

GAO

Report to the Chairman, Committee on
Natural Resources, House of
Representatives

December 2010

FEDERAL LANDS

Adopting a Formal, Risk-Based Approach Could Help Land Management Agencies Better Manage Their Law Enforcement Resources



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Why GAO Did This Study

Four federal agencies—the Forest Service in the Department of Agriculture and the Bureau of Land Management, Fish and Wildlife Service, and National Park Service in the Department of the Interior—are responsible for managing federal lands, enforcing federal laws governing the lands and their resources, and ensuring visitor safety. Illegal activities occurring on these lands have raised concerns that the four agencies are becoming less able to protect our natural and cultural resources and ensure public safety.

GAO examined (1) the types of illegal activities occurring on federal lands and the effects of those activities on natural and cultural resources, the public, and agency employees; (2) how the agencies have used their law enforcement resources to respond to these illegal activities; and (3) how the agencies determine their law enforcement resource needs and distribute these resources. GAO reviewed agency documents, interviewed agency officials, and visited or contacted 26 selected agency units.

What GAO Recommends

GAO recommends that the agencies adopt a risk management approach to systematically assess and address threats and vulnerabilities presented by illegal activities on federal lands. In commenting on a draft of this report, the Forest Service and Interior concurred with GAO's recommendation.

FEDERAL LANDS

Adopting a Formal, Risk-Based Approach Could Help Land Management Agencies Better Manage Their Law Enforcement Resources

What GAO Found

A wide variety of illegal activities occurs on federal lands, damaging natural and cultural resources and threatening the safety of the public and agency employees. These activities can range from traffic violations to theft of natural and cultural resources to violent crimes. The frequency with which these illegal activities occur is unknown, as agency data do not fully capture the occurrence of such activities; similarly, the extent of resource damage and threats to public and agency employee safety is also unknown. These activities can have overlapping effects on natural, cultural, and historical resources; public access and safety; and the safety of agency employees. For example, illegal hunting results in the loss of wildlife and may also reduce opportunities for legal hunting. Also, cultivation of marijuana not only increases the availability of illegal drugs but fouls ecosystems and can endanger public and agency employee safety. And theft or vandalism of archaeological and paleontological resources can result in the loss or destruction of irreplaceable artifacts, diminishing sites for future visitors and depriving scientists of important sources of knowledge.

In response to illegal activities occurring on federal lands, agencies have taken a number of actions. For example, three of the four agencies have increased their number of permanent law enforcement officers in recent years. The Bureau of Land Management increased its number of law enforcement officers by about 40 percent since fiscal year 2000, the Forest Service by almost 18 percent during the same period, and the Fish and Wildlife Service by about 26 percent since fiscal year 2006. The agencies have also directed officers to respond specifically to marijuana cultivation and illegal border activities, assigned officers temporarily to areas needing a greater law enforcement presence during certain events and law enforcement operations, and increased the training required for new officers.

Although land management agencies consider varied information on the occurrence and effects of illegal activities on federal lands, the agencies do not systematically assess the risks posed by such activities when determining their needs for resources and where to distribute them. While available information helps the agencies to identify many of the risks that illegal activities pose to natural and cultural resources, the public, and agency employees, limitations in this information do not allow officials to fully assess either the magnitude of those risks or the likelihood of their occurrence. As a result, the agencies cannot systematically assess the relative risks faced by the hundreds of individual land management units across the country when making decisions about needed law enforcement resources and how to distribute those resources. Without systematic approaches to assess the risks they face, the agencies may have limited assurance that they are allocating scarce resources in a manner that effectively addresses the risk of illegal activities on our nation's federal lands.

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Abbreviations

OHV off-highway vehicle

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United States Government Accountability Office
Washington, DC 20548

December 17, 2010

The Honorable Nick J. Rahall, II
Chairman
Committee on Natural Resources
House of Representatives

Dear Mr. Chairman:

Our nation has set aside millions of acres as national forests, wildlife refuges, national parks, and other federal lands to provide and protect important natural resources, preserve our historical and cultural heritage, and offer recreational opportunities. Four federal land management agencies—the Forest Service in the Department of Agriculture and the Bureau of Land Management, Fish and Wildlife Service, and National Park Service in the Department of the Interior—are responsible for managing these federal lands; enforcing federal laws governing the lands and their resources; and, often in conjunction with other federal, state, and local law enforcement agencies, ensuring visitor safety. The agencies' law enforcement programs together employ more than 3,000 uniformed law enforcement officers and investigative special agents to respond to and investigate illegal activities occurring on lands managed by the agencies. In recent years, an increase in certain high-profile illegal activities on federal lands, such as marijuana cultivation and smuggling of drugs and people into the United States, has raised concerns that the land management agencies are becoming less able to protect our nation's natural and cultural resources and ensure public safety.

To better understand the effects of illegal activities occurring on federal lands and how land management agencies have responded to these activities, you asked us to review the law enforcement programs at the four federal land management agencies. Accordingly, this report examines (1) the types of illegal activities occurring on federal lands and the effects of those activities on natural and cultural resources, the public, and agency employees; (2) how the agencies have used their law enforcement resources to respond to these illegal activities; and (3) how the agencies determine their law enforcement resource needs and distribute these resources.

To determine the types and effects of illegal activities occurring on federal lands, we reviewed documents and interviewed law enforcement officials from the land management agencies' headquarters and regional or state

offices.¹ We also collected and analyzed agency data on the recorded frequency and effects of different types of illegal activities. In addition, to determine the occurrence of different types of illegal activities in different areas of the country, we interviewed agency law enforcement officials at headquarters and in each regional or state office, using a standardized set of questions. To observe the effects of illegal activities, and to better understand any regional or agency variation in the occurrence and effects of different types of illegal activities, we visited or contacted 26 selected agency units in eight geographic areas throughout the United States.² Units were selected on the basis of our interviews with regional and state office officials and to include a range of the types of illegal activities occurring on federal lands. Although the information we obtained is not generalizable to all federal lands, it represents a broad spectrum of the types and effects of illegal activities the agencies have identified as occurring on federal lands. To determine how the agencies have used law enforcement resources to respond to different types of illegal activities, we analyzed agency law enforcement staffing data to identify overall staffing trends, reviewed funding and direction provided in various laws and accompanying congressional committee reports, reviewed agency documents, and interviewed officials in headquarters and selected field locations. We assessed the reliability of each agency's staffing data and found them to be sufficiently reliable for purposes of our report. We also reviewed agency documentation on training requirements for law enforcement officers and interviewed headquarters and selected field officials to obtain their perspectives on the sufficiency of training in preparing law enforcement officers to respond effectively and safely to illegal activities. To determine how land management agencies identify their law enforcement resource needs and distribute those resources, we asked agency law enforcement officials at headquarters and at selected regional or state offices to identify the information they consider and the processes they use to make law enforcement staffing decisions. To

¹The National Park Service has two separate law enforcement programs: a park ranger program, which provides law enforcement services at most national park units, and the United States Park Police, which provides law enforcement services at designated units, primarily in the Washington, D.C.; New York; and San Francisco metropolitan areas. Because many of the challenges facing these urban units differ from those facing other federal land management units, we excluded the United States Park Police from this review.

²Of the 26 selected sites, we visited 24 in person and, for the other 2 sites, interviewed law enforcement officials of the Bureau of Land Management's El Centro and Ukiah field offices in the agency's California State Office.

identify federal requirements and best practices for incorporating risk management into agency decision making, we reviewed relevant guidance, including federal standards for internal control.³ To evaluate the extent to which the agencies met risk management requirements and incorporated best practices, we reviewed examples of the types of information officials consider in making resource decisions. Appendix I describes our scope and methodology in more detail, including the locations of the agency units we contacted.

We conducted this performance audit from July 2009 through December 2010, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

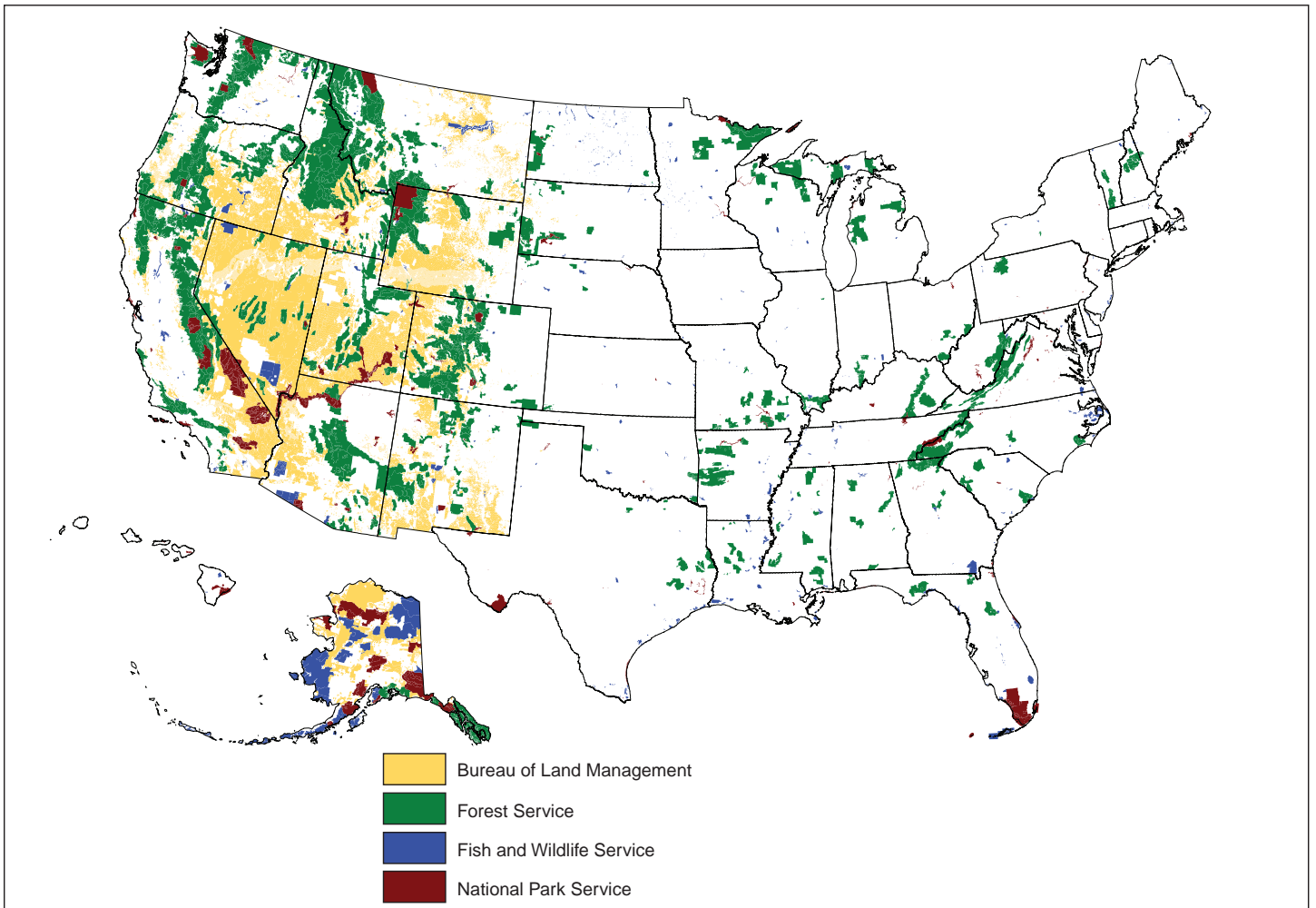
The Forest Service, Bureau of Land Management, Fish and Wildlife Service, and National Park Service manage more than 670 million acres of federal lands across the country (see fig. 1). Each agency has a unique mission, focused on priorities that shape how it manages these lands. Specifically:

