



May 2017

# WILDLAND FIRE RISK REDUCTION

Multiple Factors Affect  
Federal-Nonfederal  
Collaboration, but  
Action Could Be  
Taken to Better  
Measure Progress

Accessible Version

# GAO Highlights

Highlights of [GAO-17-357](#), a report to congressional requesters

## Why GAO Did This Study

Dense vegetation, drought, and other factors have resulted in more severe wildland fires in recent years. At the same time, development in and around wildlands continues to increase, with some communities experiencing devastating effects from wildland fire. To reduce risk to communities, federal agencies and nonfederal stakeholders can collaborate in various ways.

GAO was asked to review collaboration to reduce wildland fire risk to communities. This report examines federal officials' and stakeholders' views on (1) factors that affect federal-nonfederal collaboration aimed at reducing wildland fire risk to communities and (2) actions that could improve their ability to reduce risk to communities.

GAO reviewed laws and documents about collaboration on wildland fire management; compared agency efforts with guidance; and interviewed officials from a nongeneralizable sample of 10 federal land management units selected based on wildland fire potential, geographic diversity, and other factors. GAO also interviewed stakeholders including community members near the selected units and representatives of nonfederal entities involved in fire risk-reduction efforts.

## What GAO Recommends

GAO recommends that the Forest Service and Interior work with WFLC to develop measures to assess progress toward achieving the Cohesive Strategy's goals. The Forest Service agreed with GAO's recommendation, while Interior did not. GAO believes the recommendation is valid, as discussed in the report.

View [GAO-17-357](#). For more information, contact Anne-Marie Fennell at (202) 512-3841 or [fennella@gao.gov](mailto:fennella@gao.gov).

May 2017

## WILDLAND FIRE RISK REDUCTION

### Multiple Factors Affect Federal-Nonfederal Collaboration, but Action Could Be Taken to Better Measure Progress

## What GAO Found

Officials GAO interviewed from the five federal agencies responsible for wildland fire management—the Forest Service within the Department of Agriculture and the Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service within the Department of the Interior—and nonfederal stakeholders, including state and local officials, homeowners, and representatives of nongovernmental organizations, identified several factors as affecting federal-nonfederal collaboration aimed at reducing wildland fire risk to communities. In some cases these factors were cited as enhancing collaboration, while in other cases they were cited as hindering it. Among the factors identified were federal authorities, agency initiatives, joint community-level planning, and others. For example, several officials and stakeholders cited laws such as the Good Neighbor Authority and Tribal Forest Protection Act of 2004 as enhancing collaboration because they provide federal and nonfederal entities the authority to work across jurisdictions on projects to reduce risk. In addition, several officials and stakeholders cited the 2014 National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) as helpful for collaboration because it emphasizes the importance of coordination across multiple agencies and includes comprehensive fire management goals. In contrast, some officials and stakeholders said collaboration on certain types of projects was hindered by the difficulty in sharing project costs between federal and nonfederal entities.

Federal officials and nonfederal stakeholders also identified several actions they said could improve federal agencies' and nonfederal entities' ability to reduce wildland fire risk to communities. Among the actions cited was improving the implementation of the Cohesive Strategy. Some agency officials and stakeholders noted the importance of increasing accountability for implementing the Cohesive Strategy, such as through the use of performance measures. The strategy states that its success depends in part on monitoring and accountability, and calls for national outcome measures. This is consistent with previous GAO findings regarding national strategies. However, GAO found that the Wildland Fire Leadership Council (WFLC)—the interagency body charged with overseeing and implementing the Cohesive Strategy and which includes the Forest Service and Interior as members—has not developed measures to assess progress on the part of federal and nonfederal participants in meeting the national goals of the Cohesive Strategy. In 2013, WFLC proposed several measures but concluded that implementing them could place undue burden on the agencies and nonfederal partners. In 2016, however, WFLC reported that recent research findings could help quantify the strategy's effects over time. By working with WFLC to develop such measures, the Forest Service and Interior, together with federal and nonfederal partners, could better assess national progress toward achieving the goals of the Cohesive Strategy. Federal officials and nonfederal stakeholders also identified actions that, while not necessarily within the federal agencies' control, could be taken to reduce wildland fire risk to communities. For example, these actions include adopting state laws that require property owners to take risk-reducing actions such as using fire-resistant building materials or reducing vegetation around their homes. Some states have adopted laws to promote such actions.

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### **Abbreviations**

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CWPP	Community Wildfire Protection Plan
EPA	Environmental Protection Agency
FWS	Fish and Wildlife Service
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
RFA	Rural Fire Assistance
SFA	State Fire Assistance
VFA	Volunteer Fire Assistance
WFLC	Wildland Fire Leadership Council
WUI	Wildland-Urban Interface

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May 10, 2017

The Honorable Raúl Grijalva  
Ranking Member  
Committee on Natural Resources  
House of Representatives

The Honorable Alan Lowenthal  
Ranking Member  
Subcommittee on Energy and Mineral Resources  
Committee on Natural Resources  
House of Representatives

The Honorable Peter DeFazio  
House of Representatives

Wildland fires are both natural and inevitable, and play an important role on our nation's lands. Over the past century, however, various land management practices, including fire suppression, have disrupted the normal frequency of fires in many forest and rangeland ecosystems, resulting in abnormally dense accumulations of vegetation. According to scientific reports, this altered landscape, combined with drought and other climate stressors, has contributed to larger and more severe wildland fires. At the same time, development occurring in and around wildlands—an area often called the wildland-urban interface (WUI)—continues to increase, placing more people, businesses, and infrastructure at risk from wildland fire. As of fiscal year 2015, approximately 76,000 communities nationwide were considered at risk from wildland fire, according to the National Association of State Foresters.<sup>1</sup> Recent wildland fire seasons have demonstrated the potentially devastating consequences of fire to communities. During the 2016 fire season, for example, a wildland fire resulted in 14 deaths and destroyed or damaged thousands of structures in Gatlinburg, Tennessee, while fires in California resulted in several deaths and hundreds of structures lost.

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<sup>1</sup>National Association of State Foresters, *Communities at Risk Report Fiscal Year 2015* (May 2016).

Taking action to address the wildland fire problem can be complex and involve multiple federal and nonfederal entities. Wildland fires and the vegetation that fuels them can cross the administrative boundaries between federal lands, such as national forests and national parks, and nonfederal lands, where most of the increased development in the WUI occurs. At the federal level, five land management agencies—the Forest Service within the Department of Agriculture and the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), and National Park Service (NPS) within the Department of the Interior—are primarily responsible for wildland fire management on federal lands, and in BIA’s case, tribal lands.<sup>2</sup> State forestry agencies and other nonfederal entities—including county, city, and rural fire departments—have primary responsibility for managing wildland fires on nonfederal lands and share responsibility for protecting homes and other private structures.

To address the increase in wildland fires threatening communities, federal land management agencies have placed greater emphasis on coordinating efforts with nonfederal entities to reduce the risk of fire. These efforts include, for example, reducing vegetation that can fuel wildland fires and making houses or other structures more fire resistant. Over the past 2 decades, federal land management agencies have issued guidance and policies supporting a collaborative, cross-boundary approach to reducing wildland fire risk and have undertaken multiple efforts intended to reduce risk. For example, federal agencies have collaborated with nonfederal entities in conducting fuel reduction projects that span multiple jurisdictions, in some cases under nationwide federal agency programs intended to facilitate such collaboration. In addition, to prepare for wildfire seasons, federal agencies, states, and others have signed agreements to document their commitment to coordinate and exchange personnel, equipment, supplies, services, and funds among the agencies in order to respond to wildland fires.

