualified personnel available to control fires when they first start and to contain those that burn out of control for a long time. Efforts to rebuild the firefighting workforce need to begin immediately because it takes many years for staff to gain the experience necessary to function as high-level fire managers, such as incident commanders.

Communications among firefighters and between dispatch centers and firefighters' safety. As new radio systems are deployed, they must be capable of communicating with federal, state, and local firefighting organizations. The Forest Service and BLM maintain that through Project-25, communications in the future will not be a problem. However, Project-25 equipment will not go into production until the summer or fall of 1999; some equipment, such as the hardware needed for base radio stations, has not yet been developed; and Project-25 equipment is expensive. Given the cost and uncertainty of the Project-25 equipment and the concerns of the national forest and BLM field officials we spoke with, steps need to be taken to resolve the issues surrounding the conversion to new radio technologies so that firefighters do not lose the ability to communicate with one another.

Forest Service and BLM officials agree that the work capacity test is the best testing method to ensure that firefighters are physically capable of handling the demands of firefighting. While the Forest Service plans to resume using the work capacity test, it is unclear when it will do so. To ensure that firefighters are physically fit, the Forest Service should issue

policy guidance on how it will implement the work capacity test as soon as the Board of Review publishes its results. This policy guidance should include a screening process similar to that used by BLM.

Recommendations

To ensure that firefighting resources are adequate to protect federal lands and the public from the catastrophic effects of fires, we recommend that the Chief of the Forest Service and the Secretary of the Interior work together to develop a combined strategy to rebuild their firefighting workforce. In developing this strategy, they should consider ways to increase their firefighting resources, from using contract firefighting crews to requiring that all employees become qualified, in some manner, to contribute to fighting fires.

Given the uncertainties surrounding the conversion to narrowband radio technology, we recommend that the Chief of the Forest Service and the Secretary of the Interior develop a strategy for converting to narrowband radio technology that ensures radio communications between firefighters will not be affected by the conversion. This strategy should be communicated to all firefighters. If Project-25 equipment will solve the communication problems between narrowband radio technologies and between narrowband and wideband radio technologies, we further recommend that the Chief and the Secretary delay the purchase of Project-25 equipment until the equipment has been fully developed and tested.

To ensure that firefighters' safety is not compromised by inadequate physical fitness tests, we recommend that the Chief of the Forest Service issue policy direction on how the work capacity test will be administered as soon as he receives the results of the Board of Review's investigation into a firefighter's death last January. In developing the agency's policy on how to administer the work capacity test, the Chief of the Forest Service should consider using BLM's screening process.

Agency Comments and Our Evaluation

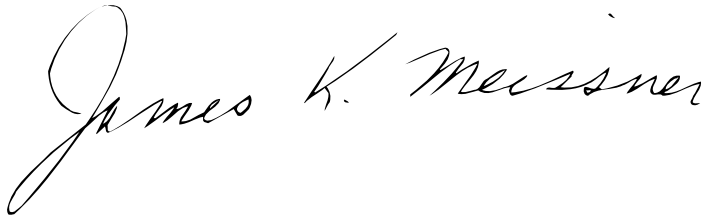
We provided the Forest Service and the Bureau of Land Management with a draft of this report for review and comment. The Forest Service commented that it generally concurred with the findings and recommendations and provided us certain technical clarifications that we incorporated in this report. The Bureau of Land Management had no comments other than certain technical clarifications that we also incorporated in this report.

We are sending copies of this report to appropriate congressional committees; the Honorable Dan Glickman, Secretary of Agriculture; the Honorable Bruce Babbitt, Secretary of the Interior; the Honorable Mike Dombeck, Chief, Forest Service; the Honorable Tom Fry, Acting Director, Bureau of Land Management; and the Honorable Jacob Lew, Director, Office of Management and Budget. We will make copies available to others upon request.

We conducted our work from January 1999 through July 1999 in accordance with generally accepted government auditing standards. Appendix IV provides details on our scope and methodology.

If you or your staff have any questions about this report, please call me on (206) 287-4810. Key contributors to this report were Robert Arthur, June Foster, Linda Harmon, and John Kalmar, Jr.