- The Forest Service manages land for multiple uses, including timber, recreation, and watershed management and to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations. The Forest Service manages lands under its jurisdiction through nine regional offices and 155 national forests and 20 grasslands.
- The Bureau of Land Management also manages land for multiple uses, including recreation; range; timber; minerals; watershed; wildlife and fish; natural scenic, scientific, and historical values; and the sustained yield of renewable resources. The agency manages public lands under its jurisdiction through 12 state offices; each state office has several subsidiary district and field offices.

³GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

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- The Fish and Wildlife Service manages the National Wildlife Refuge System, a network of lands and waters that provides for the conservation of fish, wildlife, and plants and their habitats, as well as opportunities for wildlife-dependent recreation, including hunting, fishing, and wildlife observation. The refuge system includes about 585 refuges. Individual refuges known as stand-alone refuges report directly to one of eight regional offices, or refuges may be grouped with others into a complex under a common manager, who in turn reports to a regional office.
 - The National Park Service manages the 393 units of the National Park System to conserve the scenery, natural and historic objects, and wildlife of the system so that they will remain unimpaired for the enjoyment of this and future generations. Individual park units have varied designations corresponding to the natural or cultural features they are to conserve, including national parks, monuments, lakeshores, seashores, recreation areas, preserves, and historic sites. The agency has established seven regional offices.

Figure 1: Federal Lands Managed by the Forest Service, Bureau of Land Management, Fish and Wildlife Service, and National Park Service



Source: GAO analysis of U.S Geological Survey's National Atlas Web site data.

To respond to and investigate illegal activities occurring on the lands they manage, the agencies employ uniformed law enforcement officers who patrol federal lands, respond to illegal activities, and conduct routine investigations. In addition, the agencies have investigative special agents who investigate serious crimes in more detail. In this report we use the term “law enforcement officer” to include both uniformed law enforcement officers and investigative special agents, unless noted otherwise. In each of the four agencies, different officials make decisions about law enforcement resource needs. The Forest Service’s law enforcement and investigations program is “straightlined,” meaning that law enforcement officers in the field report to law enforcement officials at a regional office, who in turn report to law enforcement officials at agency headquarters in Washington, D.C. The Forest Service has a budget line item for law enforcement, and within budget constraints, its Director of Law Enforcement and Investigations has authority to make decisions about the number of uniformed officers and investigative agents to employ and where to assign them. In contrast, for the three Interior agencies, law enforcement officials and unit or regional land managers share decision-making authority for the law enforcement programs: in general, law enforcement officials make decisions about the number and location of agents, while land managers—such as a Bureau of Land Management state director, a refuge manager, or a park superintendent—make decisions about uniformed officers for their specific land units. Land managers determine how much of their overall budget they want to allocate to law enforcement activities. This budget must cover each unit’s expenditures for law enforcement, maintenance, visitor services, resource management, and other operations.

State and local law enforcement agencies, as well as other federal agencies, may also play a role in responding to illegal activities occurring on lands managed by the four land management agencies. For example, on some federal lands, state and local law enforcement officers have sole responsibility for responding to certain crimes, such as violent crimes, and on other federal lands, the responsibility for responding to most crimes is shared among federal, state, and local law enforcement officers.⁴ In some locations, state and local law enforcement agencies have entered into agreements allowing federal land management agencies’ law enforcement

⁴The federal government does not always have jurisdiction to prosecute those engaging in illegal activities on federal lands. The federal government’s authority to prosecute depends on a variety of factors, including the type of illegal activity and the precise location where the activity occurred.

officers to act as state and local law enforcement officers on federal lands. Specifically, such agreements may allow the land management agencies' law enforcement officers to enforce state laws, such as traffic laws. Other agreements may allow local law enforcement officers to enforce certain federal laws and regulations, such as fishing and hunting restrictions, on federal lands. And other federal agencies also enforce laws and respond to illegal activities on federal lands. For example, Border Patrol—an office within the Department of Homeland Security—is responsible for controlling and guarding the borders of the United States against the illegal entry and smuggling of people, drugs, or other contraband, and the Drug Enforcement Administration in the Department of Justice enforces federal laws regarding controlled substances.

A Wide Variety of Illegal Activities Occurs on Federal Lands, Damaging Natural and Cultural Resources and Threatening Public and Employee Safety

As in America's cities, suburbs, and rural areas, a wide variety of illegal activities occurs on federal lands around the nation, damaging natural and cultural resources and threatening the safety of the public and agency employees. But it is unknown how often these illegal activities occur because agency data do not fully capture the occurrence and magnitude of such activities; similarly, the extent of resource damage and threats to public and agency employee safety is also unknown. Although agency data are insufficient to quantify the extent of illegal activities or their effects, the data identify a variety of illegal activities occurring on federal lands, ranging from traffic violations to theft of natural and cultural resources to violent crimes. These activities may have overlapping effects on natural, cultural, and historical resources; public access and safety; and the safety of agency employees.

The Full Extent and Effects of Illegal Activities Occurring on Federal Lands Are Unknown

Available information does not allow land management agencies to fully identify either the occurrence of illegal activities on federal lands or the effects of those activities on resources, the public, and agency employees. The agencies maintain data on law enforcement incidents, including information such as the type of crime, characteristics of victims and offenders, and types and value of resources or property damaged or stolen.⁵ These data, however, cannot be used to monitor trends in the

⁵All federal departments and agencies that routinely investigate complaints of criminal activity, including the land management agencies, are required under the Uniform Federal Crime Reporting Act of 1988 to report to the U.S. Attorney General certain details about crimes within their respective jurisdictions. The data collected include information about the type of offense, the offender(s), and the victim(s) involved.

occurrence of illegal activities on federal lands. Agency law enforcement officials told us that an inherent limitation in using these data to assess trends is that a change from one time period to another more likely reflects a change in law enforcement staffing levels or an agency's emphasis on responding to particular types of crime than an actual change in the occurrence of crimes committed. For example, Bureau of Land Management officials told us that the lands they manage in southwestern Colorado are infrequently patrolled by law enforcement personnel and that if the agency increased the number of officers patrolling the area, the number of reported incidents would be likely to increase as well. According to these officials, the increase would most likely be due not to an actual rise in crime but simply to a rise in reported incidents because of the increased law enforcement presence. Moreover, for some illegal activities, such as violent crimes, state and local law enforcement agencies may have primary responsibility for responding even if the illegal activity occurs on federal lands, and the land management agencies may have no record that a crime occurred.

Compounding these inherent shortcomings in incident data, two agencies—the National Park Service and the Fish and Wildlife Service—do not consistently collect or systematically maintain such data. Specifically, law enforcement officials said, of the National Park Service's 393 units, about 100 units have adopted standardized incident-reporting systems, while the rest rely on ad hoc systems that the units have developed themselves. Similarly, although the Fish and Wildlife Service has developed an incident management system, according to the official responsible for managing law enforcement data, the agency does not require refuges to use it, and many refuges continue to use either a legacy data system or paper records to maintain incident data. As a result, National Park Service and Fish and Wildlife Service officials said, it is difficult for them to track regional or national trends in illegal activities.

To help remedy these shortcomings in incident data, Interior, in conjunction with its component agencies, is developing a new law enforcement data system, in part to respond to a 2002 report from its Office of Inspector General, which recommended that Interior develop a departmentwide law enforcement data system.⁶ The system, known as the Incident Management Analysis and Reporting System, is being designed to

⁶Department of the Interior, Office of Inspector General, *Assessment of the Department of Interior's Law Enforcement Activities*, No. 2002-I-0014 (Washington, D.C., Jan. 14, 2002).

improve the agencies' ability to analyze incident data to identify trends in occurrence of illegal activities—for example, by ensuring that senior agency officials have access to similar information for all units across the country and by allowing officials to analyze incidents across agency boundaries. In addition, the system will be compatible with geographic information systems, giving law enforcement officials the ability to analyze geographic trends in illegal activities. When complete, the system has the potential to provide better information on the types of illegal activities occurring at different Interior units across the country. According to Interior's program manager, the agencies began field-testing the new system in November 2010 and expect to deploy it fully by the end of 2012.