Congress has also encouraged agencies to work with nonfederal entities to reduce wildland fire risk. For example, the Cooperative Forestry

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<sup>2</sup>In addition, the National Indian Forest Resources Management Act authorizes BIA to enter into cooperative agreements with Indian tribes to perform fire protection, reforestation, timber stand improvement, and other activities related to land and natural resource management. 25 U.S.C. § 3115(a)(1)(C). Under the Tribal Forest Protection Act of 2004, Indian tribes may enter into agreements with the Forest Service or BLM to carry out projects to protect Indian forestland or rangeland (including adjacent federal lands).

Assistance Act of 1978 authorizes the Secretary of Agriculture to cooperate with states to protect state and private forest lands from damage caused by fire.<sup>3</sup> More recently, in 2009, Congress passed the Federal Land Assistance, Management, and Enhancement Act, which requires land management agencies to develop a cohesive wildland fire management strategy.<sup>4</sup> The subsequent National Cohesive Wildland Fire Management Strategy (Cohesive Strategy), issued in 2014, provides a nationwide framework designed to more fully integrate fire management efforts across jurisdictions, manage risks, and protect firefighters, property, communities, and landscapes by setting “broad, strategic, and national-level direction as a foundation for implementing actions and activities across the nation.”<sup>5</sup> Rather than viewing fire management solely as keeping fire away from communities, the Cohesive Strategy treats wildland fire as a part of the natural landscape, assuming that it is unavoidable and that communities must take action to become “fire-adapted”—that is, be able to withstand a wildfire without loss of life or property. The Cohesive Strategy, developed in collaboration with tribal, state, and local governments, nongovernmental organizations, and members of the public, describes ways the nation can make strategic investments intended to reduce the effects of wildland fire on high-risk areas.

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<sup>3</sup>Pub. L. No. 95-313, 92 Stat 365. Cooperative forestry programs originated with the Weeks Act of 1911, which provided for a forest fire protection program on private and state lands. This authority was replaced by sections 1 and 2 of the Clarke-McNary Act of 1924. Recognition of the impact of fires on rural lands and communities that lack adequate fire protection facilities led to the authorization of the rural fire protection program under title IV of the Rural Development Act of 1972. The Cooperative Forestry Assistance Act of 1978 consolidated these two programs into a single rural fire protection program, providing a coordinated approach to the detection, prevention, and suppression of rural fires. S. Rep. No. 95-879 at 5 (1978). See also H.R. Rep. No. 95-1183 at 17 (1978).

<sup>4</sup>Pub. L. No. 111-88 § 503, 123 Stat. 2971-72, codified at 43 U.S.C. § 1748b (2009). The law required the strategy, among other things, to provide for (1) the identification of the most cost-effective means for allocating fire management budget resources; (2) the reinvestment in non-fire programs by the Secretaries of Agriculture and the Interior; (3) employing the appropriate management response to wildfires; (4) assessing the level of risk to communities; (5) the allocation of hazardous fuel reduction funds based on the priority of hazardous fuel reduction projects; (6) assessing the impacts of climate change on the frequency and severity of wildfire; and (7) studying the effects of invasive species on wildfire risk. Every 5 years, the agencies are to review and revise the strategy to address any changes affecting it, including changes with respect to landscape, vegetation, climate, and weather.

<sup>5</sup>Department of Agriculture and Department of the Interior, *The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* (April 2014).



You asked us to examine federal and nonfederal collaboration to reduce wildland fire risk to communities.<sup>6</sup> This report examines (1) factors federal officials and nonfederal stakeholders cited as affecting federal-nonfederal collaboration aimed at reducing wildland fire risk to communities and (2) actions federal officials and nonfederal stakeholders said could help improve their ability to reduce wildland fire risk to communities.

To conduct this work, we reviewed relevant laws, guidance, initiatives, agency documents such as the 2014 Cohesive Strategy, reports such as the *2014 Quadrennial Fire Review Final Report*,<sup>7</sup> and other documents describing collaboration between federal and nonfederal entities to reduce wildland fire risk to communities. We interviewed headquarters and regional officials from the five federal agencies that are responsible for wildland fire management on federal lands—the Forest Service, BIA, BLM, FWS, and NPS—as well as Interior’s Office of Wildland Fire.<sup>8</sup> We focused our review on federal wildland fire management activities intended to reduce risk before a potential wildland fire incident occurs, through fire preparedness, fuel reduction, prevention, and education.<sup>9</sup>

To address our first objective, we interviewed fire management officials from 10 federal land management units, such as national forests and national parks, and representatives of communities near these lands about factors that enhance or hinder their collaboration to reduce risk to communities. We selected land management units from each of the five federal agencies using the following criteria: the size of the estimated population in nearby WUI areas with high wildland fire hazard potential (considering WUI areas defined by the Forest Service), the size in acres

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<sup>6</sup>As part of this request, we previously reported on several aspects of federal wildland fire management. See GAO, *Wildland Fire Management: Agencies Have Made Several Key Changes but Could Benefit from More Information about Effectiveness*, [GAO-15-772](#) (Washington, D.C.: Sept. 16, 2015).

<sup>7</sup>Booz Allen Hamilton, *2014 Quadrennial Fire Review Final Report* (Washington, D.C.: May 2015). The Quadrennial Fire Review is a strategic assessment process conducted by the fire management agencies every 4 years to evaluate current wildland fire management strategies and capabilities against estimates of the future fire environment. The first such review occurred in 2005 and the second in 2009.

<sup>8</sup>The Department of the Interior’s Office of Wildland Fire organizes the activities of the four Interior agencies that manage and operate wildland fire programs.

<sup>9</sup>The Forest Service and Interior agencies also conduct other fire management activities such as suppression and post-fire restoration. We did not include these activities in our review because they address responses to fires once they occur.

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of the land management unit, input from regional agency officials, and the geographic location of the land management unit, with units selected to provide geographic diversity. We then selected communities adjacent to the federal land management units by considering input from local land management agency officials. For each community selected, we interviewed nonfederal stakeholders representing entities with which land management unit officials collaborate, such as county officials, local fire department officials, and homeowners. Using these criteria, we selected land management units and adjacent communities in five states: Arizona, California, Colorado, Florida, and Oregon. Because this is a nonprobability sample, the information we report is not generalizable to all land management units and communities and does not represent a comprehensive list of collaborative programs or efforts nationwide or in these states, but rather provides illustrative examples. Table 1 provides a list of federal land management units and adjacent communities included in our review.