Sincerely yours,



James K. Meissner
Associate Director, Energy,
Resources, and Science Issues

Contents

Abbreviations

BLM	Bureau of Land Management
NFMAS	National Fire Management Analysis System

National Fire Management Analysis System and Wildfire Preparedness Budget Process

The National Fire Management Analysis System (NFMAS) was originally developed in response to a 1978 congressional directive that the Forest Service conduct an economic benefit-cost analysis of its fire program and use that process to support future national fire budget requests. The Forest Service implemented NFMAS in 1980, and the Bureau of Land Management (BLM) adopted it in 1986 as its basis for fire planning.

NFMAS includes a computerized model that uses scenarios of how fires would initially be controlled and historical information—including data on fire severity, weather, and firefighting costs—to identify the most efficient level of funding for a firefighting organization. This level of funding is the one at which the costs to control and extinguish fires and the loss of natural resources are minimized. Wildfire preparedness budgets developed by national forests and BLM field offices using NFMAS are aggregated with Forest Service regional preparedness budgets and BLM state office budgets and submitted to the their respective national offices for inclusion in the Forest Service's and the Department of the Interior's annual budget requests. Once the Congress appropriates funds for wildfire preparedness, the appropriations received are allocated from the national offices through the Forest Service regional offices and BLM state offices to the national forests and BLM field offices.

National Fire Management Analysis System Process

Each national forest and BLM field office conducts a NFMAS analysis. A new NFMAS analysis is required every 5 years, although an analysis can be updated in various instances, such as when national forests are combined. In the years when the NFMAS analysis is not performed, wildfire preparedness budget requests are developed by applying an inflation factor to the prior year's budget request. In preparing the NFMAS analysis, each of the units develops fire management zones or areas of like natural resources and fire history. The fire management zones are also based on management objectives for the land contained in the units' resource management plans. The fire management zones are further divided into representative locations that have similar management objectives, similar fire histories, and similar methods of fire attack. Within the fire management zones, natural, cultural, and other resources are valued by resource specialists for inclusion in the NFMAS model.

Once the fire management zones are defined, historical data are compiled on fire history, acres burned, and past methods of controlling fires. From these data, a representative location is defined where a fire could occur and the resources are identified that would be available to fight the fire.

Then the NFMAS model is run. This initial analysis is then calibrated to ensure that once the data are entered and run in the model, they will replicate fire history within 5 percent of actual occurrences. The BLM and Forest Service officials we spoke with said that calibrating the model is a critical step in the NFMAS process because it ensures that the data going into the model are accurate and reliable.

Once the model is calibrated, it is run with current firefighting resources at current budget levels. After this initial run, the model is run at incrementally higher firefighting resource and budget levels to see whether efficiencies would be gained at higher levels. Similarly, the model is run at incrementally lower firefighting resource and budget levels to see how efficiencies would be affected.

In each of these analyses, the most efficient level is determined. The NFMAS analysis produces a U-shaped curve on a graph where the vertical axis is the net value change in resources while the horizontal axis is the preparedness budget request. The most efficient level is basically at the bottom of the curve. If the bottom of the curve meets the management objectives of the national forest or the BLM field office, then that becomes the most efficient level. The most efficient level may be to the right or left of the bottom of the curve, especially when the curves are relatively flat rather than U-shaped.

To ensure the integrity of the NFMAS analysis process, Forest Service regional and BLM national fire management staff certify the national forests' and BLM field offices' NFMAS analyses. In certifying the analyses, agency officials verify that consistent and reliable data were used in the model and that the data are consistent across forest and field office boundaries. In 1998, all BLM field and state offices performed new NFMAS analyses. The BLM field office NFMAS submissions, in support of the fiscal year 2000 preparedness budget request, were certified by the BLM state offices. Officials from the Boise BLM office certified the NFMAS process at the state offices. Similarly, all national forests we visited had their NFMAS process certified. These certifications for the forests we visited took place at various times, from 6 years ago at three of the forests to 1999 for the Coronado National Forest. Both Forest Service and BLM officials we spoke with said that the certification process is useful for ensuring that the NFMAS process is being implemented properly and that all units are on a level playing field through having their data and process independently reviewed.

The NFMAS analyses form the basis of the national forests' and BLM field offices' annual operational plans. These operational plans are based on the most efficient level of funding and describe how the funds are to be distributed at the national forests or BLM field offices. They describe what firefighting resources (personnel and equipment) will be funded, where they will be located, and how long they will be positioned at these locations.