Like the extent of illegal activities occurring on federal lands, the effects of such illegal activities on resources, the public, and agency employees are also not fully known. Agency law enforcement officials reported that their agencies do not systematically collect information on the effects of illegal activities, except in certain cases—for example, when needed as evidence in criminal investigations. At units we visited, for example, officials said they had documented damage to specific locations resulting from illegal activities, such as dumping of trash and hazardous materials, marijuana cultivation, timber theft, and unauthorized off-highway vehicle (OHV) use. Senior agency law enforcement officials said that while available information—such as quantities of trash dumped or acres of vegetation damaged to cultivate marijuana—helps them understand the effects of illegal activities on resources at specific locations, they did not believe it is feasible to quantify the effects of all illegal activities across the country.

Agencies Have Identified a Wide Range of Illegal Activities and Impacts on Federal Lands

Although the four land management agencies did not have comprehensive information to determine the level of and trends in illegal activities occurring on the federal lands they manage, law enforcement officials and land managers we interviewed at 26 geographically dispersed agency units identified a variety of illegal activities that have occurred on their units. These officials also identified a variety of impacts that these activities can have on natural and cultural resources and public and employee safety. These illegal activities, described below, can be grouped into eight categories—roughly in order of severity—from least severe, such as traffic violations, to most severe, such as violent crimes.

Traffic Violations

Agency law enforcement officials at several units we visited identified speeding, reckless driving, driving under the influence, and other traffic violations as a set of illegal activities that they encounter frequently on public lands. According to these officials, traffic violations on federal

lands pose safety risks to park visitors and wildlife. For example, the Chief Ranger at Great Smoky Mountains National Park (located along the North Carolina-Tennessee border) estimated that park law enforcement officers spend about 70 to 80 percent of their time enforcing traffic laws. He said that about 300 accidents happen each year in the park and that park law enforcement officers arrest about 40 to 50 people annually for driving under the influence. Officials at several units also told us that the need to patrol roads may sometimes hinder their ability to protect important resources on their units. For example, the chief rangers for Great Smoky Mountains and Cumberland Gap⁷ national parks said that enforcing traffic laws left little time for law enforcement officers to patrol those parks' backcountry areas—areas that are home to important plant and animal species.

Public Intoxication and Possession or Use of Illegal Drugs

Agency law enforcement officials told us that the presence of individuals on federal lands who are publicly intoxicated or who possess or are under the influence of illegal drugs is another kind of illegal activity that they encounter frequently on their units. This activity threatens the safety of other visitors, as well as law enforcement officers. The officials told us that when an area on federal land develops a reputation as a place where people drink or use illegal drugs, the general public sometimes avoids these areas. For example, officials at the Cherokee National Forest in Tennessee said that several of the national forest's campgrounds had developed such reputations. They said that in an effort to reduce problems related to alcohol and drug use and to increase public confidence in the safety of being in the forest, they added law enforcement patrols and prohibited alcohol use in certain campgrounds—efforts they believed had been successful.

Unauthorized Use of Vehicles for Recreation

The unauthorized use of recreational vehicles, such as bicycles, boats, OHVs, and snowmobiles, is another type of illegal activity that occurs at many of the federal land units we visited. Law enforcement officials noted that when agency regulations and policies governing the use of such vehicles are violated, damage to natural or cultural resources and conflicts with other members of the public may arise. Agency officials at many units we visited reported that unauthorized use of OHVs was harming resources by causing soil erosion; damaging vegetation, including in streamside areas; fragmenting wildlife habitat; and damaging archaeological or

⁷Cumberland Gap National Park is located at the junction of Kentucky, Tennessee, and Virginia.

historical sites. For example, soil and vegetation damage from unauthorized OHV use at Sonoran Desert National Monument in Arizona was severe enough that in 2007 the Bureau of Land Management closed about 55,000 acres of the monument to all motorized vehicles (see fig. 2).

Figure 2: OHV-Related Damage at Sonoran Desert National Monument



Source: Bureau of Land Management.

Unauthorized use of boats and snowmobiles can also damage resources and create public conflicts, according to officials at other units we visited. For example, Merritt Island National Wildlife Refuge in Florida has established “manatee zones”—prohibiting motorized boat traffic in some manatee zones and imposing speed limits in others—in an effort to reduce collisions between boats and manatees.⁸ Although manatee zones have helped reduce collisions, according to refuge officials, some boaters enter closed areas or exceed speed limits, and collisions still occur. Similarly, at Everglades National Park in Florida, officials reported damage to seagrass in Florida Bay from unauthorized boat traffic. The officials said that motorized boats are allowed in Florida Bay but are prohibited from

⁸The West Indian manatee is listed as endangered under the Endangered Species Act.

touching the seafloor bottom, which is designated as wilderness.⁹ Much of Florida Bay, however, is less than 2 feet deep, and boats can run aground, or propellers can scrape seagrass growing on the bay floor, causing damage known as “prop scars” (see fig. 3). In addition, officials at the Superior National Forest in Minnesota said that unauthorized use of motorized boats and snowmobiles in closed areas diminishes the wilderness experience for visitors to the Boundary Waters Canoe Area, the nation’s most visited wilderness area.

⁹Federal lands designated by Congress as wilderness areas under the Wilderness Act of 1964 are to be administered in such a manner as will leave them unimpaired for future use and enjoyment as wilderness and to provide for their protection and the preservation of their wilderness character, among other goals. The act defines wilderness as areas of undeveloped federal land retaining their primeval character, without permanent improvements or human habitation. The act generally prohibits the construction of roads or structures, as well as the use of motor vehicles, motorized equipment, and other forms of mechanical transport in wilderness areas. Under the act, Congress has established about 759 wilderness areas, totaling nearly 110 million acres.

Figure 3: Scarring Created by Boat Propellers in Florida Bay, Everglades National Park



Source: National Park Service.

Unauthorized Construction, Waste Disposal, Trespass, and Commercial Activity

Officials at many units we visited also reported that people use federal lands for a broad range of other unauthorized purposes. For example, landowners whose property borders federal lands have constructed access roads; outbuildings; and, in some cases, houses on federal lands. In addition, hunters have built unauthorized platforms or shelters in trees to hunt from, and these structures are often accompanied by a network of OHV trails, cutting of vegetation to improve sightlines, and garbage. Other officials noted that their lands are often used for illegal dumping of household and commercial waste—including toxic or otherwise dangerous waste. According to these officials, such illegal activities can harm ecosystems, damage vegetation, reduce wildlife habitat, introduce dangerous materials into the environment, diminish public safety, and have other negative effects on natural resources and the public. For example, Sonoran Desert National Monument officials reported that dumping cases have included several dump-truck-loads of tires, more than

500 gallons of motor oil, and cyanide and explosives from mining operations.

Several units we visited also reported problems with people staying in an area longer than permissible, known as illegal occupancy. In some cases, the people were in essence living on federal lands. Illegal occupancy can damage vegetation, generate garbage and human waste, affect wildlife behavior, and curtail public access to federal lands, according to agency officials. Some officials also said that some of the violators pose threats to the public. In Florida, for example, Ocala National Forest officials estimated that several hundred people lived illegally in the forest in 2006 and that these people committed other crimes, including illegal drug use, assault, and rape. Subsequently, forest officials initiated a “Reshaping the Ocala” campaign intended to deter such crimes. Officials said they increased law enforcement staff, strengthened length-of-stay orders to make them easier to enforce, and raised fines—efforts they say have reduced the effect of these types of illegal activities.

Several units also reported problems with unauthorized commercial activities—such as guided hunting, rafting, and sightseeing trips—on federal lands. Officials said that commercial activities conducted without permits can take customers away from authorized businesses; detract from the experience of customers using authorized guides; and may pose safety risks to the public, since guides operating illegally may not take safety precautions or have the insurance an agency may require of operators. Moreover, since the number of permits an agency issues may be based on an assessment of cumulative effects on natural resources (e.g., permitting a certain number of commercial hunting guides to operate in an area on the basis of predicted effects on wildlife), unauthorized guides can increase pressure on those resources.

Theft of or Damage to Natural and Cultural Resources and Government and Private Property

Officials at many of the sites we visited reported that natural and cultural resources and government and personal property on federal lands have been stolen or damaged by illegal activities. Such theft or damage not only harms the resources—including rare species and species of commercial value—but also adds costs to the agencies and the public and diminishes the public’s enjoyment of federal lands, according to these officials. In addition, theft or vandalism of archaeological and paleontological resources can lead to the loss or destruction of irreplaceable artifacts and deprive scientists of important sources of knowledge. Some examples of these kinds of illegal activities include the following:

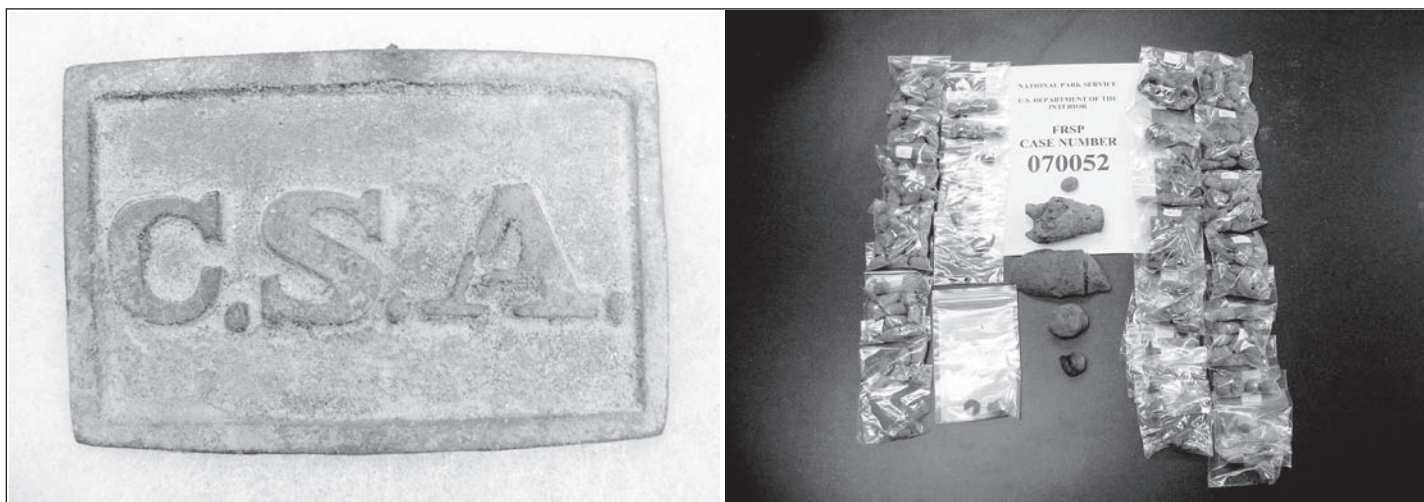
-
- Timber theft occurs on federal lands when a business cuts more trees than allowed under its contract with an agency or when neighboring landowners illegally remove trees from federal lands. In addition, individual trees with high commercial value may also be stolen from federal lands. For example, a law enforcement officer responsible for several national forests in Washington said that large cedar and bigleaf maple trees, often hundreds of years old, are stolen from the national forests. She estimated that a single bigleaf maple tree could be sold for about \$20,000 because the wood is highly valued for making musical instruments.
 - Theft of other forest products, including medicinal plants such as ginseng, mushrooms, ornamental landscaping plants, and greenery for floral arrangements, also occurs on federal lands. For example, officials at Cumberland Gap and Great Smoky Mountains national parks and the Cherokee National Forest said that while they do not know exactly how often ginseng theft occurs because these thefts are difficult to identify, they believe it occurs frequently. One official said he was concerned that such thefts could substantially reduce ginseng populations on federal lands,¹⁰ which could in turn lead to listing of the plant as threatened or endangered under the Endangered Species Act.
 - Illegal hunting of bear, elk, waterfowl, and other wildlife and illegal fishing are common on federal lands. Hunting and fishing restrictions are typically designed to achieve desired population levels of the animals, and illegal hunting and fishing can reduce the population below desired levels. It can also decrease the likelihood of success for people who are hunting or fishing legally and, in some cases, can result in the closure of an area. Everglades National Park officials, for example, told us that they closed part of the park to all public access because of illegal hunting of American crocodiles, designated as threatened in Florida under the Endangered Species Act, and officials at the Cherokee National Forest said that the state of Tennessee has closed several areas in the forest to hunting to make it harder to illegally hunt black bears.
 - Archaeological artifacts have been stolen and sites vandalized on federal lands. Officials admitted that they do not know the extent of the problem, in part because many archaeological sites are undocumented and others

¹⁰Wild ginseng is relatively rare, and the official said that the healthiest populations are located mostly on federal lands.

are in remote areas where monitoring is difficult. In some cases, the damage from any one incident may be small, but officials said that the cumulative effect can diminish the site for future visitors and sometimes compromise scientific understanding. In addition, officials identified theft of significant artifacts, including the systematic looting of archaeological sites, as an important concern. For example, Bureau of Land Management officials reported that a 2009 investigation into the theft and trafficking of more than 250 Indian artifacts, valued at more than \$330,000, from tribal and federal lands in the Southwest—the largest such case in the United States—led to the indictment of 28 people and nine felony convictions as of October 2010 and that additional indictments are expected. Some of the artifacts stolen, and later recovered by law enforcement officers during this investigation, included burial and ceremonial masks, pottery, and a buffalo headdress. Archaeological sites can also be vandalized: for example, several Indian pictographs have been vandalized at Arches and Canyonlands national parks in Utah.

- Historical artifacts have also been stolen or damaged on federal lands. Theft of Civil War artifacts is a major concern at Fredericksburg and Spotsylvania National Military Park in Virginia, according to agency officials. About 200 artifacts were stolen in 2007, for example, causing an estimated \$57,000 in damaged or lost resources (see fig. 4). Moreover, officials said that historical resources such as Civil War earthworks or trenches have been damaged by unauthorized activities, including climbing or walking on them, riding on or over them with bicycles and OHVs, and unauthorized development on adjacent properties.

Figure 4: Civil War Artifacts Stolen from Fredericksburg and Spotsylvania National Military Park



Source: National Park Service.

- Officials at the Fish and Wildlife Service’s Detroit Lakes Wetland Management District in Minnesota reported that some property owners violate the conditions of minimally restrictive easements purchased by the federal government to protect wetlands and grasslands—actions that hinder the agency’s efforts to protect breeding habitat for more than 60 percent of key migratory bird species in the United States.¹¹ These easements are managed by the Fish and Wildlife Service to provide habitat for migratory birds, particularly waterfowl, in the Prairie Pothole Region of the north-central United States.¹² Fish and Wildlife Service officials reported that some property owners have drained protected wetlands to expand their land under cultivation or have grazed livestock on protected grasslands during migratory birds’ nesting periods.

¹¹In exchange for a one-time, lump-sum payment from the federal government, private owners of wetlands agreed not to drain, fill, or level them. Similarly, private owners of grasslands agreed not to destroy the vegetative cover by tilling, haying, or other means during the annual migratory bird nesting season.

¹²The Secretary of the Interior is authorized to use the Migratory Bird Conservation Fund to purchase both fee-simple lands and easements to acquire waterfowl production areas that provide necessary habitat for waterfowl and other migratory birds. Easements, although private property, are considered part of the National Wildlife Refuge System. See GAO, *Prairie Pothole Region: At the Current Pace of Acquisitions, the U.S. Fish and Wildlife Service Is Unlikely to Achieve Its Habitat Protection Goals for Migratory Birds*, [GAO-07-1093](#) (Washington, D.C.: Sept. 27, 2007).

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- Government and private property can be stolen or damaged on federal lands. Theft or damage of government property, such as equipment, road signs, gates, and structures, can result in costs to the agencies and detract from the public's experience, for example, when restrooms or information kiosks are vandalized. Similarly, theft or damage of private property—for example, when valuables are stolen from parked vehicles—can impose costs on the visiting public.

Marijuana Cultivation

According to officials at several federal land units we visited and National Drug Intelligence Center reports, marijuana is increasingly grown on federal lands.¹³ Law enforcement officials told us that although most such marijuana cultivation has historically occurred on the West Coast, intensive cultivation—in many cases by large-scale international drug-trafficking organizations—has spread to other regions of the country in recent years. The National Drug Intelligence Center reported that more than 4 million plants were eradicated from federal lands in 2008—about half of all outdoor-grown marijuana eradicated in the United States.

Marijuana cultivation on federal lands not only increases the availability of illegal drugs but also harms ecosystems, according to the federal land managers we spoke with. Specifically, these officials identified the following resource impacts of marijuana cultivation on federal lands:

- removal of natural vegetation and the application of pesticides, herbicides, fertilizers, and other chemicals, including chemicals that may be banned in the United States;
- diversion of water from streams, which has reduced downstream waterflows and has harmed fish and amphibians;
- killing of wildlife, including bear and deer, to keep the animals from eating or trampling marijuana plants or to supplement growers' food stocks;
- deposits of large amounts of trash and human waste; and

¹³The National Drug Intelligence Center was established by the Department of Defense Appropriations Act for fiscal year 1993 (Pub. L. No. 102-396 (1992)) to coordinate and consolidate drug intelligence from all national security and law enforcement agencies and to produce information regarding the structure, membership, finances, communications, and activities of drug-trafficking organizations. The center is under the direction and control of the U.S. Attorney General.

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- setting of wildland fires, either intentionally or accidentally, which have also degraded the natural resources on federal lands.

Cleaning up cultivation sites is important, not only to restore damaged areas, but also to make it less likely that growers will return, agency officials told us. In 2008, the National Park Service restored 14 marijuana cultivation sites in its Pacific West Region. To clean up these sites, the National Park Service removed more than 10 miles of irrigation hose, about 10,000 pounds of trash, and more than 3,700 pounds of fertilizer, as well as pounds of hazardous chemicals such as pesticides (see fig. 5). Cleaning up marijuana cultivation sites costs an estimated \$10,000 to \$15,000 an acre and reduces the agencies' ability to accomplish other planned work, according to agency officials.

Figure 5: Damage Caused by Marijuana Cultivation



Source: National Park Service.

Moreover, marijuana growers are typically armed, posing a threat to public safety and agency employees, according to agency law enforcement officials. Hunters, hikers, and other members of the public, as well as agency employees, have been shot, shot at, kidnapped, and threatened with violence. Although such violent encounters are rare, law enforcement officials at several units we visited said that marijuana growers have become more violent in recent years. Law enforcement officials also said that the public is increasingly aware of the danger and that some people avoid areas where marijuana cultivation is likely. In some areas, the threat posed by marijuana growers has also affected the agencies' ability to work

in remote areas. A regional Forest Service law enforcement official in California told us that the agency had to remove three crews of wildland firefighters during an 8-week period in 2009 because of encounters with marijuana growers.

Illegal Border Activity

Law enforcement officials told us that some remote federal lands along the U.S. border are often used to smuggle drugs or humans into the country. According to these officials, such illegal activities can damage sensitive wildlife habitat and threaten public safety.¹⁴ Officials at every unit we visited in Arizona reported substantial natural resource damage from illegal border activity (see fig. 6).¹⁵ In 2006, for example, the Refuge Manager of Buenos Aires National Wildlife Refuge testified before the House of Representative's Subcommittee on Interior, Environment, and Related Agencies of the Committee on Appropriations that an estimated 235,000 people entered the United States illegally across refuge lands in 2005. He reported that illegal border crossers had disturbed wildlife and created more than 1,300 miles of illegal trails, causing the loss of vegetation and severe erosion. He also estimated that each year illegal border crossers leave more than 500 tons of trash and more than 100 abandoned vehicles on the refuge. Further, officials at several units we visited reported that illegal border crossers have started wildland fires, either by accident (e.g., from a cooking fire that escaped) or on purpose (e.g., to divert law enforcement resources away from certain areas). Officials at Buenos Aires National Wildlife Refuge told us that illegal border activity was damaging sensitive desert ecosystems—including habitat for several threatened or endangered species, such as the masked bobwhite quail and Sonoran pronghorn—although the officials were unable to quantify the effects of illegal activity on these populations.