**Table 1. Federal Land Management Units and Adjacent Communities Included in Our Review**

State	Federal land management agency	Federal land management unit	Adjacent communities
Arizona	Bureau of Indian Affairs	Fort Apache Agency	Fort Apache Indian Reservation
	Forest Service	Apache-Sitgreaves National Forest	Pinetop-Lakeside
California	Forest Service	Eldorado National Forest	Grizzly Flats
	National Park Service	Santa Monica Mountains National Recreation Area	Calabasas/Topanga
Colorado	Bureau of Land Management	Colorado River Valley Field Office	Rifle/Silt
	National Park Service	Rocky Mountain National Park	Estes Park
Florida	Fish and Wildlife Service	Merritt Island National Wildlife Refuge	The Great Outdoors
	Forest Service	Ocala National Forest	<sup>a</sup>
Oregon	Bureau of Indian Affairs	Warm Springs Agency	Warm Springs Indian Reservation
	Bureau of Land Management	Prineville District Office	La Pine

Source: GAO. | GAO-17-357

<sup>a</sup>Community members near the Ocala National Forest did not respond to our request for a telephone interview.

In addition, for the five states we selected, we interviewed officials with state wildland fire and forestry agencies. To gain a wider range of states' perspectives, we interviewed officials with the National Association of State Foresters, the Southern Group of State Foresters, and the Northeastern Area Association of State Foresters, which represent states across the country.<sup>10</sup> We also interviewed representatives of nongovernmental organizations identified by federal officials we interviewed or in reports as being involved in federal-nonfederal efforts to reduce wildland fire risk; these organizations included the National Fire

<sup>10</sup>We were unable to schedule an interview with representatives of the Council of Western State Foresters, which represents states in the western United States.

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Protection Association, the Intertribal Timber Council, and The Nature Conservancy.<sup>11</sup>

In responding to our interview questions about factors that affect their collaborative efforts to reduce risk to communities, federal officials and stakeholders described factors that we defined as having affected direct collaborative efforts (i.e., situations involving a tangible relationship between two or more parties) and indirect collaborative efforts (i.e., situations in which actions by one entity may affect other entities attempting to achieve a similar outcome). We include both types of factors in our report, distinguishing between direct and indirect collaborative efforts as appropriate.<sup>12</sup>

To address our second objective, we interviewed the federal officials and nonfederal stakeholders described above to obtain information about actions they stated could improve their ability to reduce wildland fire risk. To increase our understanding of their responses, we interviewed agency headquarters officials to obtain additional information and reviewed relevant authorities, programs, and initiatives. For example, we reviewed the Cohesive Strategy, associated action plans for implementing it, and a 2016 interagency report on the status of the Cohesive Strategy; we also interviewed several of the officials responsible for implementing the Cohesive Strategy. We compared the agencies' efforts to assess their progress in achieving the goals of the Cohesive Strategy to guidance contained in the Cohesive Strategy and associated action plans. We also compared agency efforts to our previous reports related to interagency strategies and agencies' efforts to collaborate. Appendix I describes our scope and methodology in more detail.

We conducted this performance audit from October 2015 to May 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain

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<sup>11</sup>In this report, we use the following qualifiers when summarizing federal officials' and stakeholders' views: "some," which we define as two or three federal officials and stakeholders collectively; "several," which we define as four to six federal officials and stakeholders collectively; and "many," which we define as seven or more federal officials and stakeholders collectively.

<sup>12</sup>In our previous work, we have noted that collaboration can be broadly defined as any joint activity that is intended to produce more public value than could be produced when the organizations act alone. See, for example, GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, [GAO-06-15](#) (Washington, D.C.: Oct. 21, 2005).

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.

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## Background

Wildland fires play an important ecological role on the nation's landscapes. Fires have long shaped the composition of forests and grasslands across every region of the United States, including ponderosa pine forests in the Northwest and the Rocky Mountain West, chaparral in the Southwest, sagebrush steppe in the Great Basin, tallgrass prairies in the Midwest, longleaf pine forests in the South, and the pine barrens of the Atlantic Coast. Fires periodically reduce vegetation densities and stimulate seedling regeneration and growth in some species. Wildland fires can be ignited by lightning or by humans, either accidentally or intentionally. As we have described in previous reports from our body of work on wildland fire management, however, various land use and management practices over the past century—including fire suppression, grazing, and timber harvesting—have reduced the normal frequency of fires in many forest and rangeland ecosystems and have reduced these ecosystems' resiliency to fire.<sup>13</sup> We have reported that these practices contributed to abnormally dense, continuous accumulations of vegetation, which not only can fuel uncharacteristically large or severe wildland fires but also—with more homes and communities built in or near areas at risk from wildland fire—threaten lives, health, property, and infrastructure.

In addition, changing climate conditions, including drier conditions in certain parts of the country, have increased the length and severity of wildfire seasons, according to many scientists and researchers. For example, in the western United States, the average number of days in the fire season increased from approximately 200 in 1980 to approximately 300 in 2013, according to the *2014 Quadrennial Fire Review*.<sup>14</sup> In Texas and Oklahoma, the average fire season increased from fewer than 100 days to more than 300 during this time frame. According to the U.S.

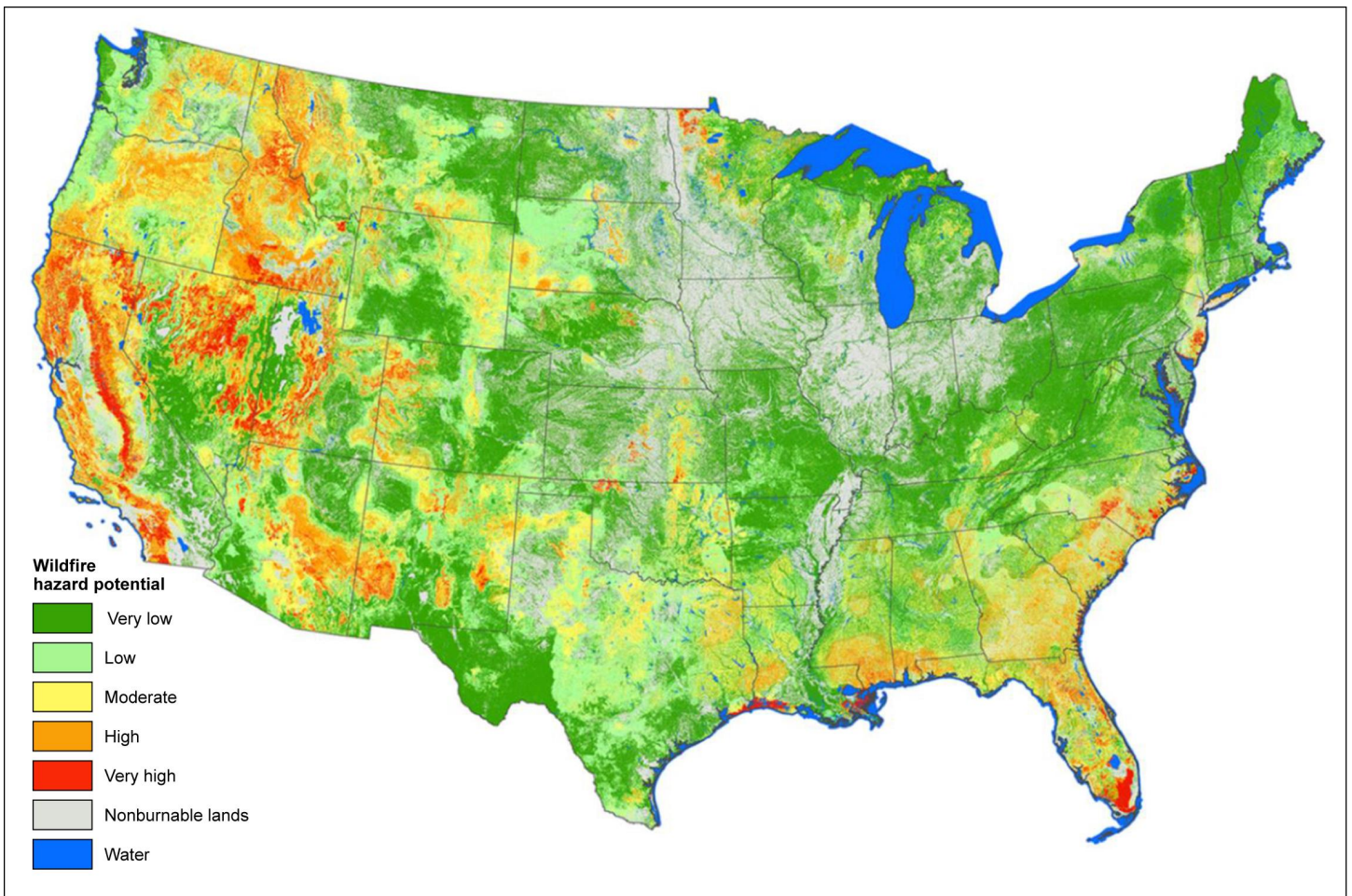
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<sup>13</sup>See, for example, [GAO-15-772](#) and GAO, *Wildland Fire Management: Federal Agencies Have Taken Important Steps Forward, but Additional, Strategic Action Is Needed to Capitalize on Those Steps*, [GAO-09-877](#) (Washington, D.C.: Sept. 9, 2009).