The most efficient funding levels for individual national forests and BLM field offices are aggregated and become part of the Forest Service's and BLM's annual budget requests. For the Forest Service, each of the regions aggregates the most efficient level of funding for each of its forests, adds its own preparedness budget request, and submits the total to Forest Service headquarters. Forest Service headquarters then adds its budget request, and this becomes the annual wildfire preparedness budget request that is included in the Forest Service's annual budget request.

For BLM, each state office aggregates the budget requests of all the field offices in the state, adds the most efficient level of funding for the state office, and submits the total to the BLM fire staff in Boise. The BLM Boise staff aggregate the state office submissions, add the Boise office's budget request for preparedness, and submit the data to headquarters for inclusion in the Department of the Interior's annual budget request.[1]

Wildfire Preparedness Budget Allocation Process

The wildfire preparedness funds appropriated by the Congress have been historically about 15 percent less than those identified as needed by the Forest Service and BLM through the budget planning process. According to Forest Service and BLM officials, the Congress appropriates smaller amounts than those determined to be needed through the budget planning process because it is willing to accept the risk that some wildfires will be less severe than indicated through the budget planning process.

Wildfire preparedness funds appropriated by the Congress are allocated to the Forest Service and BLM for distribution to the national forests and BLM field offices. When the wildfire preparedness allocations are received, Forest Service headquarters and BLM national staff remove the funding for their operations as well as the funding for nationally shared firefighting

[1]The other Department of the Interior land management agencies—the National Park Service, the Bureau of Indian Affairs, and the Fish and Wildlife Service—each develop wildfire preparedness and suppression requests. Their requests, along with BLM's, are consolidated and submitted to the Department of the Interior by BLM. Funds are appropriated to BLM and are made available to the other three Department of the Interior agencies.

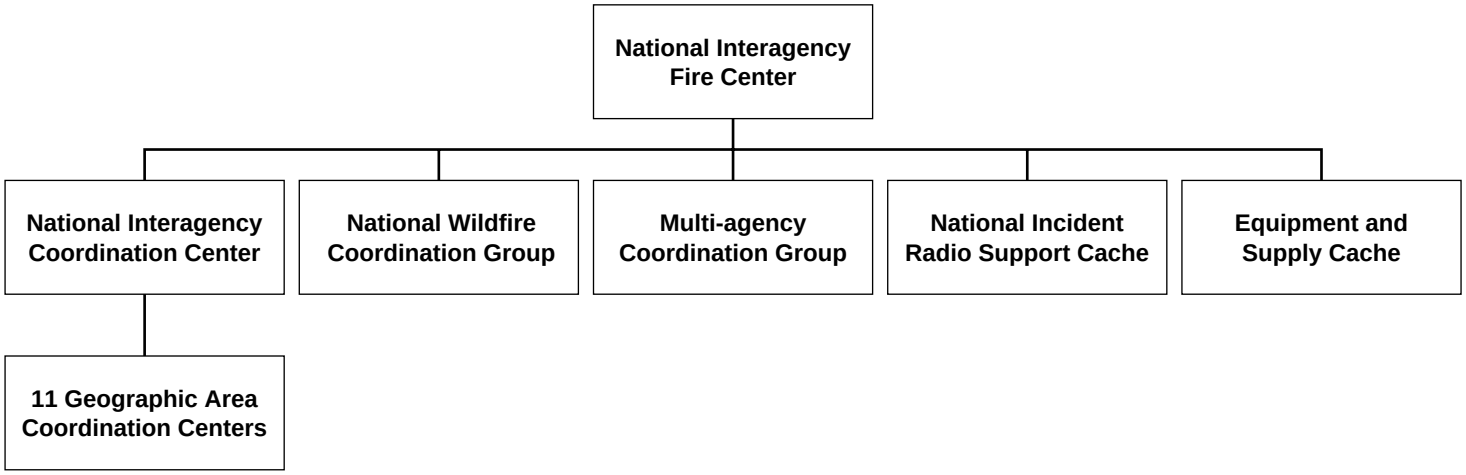
resources, such as aircraft, smokejumpers, and hot shot crews. These shared resources are typically included in the budget for one of the agencies but are available for the use of all federal firefighting agencies when suppressing wildfires. For example, BLM funds the equipment cache in Boise, but equipment and supplies from the cache are available to all federal firefighting agencies. Similarly, the Forest Service funds the contracts for catering and shower facilities at wildfires, but these services are available to all federal wildfire fighting agencies when needed.