¹⁴A recent GAO report discusses illegal border activities and their effects in more detail. See GAO, *Southwest Border: More Timely Border Patrol Access and Training Could Improve Security Operations and Natural Resource Protection on Federal Lands*, [GAO-11-38](#) (Washington, D.C.: Oct. 19, 2010).

¹⁵Illegal border activities also took place at the three units we visited on the northern border with Canada, although, unlike units we visited along the southwestern border, officials at the northern units did not report significant impacts on resources or the public. Nonetheless, officials at all three northern border units observed that both drugs and humans have been smuggled into the United States across their lands and that violent encounters between smugglers and the public could occur.

Figure 6: Vegetation and Soil Damage and Garbage Resulting from Illegal Border Activity



Source: Forest Service.

Illegal border activities also affect the safety of the public and agency employees. For example, officials at the three units we visited in Arizona—Buenos Aires National Wildlife Refuge, Coronado National Forest, and Sonoran Desert National Monument—observed that smugglers are often armed and pose a risk to public and employee safety. The officials said that, while few violent encounters between smugglers and the public have occurred to date, many illegal immigrants or smugglers have been murdered or raped on federal lands. Officials also reported that illegal border crossers have stolen vehicles (both private and government owned), broken into agency employee housing, and stolen food and water. Officials also said that visitors to federal lands in these areas are concerned about their safety and that some visitors have said they no longer go to certain areas because of the illegal activities. In some cases, the agencies have determined that the risk to public safety is high enough to warrant closing areas to public use. Buenos Aires National Wildlife Refuge, for example, has closed a portion of the refuge adjacent to the border to reduce the risk to the public. Similarly, the National Park Service closed most of Organ Pipe Cactus National Monument, a popular location for bird-watching, after a park law enforcement officer was murdered in 2002 by a member of a drug-trafficking organization.

Violent Crimes

According to law enforcement officials at the units we visited, the public and agency employees can also be the victims of violence, including

assault, rape, and homicide, on federal lands. Although land management officials stressed that this kind of violence remains rare, several units we visited reported some violent incidents. For example, Ocala National Forest officials reported that two college students were murdered in the forest in 2006. Similarly, Bureau of Land Management officials in California reported examples of violence, including rape and severe assaults, in the Imperial Sand Dunes Recreation Area—a popular OHV location that can attract 150,000 or more people on holiday weekends. Agency employees, including law enforcement officers, may also fall victim to violence. For example, a Forest Service law enforcement officer in Washington was murdered during a traffic stop in 2008. Beyond the immediate impact on victims, some officials told us, such violent crimes also have an effect on the public because after such incidents happen, the public is more likely to avoid areas they suspect may be prone to violence.

Agencies Have Dedicated More Law Enforcement Resources to Responding to Illegal Activities on Federal Lands

In recent years, federal land management agencies have responded to illegal activities occurring on federal lands in several ways. They have generally increased the number of law enforcement officers, directed officers to respond to marijuana cultivation and illegal border activities, assigned officers temporarily to areas needing a greater law enforcement presence, and increased the training required for new law enforcement officers.

Three of the Four Agencies Have Increased Their Law Enforcement Presence to Respond to Illegal Activities Occurring on the Lands They Manage

In response to illegal activities occurring on federal lands, three of the four agencies have increased the number of their permanent law enforcement officers in recent years (see table 1). For example, the Bureau of Land Management has increased the number of its permanent law enforcement officers by about 40 percent since fiscal year 2000, and the Forest Service increased the number of its officers by almost 18 percent over the same period. Similarly, since fiscal year 2006, the Fish and Wildlife Service increased by about 26 percent the number of its permanent officers

performing law enforcement duties on a full-time basis.¹⁶ The National Park Service, in contrast, decreased its permanent law enforcement officers by more than 12 percent since fiscal year 2005, although the agency partially compensated for this loss by increasing the number of law enforcement officers it hired on a seasonal, rather than permanent, basis.

Table 1: Numbers of Permanent Law Enforcement Officers, by Land Management Agency, Fiscal Years 2000 through 2009

Agency	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Percentage change
Forest Service	630	680	660	697	692	663	627	687	751	742	17.78%
Bureau of Land Management	213	228	251	267	264	260	267	260	279	300	40.85
Fish and Wildlife Service ^{a,b}	–	–	–	–	–	–	217	234	254	273	25.81
National Park Service ^{a,c}	–	–	–	–	–	1,658	1,555	1,470	1,418	1,450	–12.55

Source: GAO analysis of agency data.

Note: Numbers represent permanent law enforcement staff, including law enforcement officers and investigative special agents, as of August or September of each fiscal year.

^aThe Fish and Wildlife Service and National Park Service were unable to provide sufficiently reliable data for fiscal years 2000 through 2005 and 2000 through 2004, respectively.

^bNumbers for the Fish and Wildlife Service exclude permanent officers who perform predominantly non-law enforcement duties, as well as investigative special agents because Fish and Wildlife Service investigative special agents investigate primarily illegal activities—such as violations of the Endangered Species Act or Migratory Bird Treaty Act—occurring primarily on nonfederal lands.

^cNumbers for the National Park Service exclude the United States Park Police, which was outside the scope of our review.

At the Fish and Wildlife Service, however, the potential benefits of the overall increase in the number of law enforcement officers may have been partially offset: Although the Fish and Wildlife Service substantially increased the number of its full-time law enforcement officers, it also reduced the number of part-time officers by more than 34 percent. According to the Chief of the Division of Refuge Law Enforcement, this reduction came in response to a 2002 review by Interior’s Office of Inspector General, which reported that law enforcement on federal lands was becoming more dangerous and raised concerns about the safety of

¹⁶The Fish and Wildlife Service also employs permanent officers who perform law enforcement duties on a part-time basis. Part-time law enforcement officers (known as dual-function officers) are employed full-time by the agency, but their primary duties are unrelated to law enforcement. Part-time officers are held to the same standards and training as permanent officers but spend only 25 to 50 percent of their time performing law enforcement duties.

using part-time law enforcement officers.¹⁷ In response to the Inspector General's concern, the refuge law enforcement division chief told us, the agency made a concerted effort to reduce the number of part-time officers and also required all of its part-time law enforcement officers to spend at least 25 percent of their time performing law enforcement duties. Still, the refuge law enforcement division chief recognized that the reduction in part-time officers meant the loss of a number of officers who, in past years, would have been available to respond to illegal activities.

Although the National Park Service, in contrast to the other agencies, decreased the number of its permanent law enforcement officers, this decline has been accompanied by about a 25 percent increase since 2006 in the number of officers employed on a seasonal basis. The National Park Service uses seasonal officers—those employed for less than 6 months per year—to respond to seasonal changes in national park visitation. National Park Service officials reported that seasonal officers do not receive the same training as permanent officers. Moreover, echoing concerns it raised about the use of part-time officers, Interior's Inspector General also raised concerns about the use of seasonal officers, recommending that the Interior agencies also reduce their dependence on such officers. A senior National Park Service official told us that the agency recognizes the Inspector General's concerns about using seasonal officers, but that units with large seasonal variations in visitation may not have sufficient work to warrant hiring additional permanent officers.

Despite the general increase in the agencies' law enforcement staffing, agency officials at several units we visited said that law enforcement resources in some areas have remained thin. For example, in southeastern Utah, one Bureau of Land Management officer is responsible for patrolling about 1.8 million acres of land rich in archaeological resources—including lands from which archaeological artifacts have been stolen in recent years. According to this officer, when she has been on leave, at training, or temporarily assigned to assist other units, the area has been left without law enforcement coverage. Likewise, Fish and Wildlife Service officials told us that the Merritt Island National Wildlife Refuge Complex—which includes six refuges spread across five counties—has had 2 full-time officers and 2 part-time officers. As a result, the officials said, some of the

¹⁷Department of the Interior, Office of Inspector General, *Disquieting State of Disorder: An Assessment of Department of the Interior Law Enforcement*, Report No. 2002-I-0014 (Washington, D.C., 2002).

refuges have little to no regular law enforcement coverage. Similarly, the Chesapeake Marshlands National Wildlife Refuge Complex—which includes four refuges in Maryland and Virginia—has had 1 full-time officer and 1 part-time officer. Additionally, a Forest Service official said that there were 12 law enforcement officers to patrol three national forests in southwestern Colorado, totaling about 7.5 million acres, and that certain areas of those forests are rarely patrolled by law enforcement officers.¹⁸

The Agencies Have Directed Resources to Respond Specifically to Marijuana Cultivation and Illegal Border Activities

Agency documents indicate that the agencies have directed additional law enforcement resources to certain areas of the country in a specific effort to deter cultivation of marijuana on federal lands and illegal activities occurring on federal lands along the United States-Mexico border. Agency law enforcement officials told us that the agencies have placed high priority on distributing law enforcement resources to areas where these illegal activities are most prevalent—in part responding to direction from congressional committees and to the high risk posed by these activities to visitors, employees, and resources. To deter marijuana cultivation on federal lands, for example, the agencies have taken numerous steps, including the following:

- Interior began its marijuana eradication initiative in fiscal year 2009, intended to provide a coordinated, interagency strategy involving Interior and its bureaus, the Forest Service, and other federal law enforcement agencies to improve eradication of marijuana and drug interdiction and to measurably increase the protection of public lands, employees, and visitors.
- The Bureau of Land Management reported using \$5.1 million in fiscal year 2009 to hire 10 more law enforcement officers in six western states; fund marijuana detection, investigation, and eradication operations on its lands; purchase and upgrade communications and law enforcement equipment; fund cooperative agreements with state and local law enforcement agencies; and rehabilitate and restore former cultivation sites.
- The Forest Service reported that it hired 29 law enforcement officers in California, using a portion of \$12 million appropriated in fiscal year 2007

¹⁸The three forests are the Grand Mesa-Uncompahgre-Gunnison, the Rio Grande, and the San Juan national forests.

for a nationwide initiative to increase protection of national forest lands from drug-trafficking organizations.¹⁹

- The National Park Service reported that it directed about \$2.7 million to several national parks in California and Washington to help the parks respond to marijuana cultivation in fiscal year 2009; similarly, the agency reported directing \$448,000 to Sequoia and Kings Canyon national parks and \$316,000 to Whiskeytown National Recreation Area in California in fiscal year 2006.
- The National Park Service also reported that in fiscal year 2009 it created a marijuana investigation and response team, which the agency deploys to carry out marijuana prevention, detection, eradication, and restoration operations in park units affected by marijuana cultivation. For example, according to the National Park Service's Chief Ranger of the Pacific West Region, officers from the team; the Forest Service; and 14 other federal, state, and local law enforcement agencies jointly conducted Operation Save Our Sierra in 2009. This operation eradicated more than 400,000 marijuana plants from 71 cultivation sites across Fresno County, California.

The agencies have also directed resources to deter illegal activity along the United States-Mexico border. For example:

- In fiscal year 2009, Interior established its Safe Borderlands initiative, intended to “provide a safe environment for people and protect resources through the focused deployment of personnel, restoration of ecosystems, and integrated partnerships along the southwest border.”
- The Fish and Wildlife Service reported that it added six new law enforcement officers to four refuges along the border in 2009.
- The Bureau of Land Management reported that in 2008 it hired nine law enforcement officers in Arizona, California, and New Mexico. In fiscal year 2009, the agency also directed \$350,000 to purchase new radios for law enforcement officers working along the border.
- In 2007, the Forest Service added eight law enforcement officers at the Coronado National Forest to deter illegal cross-border activity, according to agency officials.

¹⁹Pub. L. No. 110-28, 121 Stat. 112, 165 (2007).

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- The National Park Service reported that it constructed a vehicle barrier along the border at Organ Pipe Cactus National Monument in response to direction in committee reports accompanying the agency's fiscal year 2003, 2004, and 2005 appropriations.²⁰ The agency also reported that in recent years it added more than 30 law enforcement officers to five parks along the border in Arizona and Texas.

Agencies Have Also Temporarily Assigned Law Enforcement Staff to Curtail Illegal Activities at Certain Locations as Needed

The agencies have also temporarily assigned, or detailed, law enforcement officers to areas where more officers have been needed to anticipate increases in visitation, carry out planned operations such as patrolling the border or eradicating marijuana, or assist other law enforcement agencies outside federal lands.²¹ For example, Bureau of Land Management officials told us, 40 officers are detailed to the Imperial Sand Dunes Recreation Area on four major holiday weekends each year to protect resources and ensure visitor safety during large gatherings of OHV enthusiasts. Similarly, officials at the Okanogan-Wenatchee National Forest in Washington and Merritt Island National Wildlife Refuge told us that detailees have been used during hunting seasons and large fishing tournaments to discourage hunting and fishing violations. National Park Service officials reported that the agency temporarily deployed 7 to 11 officers on multiple occasions to Organ Pipe Cactus National Monument to assist with the interdiction of drug and human smuggling. In addition, Bureau of Land Management officials told us that the agency has identified officers with expertise in marijuana investigations and organized them into regional pools to provide additional investigative support on a case-by-case basis in areas where significant marijuana cultivation sites have been discovered. Headquarters officials for all four agencies said that temporarily detailing staff allows them to augment their law enforcement presence when and where needed, but they also said they recognized that doing so reduces the law enforcement presence at other locations.

²⁰H.R. Rep. No. 108-10, at 990 (2003) (Conf. Rep.) (fencing); H.R. Rep. No. 108-330, at 103 (2003) (Conf. Rep.) (vehicle barrier); H.R. Rep. No. 108-792, at 1049 (2004) (Conf. Rep.) (vehicle barrier).

²¹Agency officials report that the land management agencies assist one another by providing additional officers and other resources when requested by another agency. In addition, land management agencies and other federal, state, and local law enforcement agencies assist one another as needed.

Agencies Have Increased the Training Required for Law Enforcement Officers

To better prepare their law enforcement officers to respond safely to illegal activities occurring on federal lands, the agencies have increased the training new officers are required to complete. Specifically, each of the agencies now require new law enforcement officers to complete similar three-part training curriculums. First, new officers are required to pass the land management police training program, a 16-week course developed in 2005 by the Federal Law Enforcement Training Center in conjunction with federal land management agencies.²² A description of the training indicates that the course covers law enforcement skills and knowledge that officers for all federal land management agencies need to perform their duties effectively. Second, the agencies require new officers to receive training about the laws, regulations, and policies specific to each agency. The Interior agencies have established 1- to 3-week classroom courses covering agency-specific information, and the Forest Service has integrated this information into its field officer-training program. Third, the agencies have established field officer-training programs, varying in length from 9 to 12 weeks, which allow new officers to apply the knowledge and skills learned in the classroom to law enforcement duties in the field under the supervision of experienced officers. The land management police-training and field officer-training programs were established over the past decade, in part in response to shortcomings identified by Interior's Inspector General.²³ Law enforcement officials at most federal land units we visited said that the training required for new officers generally prepared them well for performing their duties effectively and safely.

Some officials at units we visited also said that responding to marijuana cultivation and illegal border activities pose certain risks and that additional specialized training would help officers better respond to those activities. The Forest Service requires its law enforcement officers to complete a 2-week course on drug enforcement before they are allowed to do substantial work investigating drug-trafficking operations. This course trains officers to identify marijuana cultivation sites, understand the hazards of investigating these sites, and practice special surveillance and

²²The Federal Law Enforcement Training Center is a component of the Department of Homeland Security. The land management police training course was developed by the training center in conjunction with the U.S. Park Police, National Park Service, Fish and Wildlife Service, Forest Service, Bureau of Land Management, Tennessee Valley Authority, and National Marine Fisheries Service.

²³Department of the Interior, Office of Inspector General, *Disquieting State of Disorder*.

tactics. Law enforcement officers at one national forest we visited said that although this training was useful, more emphasis on special tactics would improve the effectiveness and safety of marijuana eradication operations. In contrast, the Interior agencies do not require officers to complete specialized drug enforcement training. Bureau of Land Management law enforcement officers in California said that more tactical training would help them better respond to the challenges posed by drug-trafficking organizations. Similarly, a Bureau of Land Management law enforcement officer in Arizona said that additional tactical training would help officers better respond to illegal border activities. A senior law enforcement official for the Bureau of Land Management told us that the agency recognizes the need for additional tactical training for law enforcement personnel who respond to these types of illegal activities and plans to incorporate 8 hours of such training into its 2011 training curriculum. A National Park Service official also told us the agency plans to hold a 2-week course in 2011 on special operations and tactics for law enforcement officers who work along the border.

Agencies’ Determination of Law Enforcement Resource Needs and Distribution Does Not Systematically Assess the Risks Posed by Illegal Activities

Although land management agencies consider varied information on the occurrence and effects of illegal activities on federal lands, the agencies do not systematically assess the risks posed by such activities when determining their needs for resources and where to distribute them. Because of limitations in the information they consider, officials cannot fully assess either the magnitude of the risks posed by illegal activities or the likelihood of their occurrence. As a result, when making decisions about needed law enforcement resources and how to distribute those resources, the agencies cannot systematically assess the relative risks faced by the hundreds of individual land management units across the country.

To better achieve their missions and improve accountability, federal agencies are required to employ certain internal controls, including assessing the risks agencies face from both external and internal sources.²⁴ Applying the federal risk assessment standard to illegal activities occurring on federal lands therefore suggests that—to respond effectively to these activities and reduce their effect on natural and cultural resources, the public, and agency employees—land management agencies should, at a minimum, (1) comprehensively identify the risks posed by

²⁴GAO/AIMD-00-21.3.1.

illegal activities on their lands, (2) assess identified risks to determine their magnitude and the likelihood of their occurrence, and (3) use information from these assessments in determining the law enforcement resources they need and how to distribute those resources. The risk assessment standard recognizes that the specific risk analysis methodology used can vary by agency because of differences in agencies' missions and the difficulty in qualitatively and quantitatively assigning risk levels. Nevertheless, without a systematic process that incorporates all of these elements, the agencies may have limited assurance that they are using their law enforcement resources in a manner that effectively addresses the risk of illegal activities, and they are limited in their ability to meet the federal risk assessment standard.

In determining their law enforcement resource needs and how to distribute these resources, law enforcement officials told us they consider various types of information on the occurrence and effects of illegal activities on their federal land units. Because of limitations in the information they consider, however, land management agency officials are unable to fully assess either the magnitude of the risks related to illegal activities on federal lands or the likelihood of their occurrence. Moreover, law enforcement officials identified various approaches that their respective agencies use to determine resource needs, but limitations in these approaches also hinder the agencies' ability to systematically assess the relative risks faced by the hundreds of individual land management units across the country or the agencies as a whole.