<sup>14</sup>The states included in this statistic were Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Global Change Research Program's 2014 National Climate Assessment, projected climate changes suggest that western forests in the United States will be increasingly affected by large and intense fires that occur more frequently.<sup>15</sup> Figure 1 shows the Forest Service's assessment of wildfire hazard potential across the country as of 2014.

Figure 1: Wildfire Hazard Potential for the Contiguous 48 States, 2014



Source: Forest Service. | GAO-17-357

Note: According to the Forest Service, areas mapped with higher values of wildfire hazard potential represent vegetation that is more likely to burn with high intensity under conducive weather conditions. The map does not represent a forecast or fire outlook for any particular season.

<sup>15</sup>U.S. Global Change Research Program, *Climate Change Impacts in the United States: The Third National Climate Assessment* (Washington, D.C.: May 2014).



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## Land Ownership and Wildland Fire Management Responsibilities

Working collaboratively across federal-nonfederal boundaries to address the wildland fire issue can involve any mix of the nation's 2.3 billion acres of federal, state, local, private, or tribal lands. Historical settlement and development of the nation resulted in the intermingling of lands among these different entities. As we reported in 2008, about 60 percent of the nation's land is privately owned and managed, and about 30 percent is managed by five federal land management agencies, with the Forest Service and BLM managing the majority of those lands.<sup>16</sup> Of the remainder, about 8 percent of the nation's land is owned and managed by state and local governments, and about 2 percent is owned and managed by the federal government for purposes such as military installations and water infrastructure.<sup>17</sup>

Under the National Forest Management Act and the Federal Land Policy and Management Act of 1976, respectively, the Forest Service and BLM manage lands for various uses such as protection of fish and wildlife habitat, forage for livestock, recreation, timber harvesting, and mineral production. FWS and NPS manage federal lands under legislation that primarily calls for conservation; activities such as harvesting timber for commercial use are generally precluded.<sup>18</sup> As noted, BIA is responsible for the administration and management of lands held in trust by the

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<sup>16</sup>See GAO, *Natural Resource Management: Opportunities Exist to Enhance Federal Participation in Collaborative Efforts to Reduce Conflicts and Improve Natural Resource Conditions*, [GAO-08-262](#) (Washington, D.C.: Feb. 12, 2008).

<sup>17</sup>The Department of Defense, the Federal Emergency Management Agency, and other federal agencies are also involved in fire management on federal lands but are not included in our review because we focused on the five land management agencies primarily responsible for wildland fire management on federal lands, and, in BIA's case, tribal lands.

<sup>18</sup>The National Wildlife Refuge System Improvement Act of 1997 directs FWS to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The National Park Service Organic Act of 1916 created the NPS to promote and regulate the use of national parks, monuments, and reservations with the purpose of conserving the scenery, natural and historic objects, and wildlife therein and to leave them "unimpaired" for the enjoyment of future generations.



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United States for Indian tribes, individuals, and Alaska Natives.<sup>19</sup> Each of the five agencies has regional or state offices that oversee individual field units.

State forestry agencies and other nonfederal entities—including tribal, county, city, and rural fire departments—have primary responsibility for managing wildland fires on nonfederal lands, and share responsibility for protecting homes and other private structures. State and local governments can also adopt laws requiring homeowners and homebuilders to take measures to help protect structures from wildland fires. Regulating land use on nonfederal and nontribal lands is primarily a state and local responsibility.

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## Wildland-Urban Interface

The challenge of balancing the benefits of periodic fires with fire's negative effects on communities is particularly difficult in the WUI. Development in the WUI increased over the last several decades, in turn increasing the risk to life and property from wildland fire. According to the 2014 Quadrennial Fire Review, 60 percent of new homes built in the United States since 1990 were built in the WUI, which contains 46 million single-family homes, representing about 40 percent of single-family homes in the United States. Most development in the WUI occurs on nonfederal lands, and, according to the National Association of State Foresters, approximately 76,000 communities nationwide are considered to be at risk from wildland fire. According to the National Interagency Fire Center,<sup>20</sup> the average number of structures burned by wildfire each year from 1999 through 2015 was 2,750; in 2015 alone, the total number of structures destroyed by wildfire was 4,636, of which 2,638 were residences.