Forest Service and BLM officials allocate the remaining funds to their regional and state offices, respectively. The Forest Service uses a benefit-cost model to allocate the remaining wildfire preparedness funds to its regions. BLM, in allocating the remaining wildfire preparedness funds to the state offices, generally reduces each state's request for funds by the overall percentage reduction in the most efficient level received from the Congress.

From the wildfire preparedness allocations they receive, Forest Service regional and BLM state officials take out funds to pay for their respective operations, including any amounts they need for national shared resources. The remaining wildfire preparedness funds are then allocated to the national forests and BLM field offices. According to Forest Service regional and BLM state officials we spoke with, allocations to the national forests and BLM field offices are made on the basis of their NFMAS analyses, and all see their requests for funding reduced by the same percentage. Exceptions are made, however, when the funds available to a national forest or BLM field office are so limited that wildfire preparedness operations would be severely restricted. In this case, a small unit may receive close to the most efficient level of funding it requested while a larger unit may have its funds reduced because, given its size, it can withstand a budget cut. When allocating wildfire preparedness funds to the national forests and BLM field offices, Forest Service regional and BLM state officials recommend to the units how they should allocate their funds. According to national forest and BLM field officials, these recommendations are generally followed.

Once the national forests and BLM field offices receive their wildfire preparedness funding, they adjust their annual operational plans to reflect the funds actually received. These plans are monitored by Forest Service regional and BLM state officials to ensure that the funds received are spent as planned.

Organization of the Wildland Firefighting Community



The **National Interagency Fire Center** is a 55-acre site located in Boise, Idaho. It has a firefighting training base and facilities that house the fire management personnel of the five federal land management agencies and of the National Weather Service, as well as representatives from the National Association of State Foresters. The National Interagency Fire Center also houses the National Incident Radio Support and the Equipment and Supply caches.

The **National Interagency Coordination Center** is called upon when any of the 11 geographic area coordination centers cannot fill orders for equipment and supplies within its area. The National Interagency Coordination Center dispatches crews, overhead personnel, aircraft, supplies, and services across the nation, regardless of an agency's affiliation, using the "closest forces" and "total mobility" concepts. Because the National Interagency Coordination Center is an "all-risk" coordination center, it also provides support in response to other emergencies, such as floods, hurricanes, and earthquakes.

The **National Wildfire Coordination Group** is an umbrella organization that includes representatives from the five federal land management agencies and the National Association of State Foresters. The National Wildfire Coordination Group is responsible for ensuring that consistent

firefighting practices, standards, and training programs are developed for federal firefighting organizations.

The **Multi-agency Coordination Group** includes the five federal land management fire directors and, when needed, a representative from the General Services Administration, a military liaison, and a state forester. The Multi-agency Coordination Group identifies national or interagency fire situation issues and sets priorities for allocating scarce firefighting resources.

The **National Incident Radio Support Cache** is the only totally compatible national radio cache of its kind in a single location. The cache contains about 7,000 hand-held radios, as well as a variety of other communications equipment, such as telephones, satellites, repeaters, and microwave stations.