According to law enforcement officials and land managers we spoke with, they consider the available information on the occurrence and effects of illegal activities on federal lands and use various approaches in managing their law enforcement resources, including the following:

- *Incident data on illegal activities occurring on federal lands.* Land management agencies maintain some data on law enforcement incidents, including the type of crime, characteristics of victims and offenders, and types and value of resources or property damaged or stolen. Incident data allow officials at a unit, regional or state office, or headquarters to identify different types of illegal activities occurring on particular federal lands. But, as discussed earlier, the incident data the agencies rely on are limited for a variety of reasons and cannot be used to accurately indicate or monitor the trends in occurrence of illegal activities on federal lands.
- *Information on the effects of illegal activities.* Agencies collect some information on the effects of illegal activities on natural and cultural

resources and on public and employee safety. As mentioned earlier, at several units we visited, officials said they had documented damage to specific locations from dumping of trash and hazardous materials, marijuana cultivation, timber theft, and unauthorized OHV use. But according to agency officials, information on effects is not systematically collected and is instead collected mainly for specific reasons, as when it is needed as evidence in criminal investigations. As a result, the agencies generally lack consistent quantitative or qualitative information on the effects of illegal activities. Senior agency law enforcement officials said that while available information—such as quantities of trash dumped or acres of vegetation damaged to cultivate marijuana—helps them understand the effects of illegal activities on resources at specific locations, they do not believe it is feasible to quantify the effects of all illegal activities across the country.

- *Law enforcement plans for individual units and for regions or states.* Two agencies—the Bureau of Land Management and the Forest Service—require their units and their state or regional offices to develop law enforcement plans. For example, the Bureau of Land Management manual, which contains policy and program direction, directs the agency’s state offices to develop law enforcement plans annually and says that plans are to identify and rank (1) the most pressing law enforcement issues facing units in that state, (2) specific agency lands that are most important to protect, and (3) locations needing additional law enforcement officers. Most of the 10 state office plans we reviewed contained these elements, although some lacked critical components. For example, the plan for the Bureau of Land Management’s Arizona State Office lists the illegal activities identified as important by each field office in the state, but the plan neither identifies the activities most important statewide, nor ranks those activities according to importance. Even in cases where state offices have identified and ranked the most pressing law enforcement issues and lands to protect, the plans provide little information on the frequency or effects of illegal activities; nor do they identify lands where illegal activities are most likely to occur. In addition, a senior Bureau of Land Management law enforcement official reported that at least two state offices—including California, the state office with the largest law enforcement program in the agency—have not updated their plans in more than 5 years.

We found a similar variety in the content of law enforcement plans developed by Forest Service regional offices. For example, the plan for the Rocky Mountain Region identified three issues—motorized and nonmotorized vehicle use, including OHVs; unauthorized commercial

activities, including guided hunting, rafting, and sightseeing trips, and other recreational activities; and theft of timber and other forest products—as the biggest challenges to its law enforcement program. The plan detailed the nature and scale of the risks posed by these activities, locations at greatest risk, and strategies to mitigate those risks. In contrast, the plan for the Forest Service’s Eastern Region identified 11 illegal activities as the most important regionwide, but provided little information on the magnitude of the activities’ effects, the locations most affected, or law enforcement strategies the region could use to mitigate those effects. Moreover, according to the Forest Service’s Director of Law Enforcement and Investigations, two regions—the Pacific Northwest and Southern—have not developed regionwide law enforcement plans; rather, the plans for these two regions simply compile the plans for each forest in the region. As a result, the plans identify neither regional priorities nor strategies for how to use law enforcement resources to respond to those priorities.

- *Risk assessments for specific issues.* In some cases, the agencies have undertaken efforts to assess risks arising from certain types of illegal activities, such as illegal border activities or cultivation of marijuana on federal lands. For example, a recent National Park Service assessment found that marijuana cultivation has led to significant degradation of natural resources, including removal of trees and vegetation, introduction of nonnative and invasive species, pollution from the extensive use of pesticides and fertilizers, alteration of streambeds, and poaching of wildlife. Similarly, in 2003, Interior, in conjunction with some of its component agencies, assessed the risks facing units along the U.S. border with Mexico.²⁵ This assessment identified different risks, ranging from dumping of trash to violence against the public or law enforcement officers to international terrorism—illegal activities that all posed risks to natural resources, the public, and agency employees along the border. In addition, in 2007 and 2008, the National Park Service’s Intermountain Region completed similar assessments for five national parks along the border in Arizona and Texas. The agency reported that on the basis of these assessments, it added more than 30 law enforcement officers to the five parks and constructed new infrastructure, such as fences and vehicle barriers along the borders, to deter illegal entry. But these assessments provide no information on the importance of the risks from the assessed

²⁵Department of the Interior, *Threat Assessment for the U.S./Mexico Border, 2002-2003* (Tucson, Ariz., 2003).

activities relative to the risks posed by other illegal activities. As a result, individual assessments like these cannot help officials determine which illegal activities pose the greatest risks to resources, the public, and agency employees or help them identify which units are in greatest need of more law enforcement resources.

- *Formal decision-support tools.* In an effort to help them more systematically analyze their law enforcement programs, two of the agencies—the Fish and Wildlife Service and the National Park Service—have developed decision-support tools that estimate the number of law enforcement resources needed at individual units. These tools incorporate a number of variables, such as geographic characteristics, sensitive natural and cultural resources, and visitation patterns, when analyzing law enforcement needs for a refuge or park. Nevertheless, we identified a number of shortcomings with these tools that limit their effectiveness in assessing the relative risks of illegal activities. For example, the Fish and Wildlife Service has used a staffing deployment model developed for it in 2005 by the International Association of Chiefs of Police to help determine its overall staffing needs and to assign new law enforcement officers to specific refuges. Despite initial plans to integrate risk assessments of certain illegal activities for each refuge into the model, the assessments were never conducted and were not included in the model’s final analysis. The Chief of the Division of Refuge Law Enforcement said the agency would like to update the model to account for the expansion of the refuge system and to reevaluate the weights placed on the variables included in the model—as well as to include the risk assessment components omitted from the initial analysis—but he said the agency had no specific plans to do so. Similarly, the National Park Service has used its staffing model to help officials determine law enforcement resource needs. However, Interior’s Inspector General has criticized the model because it has never been validated, its methodology has not been supported, and there is no certainty that its main assumptions are correct.²⁶ Law enforcement officials at several national parks we visited told us that they did not believe the model accurately estimated the number of officers a particular unit needed. Senior National Park Service law enforcement officials told us they recognized the model’s shortcomings and were evaluating options for improving it.

²⁶Department of the Interior, Office of Inspector General, *Progress Report on the Secretary’s Directives for Implementing Law Enforcement Reform*, No. PI-EV-MOI-0001-2006 (Washington, D.C., 2006), and *Third Progress Report on the Implementation of the Secretary’s Directives for Law Enforcement Reform*, No. PI-AT-MOA-0001-2008 (Washington, D.C., 2009).

Without consistent information on the relative risks illegal activities pose to resources, the public, and agency employees at federal land units across the country, or a systematic approach to use this information to make decisions about how law enforcement resources should be distributed, the agencies have limited assurance that they are accurately determining their law enforcement needs and distributing their law enforcement resources effectively. As stated earlier, the land management agencies should, at a minimum, (1) comprehensively identify the risks posed by illegal activities on their lands, (2) assess identified risks to determine their magnitude and the likelihood of their occurrence, and (3) use this information in determining the law enforcement resources they need and how to distribute those resources. Without such information and processes, the agencies are not adhering to federal internal control standards. As a result, land management agencies may not be able to ensure that their current decisions on allocating law enforcement resources are effective, nor can they know whether resources would be more effective if distributed to different units or, if additional resources are needed, where these new resources should go.

Senior law enforcement officials at each agency told us they believed that a more systematic approach to assessing risks would help the agencies make more-informed decisions about law enforcement resources. They said such an approach would also help them better explain their law enforcement resource allocation decisions, both within their law enforcement programs—so that officials in the field understood why some units gained law enforcement staff while others stayed the same or declined—and to outside parties, including overall agency leadership. In 2009, we recommended that the National Park Service develop such an approach—specifically that it develop a more comprehensive, routine risk management approach for security.²⁷ In response to our recommendation, the National Park Service has taken and continues to take actions—such as improving protective infrastructure and surveillance equipment—designed to reduce the risks to historical structures and the public at the five units that have been designated as national icons.²⁸ The agency has

²⁷GAO, *Homeland Security: Actions Needed to Improve Security Practices at National Icons and Parks*, GAO-09-983 (Washington, D.C.: Aug. 28, 2009).

²⁸Interior has designated five National Park Service units as national icons: (1) the Statue of Liberty National Monument in New York City; (2) Independence National Historical Park in Philadelphia; (3) the Jefferson National Expansion Memorial in St. Louis; (4) Mount Rushmore National Memorial in South Dakota; and (5) the national mall icons (the Washington Monument National Memorial, Thomas Jefferson National Memorial, and Lincoln National Memorial) in Washington, D.C.

taken few steps, however, to identify and reduce risks to the other units of the National Park System.

Conclusions

In an environment of constrained budgets, land management agencies will likely continue to face challenges in protecting natural and cultural resources, the public, and agency employees from the effects of illegal activities on federal lands. The limitations of available information on illegal activities on federal lands, and the agencies' lack of systematic approaches to identifying law enforcement resource needs and distributing those resources, hamper the agencies' efforts to target their resources effectively. Without a more systematic method to assess the risks posed by illegal activities and a stronger framework for managing them, the agencies cannot be assured that they are allocating scarce resources in a manner that effectively addresses the risk of illegal activities on our nation's federal lands.

Recommendation for Executive Action

To help the agencies identify the law enforcement resources they need and how to distribute these resources effectively, we recommend that the Secretaries of Agriculture and the Interior direct the Chief of the Forest Service and the Directors of the Bureau of Land Management, Fish and Wildlife Service, and National Park Service, respectively, to each take the following action: Adopt a risk management approach to systematically assess and address threats and vulnerabilities presented by illegal activities on federal lands. The approach can vary among the agencies but should be consistent within each agency and should include (1) conducting periodic risk assessments to identify and rank threats and assess agency vulnerabilities and (2) establishing a structured process for using the results of these assessments to set priorities for and distribute law enforcement resources to best protect natural and cultural resources, as well as public and agency employee safety.