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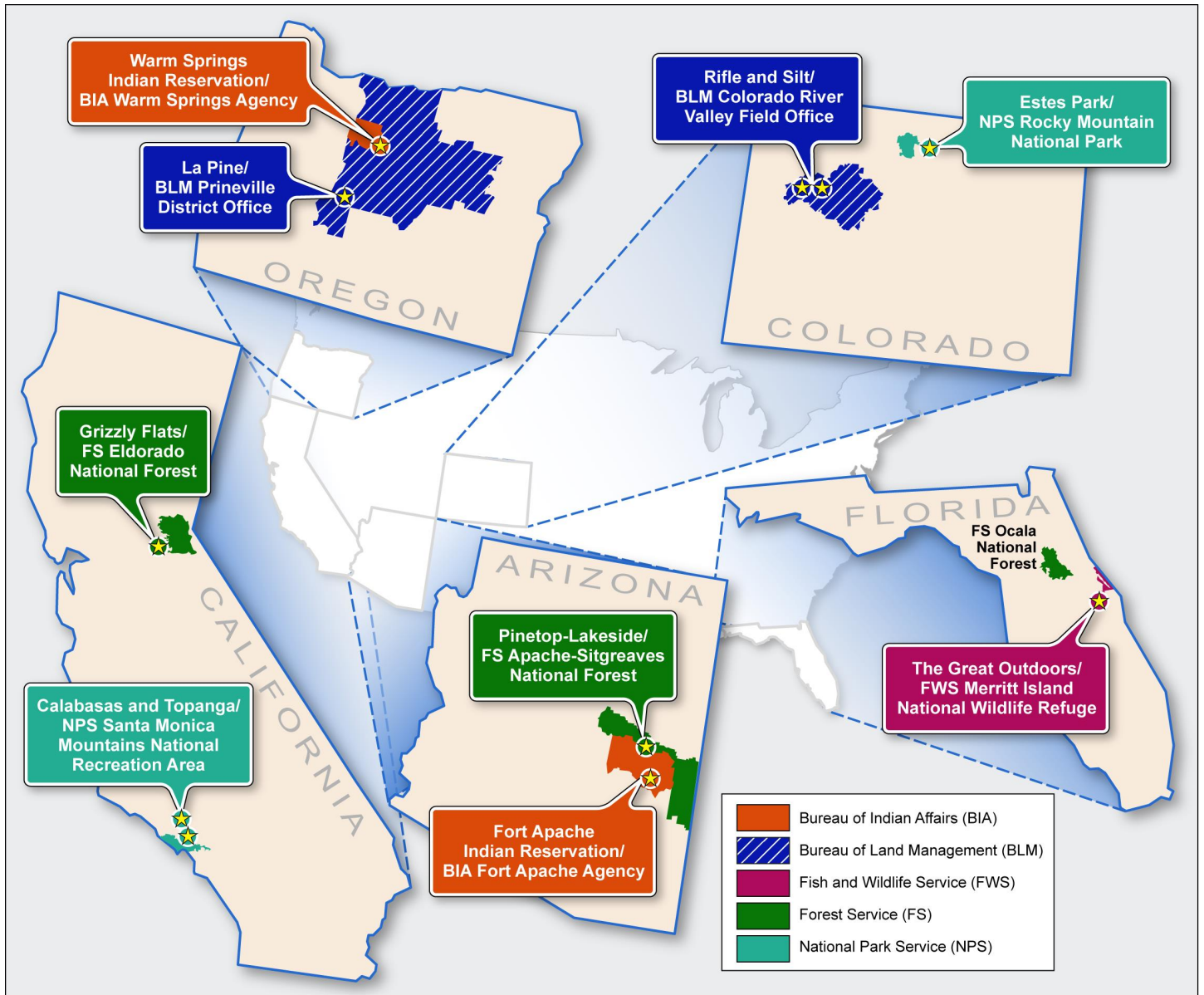
<sup>19</sup>BIA provides services directly or through contracts, grants, or compacts to 566 federally recognized tribes with a service population of about 1.9 million American Indian and Alaska Natives. According to BIA documentation, tribal forests provide an essential source of revenue and jobs for many tribal governments and their members and play an important role in sustaining tribal cultures and traditions. Through its Office of Trust Services, BIA provides land-related functions including forestry and wildland fire management.

<sup>20</sup>The National Interagency Fire Center is the nation's support center for wildland firefighting and comprises different federal agencies and organizations, including the Forest Service, BIA, BLM, FWS, NPS, the National Weather Service, and the U.S. Fire Administration within the Federal Emergency Management Agency.

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In addition to residential development, other assets that support communities can be located in the WUI, including power lines, highways, and resources that provide economic benefits to communities, such as timber, oil and gas wells, and recreational opportunities. WUI communities can be very different from each other—for example, seasonal resort towns located in valleys, with homes in close proximity and surrounded by fire-prone vegetation, or major suburban or metropolitan areas adjacent to wildlands. The risk each community faces also varies depending on such things as the flammability of the vegetation in and around the community, structure location and building materials, and local land use decisions. While the degree of risk can vary from one place to another, under specific conditions, wildfire can affect people and their homes in almost any location where vegetation is found. Even structures not immediately adjacent to wildland vegetation can be vulnerable because wind can transport embers and ignite homes more than a mile from a fire. Figure 2 provides examples of variation across communities by showing characteristics of the communities included in our review. See appendix II for the full text of this graphic.

Figure 2: Characteristics of Communities Included in Our Review



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## Key Wildland Fire Risk-Reducing Activities

Federal agencies and nonfederal entities collaborate in a variety of ways to reduce the risk of wildland fire before a potential wildland fire incident occurs, through fuel reduction, fire preparedness, prevention, and education activities. In addition, individuals and communities may take action to mitigate fire risk by, for example, using fire-resistant building materials or building in low-risk areas. Collectively, these activities are generally intended to contribute to helping communities become more fire adapted.

Fuel reduction—the removal of flammable vegetation that can fuel fires—can reduce the severity of wildland fires that occur, slow fire spread, or otherwise make fires more manageable. Fuel reduction can occur through mechanical treatment (i.e., thinning of trees and underbrush) or planned ignitions (known as prescribed fires), which often replicate the positive effects of naturally occurring wildfire. Federal agencies have collaborated with nonfederal entities to prioritize, plan, and conduct fuel reduction activities. For example, federal agencies have assisted local communities or counties in developing Community Wildfire Protection Plans—documents that outline ways individual communities plan to reduce their risk from wildland fire, such as by identifying priority areas for fuel reduction.<sup>21</sup> Federal agencies have also funded landscape-scale fuel reduction projects that span multiple jurisdictions and include multiple partners.<sup>22</sup> Federal initiatives involving such projects include the

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<sup>21</sup>The Healthy Forests Restoration Act of 2003 called for the preparation of Community Wildfire Protection Plans or comparable plans to define the WUI and establish locally based strategic priorities for wildfire preparedness and hazardous fuel reduction work in these areas.

<sup>22</sup>“Landscape scale” typically refers to a regional system of interconnected properties that is larger than the boundaries of any single land management jurisdiction, such as a national park. Managing natural resources at the landscape level involves defining the scope of the landscape to be managed, identifying specific conservation objectives, and collaborating with stakeholders to achieve these objectives.

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Collaborative Forest Landscape Restoration Program and the Reserved Treaty Rights Lands Program.<sup>23</sup>

Preparedness activities can help communities protect themselves during a wildland fire by ensuring they have access to fire suppression equipment, personnel, and emergency dispatch services. To prepare for wildfire seasons, federal agencies, states, and others sign agreements—such as State Cooperative Wildland Fire Management and Stafford Act Response Agreements—to document their commitment to coordinate and exchange personnel, equipment, supplies, services, and funds among the agencies for responding to wildland fires.<sup>24</sup> At the local level, federal land management officials may meet with nonfederal entities, such as local fire department officials, ahead of the wildland fire season to discuss roles and responsibilities for wildland fire response and to train together by simulating incident responses.

Prevention activities can reduce the likelihood of fires caused by humans. From 2001 through 2011, approximately 85 percent of wildfires in the United States were human-caused, according to the National Interagency Fire Center. Such fires can occur unintentionally—for example, when people burn leaves or trash or leave campfires unattended—or they may be deliberately set. According to research, communities with effective wildfire prevention programs are likely to have fewer human-caused fire starts.<sup>25</sup> To help provide information about fire prevention, federal agencies work with nonfederal entities. For example, under the Cooperative Forest Fire Prevention program, established under the

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<sup>23</sup>Through Title IV of the Omnibus Public Land Management Act of 2009 (Pub. L. No. 111-11, Title IV, § 4003(a), 112 Stat. 1141 (2009)), Congress directed the Department of Agriculture, in consultation with the Department of the Interior, to establish the Collaborative Forest Landscape Restoration Program to select and fund ecological restoration treatments for priority forest landscapes. For more information, see GAO, *Forest Restoration: Adjusting Agencies' Information-Sharing Strategies Could Benefit Landscape-Scale Projects*, [GAO-15-398](#) (Washington, D.C.: Apr. 9, 2015). The Reserved Treaty Rights Lands Program enables Indian tribes to participate in collaborative projects with non-tribal landowners to enhance the health and resiliency of priority tribal natural resources that are at high risk from wildland fire.