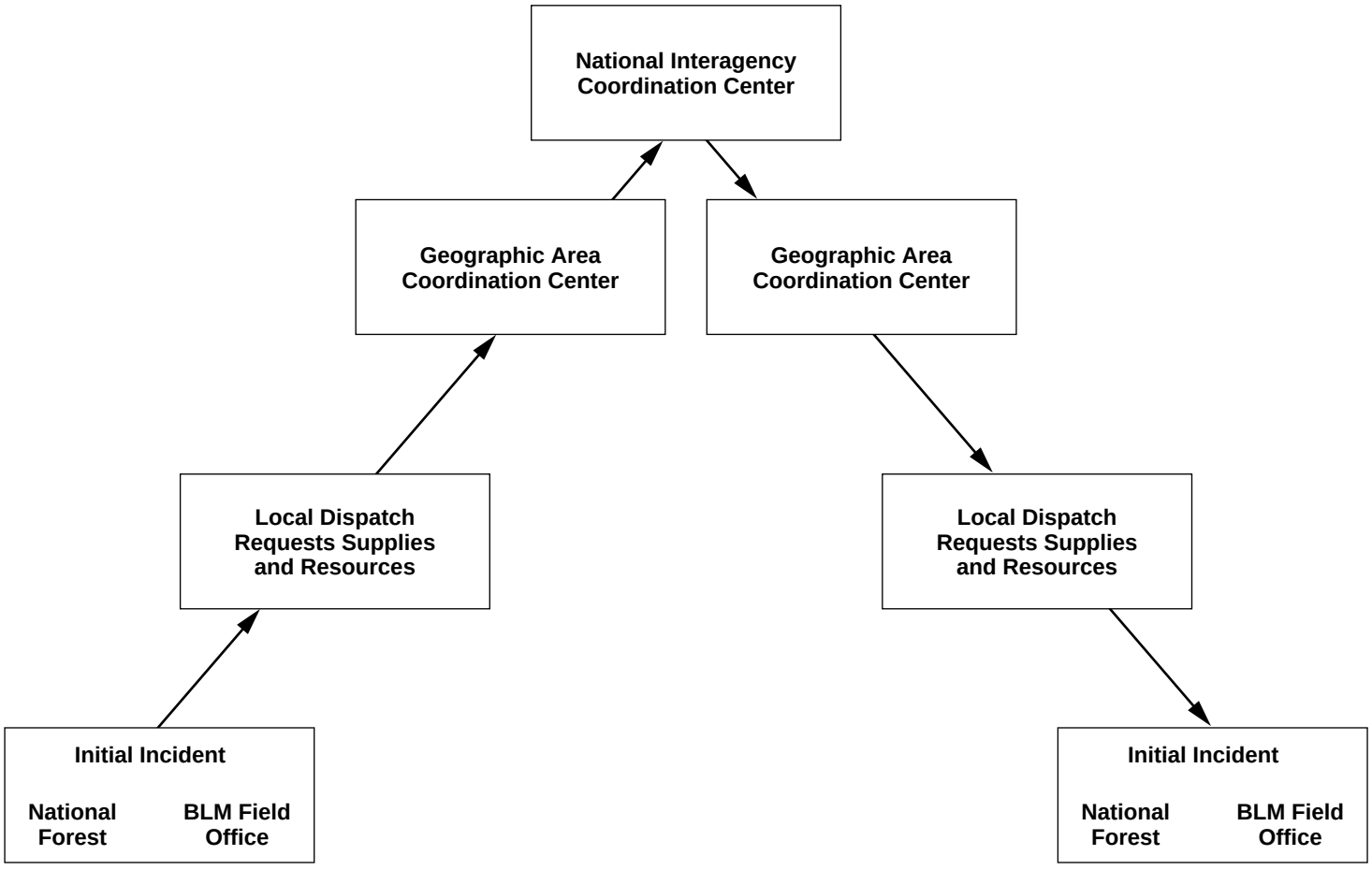
The **Equipment and Supply Cache** is the largest federal warehouse of firefighting equipment and supplies in the United States. The warehouse serves as a primary source of supply for all wildland firefighting agencies in Utah, Nevada, southern Idaho, and western Wyoming.

The **11 geographic area coordination centers** are located primarily west of the Missippi River. If a wildland fire grows too big for local personnel and equipment to fight it, the responsible agency contacts the nearest geographic area coordination center for help. The nearest center will locate and dispatch additional firefighting personnel, equipment, and supplies throughout the geographic area.

Process for Ordering Wildland Firefighting Supplies and Resources

The process for ordering wildland firefighting supplies and resources begins at the incident. Orders from incidents are placed with the local dispatch office. Orders it cannot fill are placed with the nearest geographic area coordination center, which will mobilize resources from within its boundaries. As these resources are depleted, requests are passed on to the National Interagency Coordination Center. For the most part, the National Interagency Coordination Center coordinates the movement of all resources across the boundaries of geographic areas. Figure III.1 demonstrates the flow of orders for resources and supplies to an incident.

Figure III.1: Flow of Firefighting Supplies and Resources



Objectives, Scope, and Methodology

In response to a request from the Chairman, Subcommittee on Forests and Forest Health, House Committee on Resources, we examined (1) the process the Department of Agriculture's Forest Service and the Department of the Interior's Bureau of Land Management (BLM) use to determine the amount of funds needed to prepare for fighting fires; (2) the roles and responsibilities of the National Interagency Fire Center in mobilizing firefighting resources; and (3) the types of agreements reached among federal, state, and local firefighting organizations. We also looked at several issues that could affect the agencies' ability to manage their firefighting programs in the future.