In developing a risk management approach, the agencies should consider conducting the risk assessments at regional or state levels and using those assessments to inform decisions about law enforcement resource needs and how to distribute those resources across the country.

Agency Comments and Our Evaluation

We provided a draft of this report for review and comment to the Departments of Agriculture and the Interior. The Forest Service, responding on behalf of Agriculture, agreed with our report's findings and recommendation; the agency's written comments are reprinted in

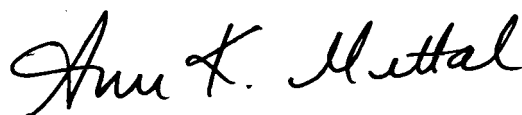
appendix II. Interior—in an e-mail through its liaison to GAO on November 15, 2010—agreed with our report’s recommendation and also provided technical comments, which we incorporated into the report as appropriate.

In its written comments, the Forest Service stated that it is developing a template for its regional offices to use in preparing annual regional law enforcement plans that will assist the agency in setting priorities for allocating law enforcement resources. We commend the agency for taking this action and believe that such a template has the potential to improve the consistency of information available to senior agency leaders making decisions about law enforcement resources. However, it is unclear from the agency’s written response whether the template it is developing incorporates risk management elements. As our report notes, an effective risk management approach would include (1) comprehensively identifying the risks posed by illegal activities on federal lands, (2) assessing identified risks to determine their magnitude and the likelihood of their occurrence, and (3) using this information in determining the law enforcement resources the agencies need and how to distribute those resources.

We are sending copies of this report to the appropriate congressional committees; Secretaries of Agriculture and the Interior; Chief of the Forest Service; Directors of the Bureau of Land Management, Fish and Wildlife Service, and National Park Service; and other interested parties. 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 mittala@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix III.

Sincerely yours,



Anu K. Mittal
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

The objectives of our review were to determine (1) the types of illegal activities occurring on federal lands and the effects of those activities on natural and cultural resources, the public, and agency staff; (2) how the agencies have used their law enforcement resources to respond to these illegal activities; and (3) how the agencies determine their law enforcement resource needs and distribute these resources.

To determine the types of illegal activities occurring on federal lands, we reviewed documents and interviewed officials from the headquarters and regional or state offices of four federal land management agencies: the Forest Service in the Department of Agriculture and the Bureau of Land Management, Fish and Wildlife Service, and National Park Service in the Department of the Interior. We also collected and analyzed agency data on the recorded frequency of different types of illegal activities. Using this information, we identified about 20 categories of illegal activities occurring on federal lands and interviewed agency officials at headquarters and at regional and state offices to corroborate and refine these categories. To determine the occurrence of different types of illegal activities in different areas of the country, we interviewed agency law enforcement officials at headquarters and in each regional or state office and, using a standardized set of questions, asked them to identify which types of illegal activities placed the greatest demands on their law enforcement resources. To determine the effects of illegal activities on natural and cultural resources, the public, and agency staff, we interviewed agency officials at headquarters and selected units, who described the effects that can result from different types of illegal activities. Because the agencies lack nationwide information on these effects, and to better understand any regional or agency variation in the occurrence and effects of different types of illegal activities, we visited or contacted 26 selected agency units in eight geographic areas throughout the United States (see table 2).¹ Units were selected on the basis of our interviews with regional and state office officials and to broadly represent the types of illegal activities occurring on federal lands. For each unit, we (1) reviewed documents, including assessments or reports describing the effects of illegal activities; (2) interviewed law enforcement and, at some units, land management officials about the occurrence and effects of

¹Of the 26 selected sites, we visited 24 in person and, for the other 2 sites, interviewed law enforcement officials of the Bureau of Land Management's El Centro and Ukiah field offices in the agency's California State Office.

Appendix I: Objectives, Scope, and Methodology

illegal activities; and (3) observed locations in the field that have been damaged by illegal activities.

Table 2: Bureau of Land Management, Fish and Wildlife Service, Forest Service, and National Park Service Field Units Visited or Contacted, by Location

Location	Agency	Unit
Arizona	Bureau of Land Management	Sonoran Desert National Monument
	Fish and Wildlife Service	Buenos Aires National Wildlife Refuge
	Forest Service	Coronado National Forest
California	Bureau of Land Management	El Centro Field Office ^a
	Bureau of Land Management	Ukiah Field Office ^a
	Forest Service	Sierra National Forest
	National Park Service	Yosemite National Park
Four Corners (Colorado and Utah)	Bureau of Land Management	Monticello Field Office
	Forest Service	San Juan National Forest
	National Park Service	Arches National Park
	National Park Service	Canyonlands National Park
Florida	Fish and Wildlife Service	Merritt Island National Wildlife Refuge
	Forest Service	Ocala National Forest
	National Park Service	Everglades National Park
Appalachian Mountains (Kentucky, North Carolina, Tennessee, and Virginia)	Forest Service	Cherokee National Forest
	National Park Service	Cumberland Gap National Park
	National Park Service	Great Smoky Mountains National Park
Mid-Atlantic (Maryland and Virginia)	Fish and Wildlife Service	Blackwater National Wildlife Refuge
	Fish and Wildlife Service	Chincoteague National Wildlife Refuge
	Fish and Wildlife Service	Eastern Neck National Wildlife Refuge
	National Park Service	Fredericksburg and Spotsylvania National Military Park
Minnesota	Fish and Wildlife Service	Detroit Lakes Wetland Management District
	Fish and Wildlife Service	Tamarac National Wildlife Refuge
	Forest Service	Superior National Forest
Washington	Forest Service	Okanogan-Wenatchee National Forest
	National Park Service	North Cascades National Park

Source: GAO.

^aWe did not visit this unit in person but interviewed unit officials at the Bureau of Land Management's state office in Sacramento, California.

To determine how the agencies have used their law enforcement resources to respond to illegal activities, we analyzed available data on law enforcement staffing for each agency. We assessed the reliability of each

agency's data and, on the basis of our audit objectives, determined that the data were sufficiently reliable to report. In addition, we reviewed congressional appropriations to the agencies for responding to specific types of illegal activities, such as illegal crossings of the U.S. border with Mexico or marijuana production on federal lands; congressional committee direction to the agencies to direct law enforcement resources toward responding to specific illegal activities; and agency documents describing how they used law enforcement resources to respond to these specific activities. We also reviewed agency guidance, analyzed available data, and interviewed agency officials at headquarters and selected units to determine how the agencies temporarily assign staff to areas needing additional law enforcement resources. Finally, we reviewed agency documentation on training requirements for law enforcement officers and interviewed agency officials at headquarters and the units we visited to obtain their perspectives on the sufficiency of training in preparing officers to respond effectively and safely to illegal activities.

To determine how land management agencies identify their law enforcement resource needs and distribute those resources, we asked agency law enforcement officials at headquarters and at regional or state offices to identify the information they consider and the processes they use to make law enforcement staffing decisions. To identify federal requirements and best practices for incorporating risk management into agency decision making, we reviewed relevant guidance, including GAO's *Standards for Internal Control in the Federal Government*,² as well as other GAO reports on using risk management to inform agency decisions about how to distribute agency resources. To evaluate the extent to which the agencies met risk management requirements and incorporated best practices, we reviewed examples of the types of information officials consider in making resource decisions, including (1) agency data on the occurrence of illegal activities; (2) agency information on the effects of illegal activities on natural and cultural resources, the public, and agency staff; (3) agency law enforcement plans for individual units and regions or states; (4) risk assessments the agencies have conducted for specific types of illegal activities; and (5) descriptions of formal decision-support tools some of the agencies use to analyze their resource needs, examples of how these tools have been used to inform decision making, and available assessments of these tools. To obtain their perspectives on information and processes used to determine their resource needs and distribution, we

²[GAO/AIMD-00-21.3.1](#).

also interviewed agency officials at headquarters, at regional or state offices, and at the units we visited.

We conducted this performance audit from July 2009 through December 2010, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the Department of Agriculture, Forest Service



Forest Service
Washington Office

1400 Independence Avenue, SW
Washington, DC 20250

File Code: 1420

Date: NOV 22 2010

Anu K. Mittal
Director, Natural Resources and Environment
Government Accountability Office
441 G. Street, N.W.
Washington, DC 20548

Dear Ms. Mittal:

Thank you for the opportunity to review and provide comment on the draft U.S. Government Accountability Office (GAO) Report on "Federal Lands: Adopting a Formal, Risk-Based Approach Could Help Land Management Agencies Better Manage Their Law Enforcement Resources (GAO-11-144)." The Forest Service has reviewed the report and generally concurs with the report's observations and recommendations.

The Washington Office (WO) Law Enforcement and Investigations (LEI) staff is currently developing a Regional Law Enforcement Plan template that will assist the Forest Service with setting priorities for allocating LEI resources. The Regional Special Agents-in-Charge will update the Regional Law Enforcement Plans each year. The WO LEI staff will conduct annual reviews of the regional plans for consistency. The Regional Law Enforcement Plans will assist the agency with distributing LEI resources, including staffing and budget needs, effectively throughout the Forest Service.

If you have any questions, please contact Donna M. Carmical, Chief Financial Officer, at (202) 205-1321 or dcarmical@fs.fed.us.

Sincerely,

fa THOMAS L. TIDWELL
Chief



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Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Anu K. Mittal, (202) 512-3841 or mittala@gao.gov

Staff Acknowledgments

In addition to the contact person named above, David P. Bixler, Assistant Director; Ellen W. Chu; Jonathan Dent; Christy Feehan; Alma Laris; Michael Lenington; Micah McMillan; Rebecca Shea; and Jeanette Soares made key contributions to this report. Also contributing to this report were Melinda L. Cordero, Richard M. Stana, and Kiki Theodoropoulos.

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