<sup>24</sup>In some cases, state and local governments can obtain firefighting equipment through federal programs such as the Federal Excess Property Program and the Firefighter Property Program.

<sup>25</sup>A 2010 study by the Forest Service and others found that wildfire prevention education efforts in Florida had a statistically significant effect on wildfire damage and suppression costs. J.P. Prestemon, David T. Butry, Karen L. Abt, and Ronda Sutphen, "Net Benefits of Wildfire Prevention Education Efforts," *Forest Science*, vol. 56, no. 2 (2010).

Smokey Bear Act of 1952, the Forest Service works with the National Association of State Foresters and the Ad Council to develop and distribute materials for the Smokey Bear campaign.<sup>26</sup>

Education activities can help reduce risk by helping homeowners and communities understand actions they can take to reduce risk. For example, communities may help minimize their risk by reducing vegetation and flammable objects around structures—an activity often called creating defensible space. They also may help minimize their risk by using fire-resistant building materials in construction and building in low-risk areas. To help provide information about these activities, federal agencies worked with stakeholder groups to develop a guide “designed to help leaders, planners, emergency professionals, and citizens learn the best approaches and programs to help their community become more fire adapted.”<sup>27</sup> Some communities have encouraged the use of voluntary programs aimed at improving fire risk awareness and promoting steps to reduce their risk, such as the Firewise Communities program.<sup>28</sup> In addition, some states have adopted legislation to encourage or require wildfire mitigation in high-risk areas. For example, some state and local governments have adopted laws and ordinances requiring property owners to establish and maintain defensible space. Figure 3 shows various actions federal agencies and nonfederal entities may take to reduce wildfire risk in and around communities.

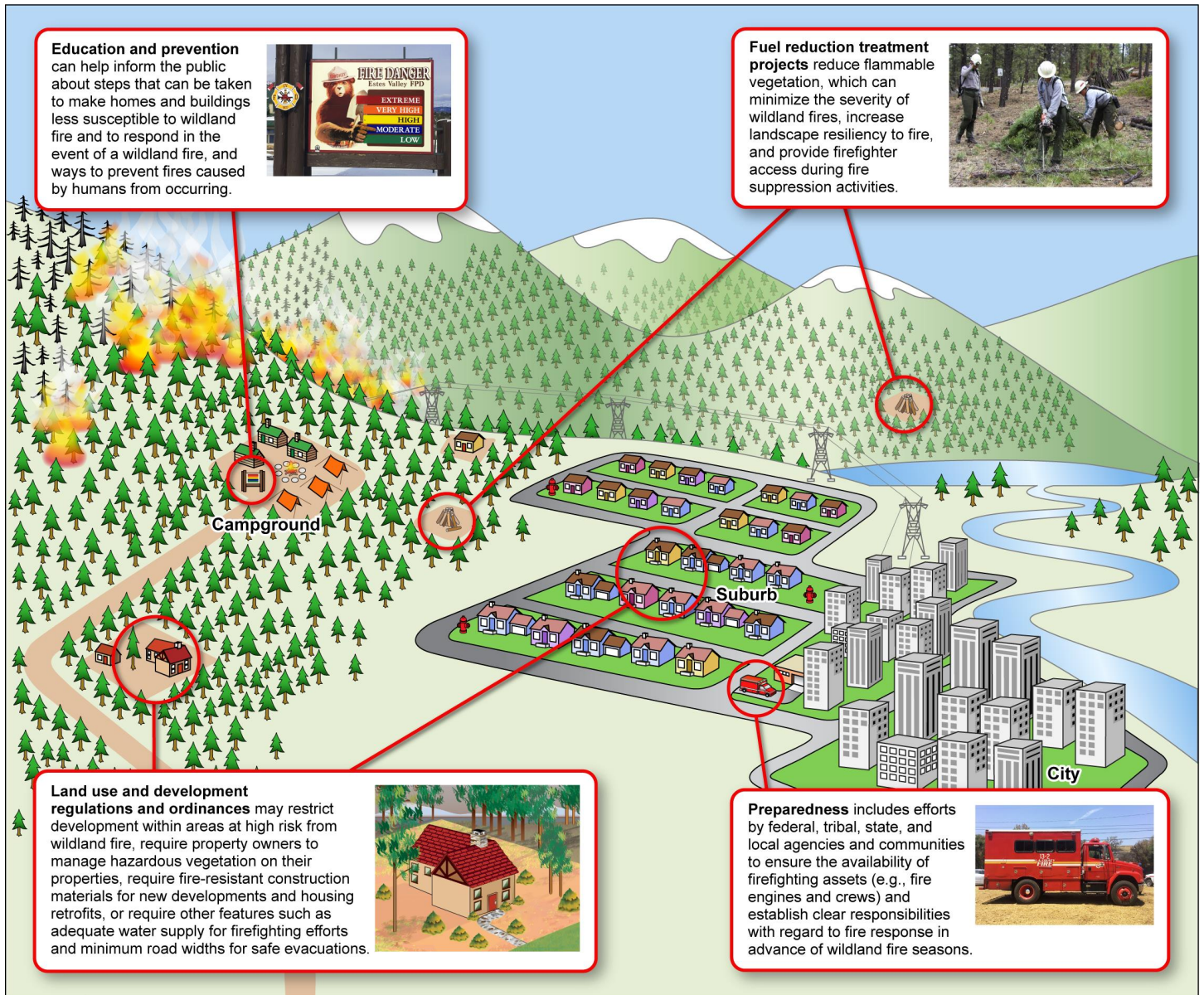
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<sup>26</sup>The Smokey Bear campaign started in 1944 and aims to educate Americans about their role in preventing wildfires, using mechanisms such as public service announcements and educational materials.

<sup>27</sup>Fire Adapted Communities Coalition, *Guide to Fire Adapted Communities*. The guide was developed by stakeholders including the National Fire Protection Association, the Insurance Institute for Business and Home Safety, and The Nature Conservancy.

<sup>28</sup>The Firewise Communities program is a voluntary program administered by the National Fire Protection Association and sponsored by the Forest Service, Interior, and state forestry organizations. It is designed to involve homeowners, community leaders, planners, developers, and others in efforts to protect people, property, and natural resources from the risk of wildland fire. Activities under the program include assisting individuals and residential communities with techniques to help protect homes and improve emergency preparedness in the event of wildland fire. Communities that take certain steps can become recognized as Firewise Communities.