To examine the process the Forest Service and BLM use to determine the funds needed to prepare for fighting fires, we reviewed the steps each agency takes to develop requests for wildfire preparedness funding. Our review was limited to the process used; we did not review the operation of the computerized model used to develop wildfire preparedness funding requests or the validity of the model. We interviewed and obtained wildfire preparedness funding documentation from Forest Service and BLM headquarters officials in Washington, D.C., and Boise, Idaho. In addition, we interviewed, and obtained documentation on wildfire preparedness funding from Forest Service officials at two regional offices and six national forests and BLM officials at one state office and five field offices. We also obtained similar data from officials at the consolidated fire management office in the Pacific Northwest. This office has combined the Forest Service regional and BLM state office functions for fire management in the Pacific Northwest.

Our selection of Forest Service regional offices and BLM state offices was based on several factors. We selected the Pacific Northwest because the fire operations of the Forest Service and BLM are combined and the agencies are operating under a new master cooperative agreement. In addition, the Pacific Northwest has large fire budgets and active fire seasons. We selected the Southwestern Region because it also has large fire budgets and active fire seasons. The Southern Region of the Forest Service was selected to extend the geographic coverage of our work. We selected national forests and BLM field offices that were physically close to one another to facilitate data gathering.

Because we visited a limited number of Forest Service and BLM sites and these sites were not scientifically selected, the wildfire preparedness funding information we obtained may not always be representative of other units in the two agencies. The two Forest Service regional offices

from which we obtained wildfire preparedness funding information are located in Albuquerque, New Mexico, and Atlanta, Georgia. We visited six national forests—the Coronado and Tonto in Arizona; the Fremont, Ochoco, and Malheur in Oregon; and the Chattahoochee/Oconee in Georgia. We visited the BLM state office in Phoenix, Arizona. We also visited five BLM field offices—the Phoenix and Safford offices in Arizona and the Lakeview, Burns, and Prineville offices in Oregon.

We also visited the consolidated Forest Service and BLM fire management office in Portland, Oregon. The consolidated fire management office, which contains the fire management staffs for both the Forest Service's Pacific Northwest Region and BLM's Oregon State Office, has responsibility for managing fires in the Pacific Northwest.

To determine the roles and responsibilities of the National Interagency Fire Center in mobilizing firefighting resources during a fire season, we interviewed and obtained mobilization documentation from Forest Service and BLM officials during our visit to the National Interagency Fire Center, which is located in Boise, Idaho. In addition, to obtain a better understanding of how the National Interagency Fire Center coordinates with the 11 regional geographic area coordination centers located throughout the country for mobilizing firefighting resources, we interviewed Forest Service and BLM officials from the National Interagency Fire Center's National Interagency Coordination Center and Multi-agency Coordination Group. We also visited two of the geographic area coordination centers—the Northwest Area Coordination Center in Portland, Oregon, and the Southern Area Coordination Center in Chamblee, Georgia—to interview agency officials.

To determine the types of coordination agreements reached among federal, state, and local firefighting organizations for providing mutual fire suppression assistance, we obtained from the Forest Service, BLM, and state officials copies of the various coordination agreements in use at each of the locations we visited. Specifically, we obtained and reviewed the Master Cooperative Fire Protection Agreement for the Pacific Northwest, the Joint Powers Agreement for Arizona, and the local individual agreements for the Forest Service and BLM locations visited in Oregon. We also obtained a copy of the Southeastern Interstate Forest Fire Protection Compact, which is an agreement among 10 southeastern states to provide mutual support during forest fires. We interviewed Forest Service and BLM officials at each location visited to learn about the characteristics of the various agreements. We discussed with the officials the attributes of the

various coordination agreements to determine the reasons for the agreements, how well the agreements were working, and what was being done to improve the agreements. We also talked about how well the agreements are working with Georgia and Arizona state fire officials and the representative of the Association of State Foresters at the National Interagency Fire Center.

Our review was conducted from January 1999 through July 1999 in accordance with generally accepted government accounting standards.

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