**Figure 3: Actions to Help Reduce Wildland Fire Risk in the Wildland-Urban Interface**



Sources: GAO; National Park Service (upper right photo); Headwaters Economics (original graphic). | GAO-17-357

Some federal-nonfederal collaboration at the national level encompasses all types of risk-reduction efforts. For example, federal agencies and nonfederal entities participate in the Wildland Fire Leadership Council

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(WFLC), an intergovernmental committee of federal, tribal, state, county, and municipal government officials.<sup>29</sup> The WFLC is to provide strategic oversight to help ensure policy coordination, accountability, and effective implementation of long-term strategies to address wildfire preparedness and suppression, hazardous fuel reduction, restoration and rehabilitation of the nation's wildlands, and assistance to communities.

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### Federal Policies and Laws Aimed at Federal-Nonfederal Collaboration to Reduce Risk

After emphasizing the need to suppress all fires for much of the 20th century, federal agencies in recent decades reassessed their approach to wildland fire management. As part of this reassessment, and as a result of several wildfires and associated firefighter fatalities, the agencies developed the Federal Wildland Fire Management Policy of 1995. Under this policy, the agencies sought to make communities and resources less susceptible to damage from wildland fires and to respond to fires to protect communities and important resources at risk while considering the cost and long-term effects of that response. The policy was reaffirmed and updated in 2001, and guidance for its implementation was issued in 2003 and 2009.<sup>30</sup>

To address the increase in wildland fires threatening communities, over the past 2 decades, federal land management agencies have also placed greater emphasis on coordinating efforts with nonfederal entities to reduce the risk of fire. For example, in 2000, the President asked the Secretaries of Agriculture and the Interior to submit a report on managing the impact of wildland fires on communities and the environment. The report, along with congressional approval of increased appropriations for wildland fire management for fiscal year 2001, as well as other related

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<sup>29</sup>The WFLC consists of senior officials from the Departments of Agriculture, the Interior, and Homeland Security, including the Agriculture Undersecretary and Deputy Undersecretary for Natural Resources and Environment; the Interior Assistant Secretary for Policy, Management, and Budget; the Administrator of the U.S. Fire Administration; and the heads of the five federal firefighting agencies. Other members include representatives of the Intertribal Timber Council, the National Association of State Foresters, and the Western Governors' Association, along with a state forester and a local fire department chief.

<sup>30</sup>Another risk-reduction measure contained in the 2009 guidance was providing greater flexibility to managers in responding to wildland fire to achieve natural resource benefits. For more information, see [GAO-15-772](#).



activities, formed the basis of what is known as the National Fire Plan. As part of this effort, Congress directed the Secretaries of Agriculture and the Interior to work with state governors to develop a strategy. The resulting strategy—the *10-Year Comprehensive Strategy*—was developed by federal, state, tribal, and local government and nongovernmental representatives and outlined a collaborative framework to facilitate implementation of proactive and protective measures to reduce the risk of wildland fire to communities and the environment. For example, the strategy recognized that while suppressing fires—especially near homes and communities—is important, a continued shift in fire management emphasis from reactive to proactive is also important in order to address the root of the problem rather than react only when faced with costly emergencies. Specifically, the strategy emphasized, among other things, the importance of reducing human-caused fires through fire-prevention education, increasing incentives for private landowners to address defensible space and fuel reduction on private property through local land use policies, promoting local government initiatives to implement fire-sensitive land use planning, and prioritizing fuel reduction where the negative impacts of wildland fire are greatest.

As noted, in 2014, the federal agencies, in collaboration with partners from multiple jurisdictions, issued the Cohesive Strategy. The vision of the Cohesive Strategy is “to safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a nation, live with wildland fire.” The Cohesive Strategy identified three goals: (1) landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives, (2) human populations and infrastructure can withstand wildfire without loss of life or property, and (3) all jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions. The Cohesive Strategy calls for a set of national outcome measures to assess progress in meeting these goals.

Since 2003, Congress has passed several laws aimed at actions federal agencies can take to reduce wildland fire risk across federal and nonfederal jurisdictions. For example, the Good Neighbor Authority contained in the Consolidated Appropriations Act, 2014, authorizes the Forest Service and BLM to enter into agreements allowing states to perform watershed restoration activities, including hazardous fuel reduction projects, on federal lands when the state is performing similar

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activities on adjacent state or private lands.<sup>31</sup> In addition, the Tribal Forest Protection Act of 2004 authorizes the Secretaries of Agriculture and the Interior to enter into agreements or contracts with Indian tribes to carry out projects to protect Indian forest lands.<sup>32</sup> See appendix III for additional details about these and other relevant laws.

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## Factors Such as Agency Initiatives and Joint Planning Were Cited by Federal Officials and Stakeholders in Our Review as Affecting Collaboration

Federal officials and stakeholders we interviewed identified federal authorities, agency initiatives, joint community-level planning, leadership, community engagement, and agency resources for collaboration as directly affecting federal-nonfederal collaboration aimed at reducing wildland fire risk to communities. In some cases these factors enhanced collaboration, according to officials, while in other cases they hindered collaboration. Federal officials and stakeholders also identified factors that indirectly affect federal and nonfederal collaboration to reduce wildland fire risk in the WUI. These included community education, fire prevention messaging, and state and local requirements for private property owners to reduce risk.

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<sup>31</sup>Pub. L. No. 113-76, div. G, tit. IV, sec. 417, 128 Stat. 341 (2014). The Agriculture Act of 2014 also established a similar but distinct Good Neighbor Authority, which authorizes the Forest Service and BLM to enter into agreements with states to carry out “authorized restoration services,” which are similar and complementary forest, rangeland, and watershed restoration services carried out on federal and nonfederal land. Pub. L. No. 113-79, tit. VIII, subtit. C, § 8206 (2014). The version contained in the Agriculture Act of 2014 excludes several types of activities from eligibility, including construction or reconstruction of paved or permanent roads. The appropriations version contains no specific restrictions on the types of activities covered but will expire on September 30, 2018. In this report, we refer to both of these authorities as “Good Neighbor Authority” unless otherwise noted.

<sup>32</sup>Pub. L. No. 108-278, § 2, 118 Stat. 868 (2004).

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## Federal Legal Authorities Aimed at Facilitating Collaboration

Many federal officials and stakeholders said that certain federal legal authorities that allow federal agencies to work across jurisdictions with nonfederal entities facilitate federal-nonfederal collaboration to reduce wildland fire risk. Among the specific authorities they mentioned were the Good Neighbor Authority and the Tribal Forest Protection Act of 2004. For example, under the Good Neighbor Authority, the Forest Service and BLM may enter into cooperative agreements or contracts with states to allow the parties to conduct restoration and forest management activities across jurisdictional boundaries. Using this authority, the Forest Service's Eldorado National Forest and the California Department of Forestry and Fire Protection signed an agreement in 2016 allowing the agencies to work together on large-scale fuel reduction projects that both entities identified as critical to meeting fire protection objectives. The agreement is to allow the agencies to complete treatment on 500 acres located in the WUI along a major highway corridor between Sacramento and Lake Tahoe where five major wildfires have burned in the last 40 years. According to Forest Service officials, as of October 2016, the agency had executed 54 agreements using the Good Neighbor Authority in 20 states.

The Tribal Forest Protection Act of 2004 authorizes the Secretaries of Agriculture and the Interior to enter into agreements or contracts with Indian tribes that meet certain criteria in order to carry out projects to protect Indian forest lands. Using this authority, the White Mountain Apache Tribe and the Forest Service's Apache-Sitgreaves National Forest in Arizona completed the Los Burros Project on the national forest, which borders the Fort Apache Indian Reservation. According to BIA's Fort Apache Agency officials, the project was important for reducing the risk of fire spreading onto the reservation from adjacent national forest land. According to Forest Service officials, as of November 2016, six projects had been completed using this authority, and at least six more were ongoing.

Some federal officials and stakeholders said that federal and nonfederal entities are reluctant to use the Good Neighbor Authority and the Tribal Forest Protection Act of 2004 because the authorities are unclear or because not all agency staff are aware of how to use them. Forest Service headquarters officials said that since 2015, they have taken steps to provide greater clarity about using the authorities. For example, they said that Forest Service staff hosted webinars in 2015 about resources

available to facilitate the use of the Good Neighbor Authority and that the agency's website provides links to agreement templates, agency contacts, and training materials for federal and nonfederal employees working to develop agreements under this authority. Regarding the use of the Tribal Forest Protection Act of 2004, Forest Service officials said they partnered with the Intertribal Timber Council to improve working relationships with tribes and accomplish more cross-boundary landscape level restoration.<sup>33</sup> According to Forest Service officials, they conducted workshops on the use of this authority in three forest service regions in 2015 and 2016, which they said contributed to six new projects pursued using the authority.

Federal officials and stakeholders identified other federal and state environmental laws, including the National Environmental Policy Act (NEPA) and the Clean Air Act, as affecting their efforts to collaborate to reduce risk.<sup>34</sup> For example, some federal officials and stakeholders said that the time it takes federal agencies to complete the NEPA process can hamper joint efforts. As we have previously reported, NEPA environmental reviews have been identified by critics as a cause of delay for projects due to time-consuming environmental analysis requirements, while they have been praised by proponents for, among other things, bringing public participation into government decision making.<sup>35</sup> We also found that little data exist on the costs and benefits of NEPA analysis.<sup>36</sup> With respect to the Clean Air Act, see appendix IV for additional information about the act and its effect on risk-reducing activities.

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<sup>33</sup>The Intertribal Timber Council is a nonprofit consortium of Indian tribes, Alaska Native Corporations, and individuals dedicated to improving the management of natural resources of importance to Native American communities. According to the Council's website, more than 60 tribes and Alaska Native Corporations belong to the Council. [http://www.itcnet.org/about\\_us/](http://www.itcnet.org/about_us/), accessed on December 9, 2016.

<sup>34</sup>Under NEPA, agencies evaluate the likely environmental effects of their proposed projects by using an environmental assessment, or if the projects likely would significantly affect the environment, a more detailed environmental impact statement. The Clean Air Act regulates air emissions from stationary and mobile sources.

<sup>35</sup>GAO, *Highway Projects: Many Federal and State Environmental Review Requirements Are Similar, and Little Duplication of Effort Occurs*, [GAO-15-71](#) (Washington, D.C.: Nov. 18, 2014).

<sup>36</sup>GAO, *National Environmental Policy Act: Little Information Exists on NEPA Analyses*, [GAO-14-370](#) (Washington, D.C.: Apr. 15, 2014).

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## Specific Agency Initiatives Aimed at Collaborating Across Jurisdictions

Several federal officials and stakeholders identified landscape-scale restoration efforts and other programs that cross jurisdictional boundaries as helpful in bolstering collaboration to reduce wildland fire risk to communities. Among the efforts mentioned were the Department of Agriculture's Joint Chiefs' Landscape Restoration Partnership and BIA's Reserved Treaty Rights Lands Program. In addition, many federal officials and stakeholders identified the Cohesive Strategy as enhancing federal-nonfederal collaboration to reduce wildland fire risk to communities.

The Forest Service and the Natural Resources Conservation Service (NRCS) within the Department of Agriculture initiated the Joint Chiefs' Landscape Restoration Partnership program in 2014 to improve the health and resilience of forest ecosystems where public and private lands meet.<sup>37</sup> The program's objectives include reducing wildfire threats to communities and landowners. In 2017, the Department of Agriculture is to invest in 10 new projects under the program while providing funding to 26 existing projects. The projects are located in 29 states across the country.<sup>38</sup> For example, in 2016, the Forest Service and NRCS selected the Greater La Pine Basin project in Central Oregon as a recipient of funding under the program. The project is to take place over 3 years and is to target restoration on nearly 345,000 acres of federal, state, and private land. NRCS is to offer assistance to private landowners conducting fuel reduction treatments, while the Forest Service is to perform similar treatments on the project area located within the Deschutes National Forest.<sup>39</sup> Figure 4 shows an example of tree thinning in the Greater La Pine Basin in Oregon.

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<sup>37</sup>NRCS, within the Department of Agriculture, works with farmers, ranchers, and forest landowners across the nation to help them boost agricultural productivity and protect natural resources through conservation.

<sup>38</sup>For information about the projects, see [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/new\\_sroom/features/?cid=stelprdb1244394](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/new_sroom/features/?cid=stelprdb1244394).

<sup>39</sup>Other project participants include BLM, the Oregon Department of Transportation, Deschutes County, and the Upper Deschutes Watershed Council, among others.

**Figure 4: Example of Tree Thinning to the Right of the Road, Compared with Untreated Land to the Left of the Road in Oregon**



Source: GAO. | GAO-17-357

In 2015, BIA initiated the Reserved Treaty Rights Lands Program to treat and restore tribal landscapes within and adjacent to reserved treaty rights lands.<sup>40</sup> Through this program, tribes may participate in and leverage funding for collaborative projects with nontribal landowners to enhance the health of priority tribal natural resources at high risk from wildland fire and move tribal landscapes toward long-term resilience to wildland fire. In fiscal year 2016, Interior directed \$10 million toward the program, which funded 21 projects.

In addition, many officials and stakeholders said that the Cohesive Strategy, issued in 2014, enhances collaboration because it emphasizes the importance of coordination across multiple agencies through an “all lands approach” and frames comprehensive goals that, taken together, may mitigate wildland fire risk. As noted, the Cohesive Strategy identified

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<sup>40</sup>Reserved treaty rights lands refer to lands to which Indian tribes and Alaska natives have “ancestral” lineage and have prioritized for uses such as hunting, fishing, and religious purposes, according to a senior BIA official.

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three goals: (1) landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives, (2) human populations and infrastructure can withstand wildfire without loss of life or property, and (3) all jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions. Unlike the other initiatives described above, implementation of the Cohesive Strategy is not separately funded because the agencies do not consider it a program. One stakeholder involved in its implementation described the Cohesive Strategy as a framework designed to be applied differently in various locations and scales to best suit a particular circumstance or address a need or opportunity, rather than a one-size-fits-all approach.<sup>41</sup> Even with these officials and stakeholders citing the Cohesive Strategy as enhancing collaboration, however, many officials and stakeholders also stated that improvements could be made to its implementation, as we discuss later in this report.

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## Joint Community-Level Planning

Many federal officials and stakeholders said that joint planning, including prioritizing and developing community plans and regularly sharing information regarding wildland fire issues in person, has enhanced collaboration to reduce wildland fire risk to communities. For example, several federal officials and stakeholders said that developing annual operating plans—which outline roles, responsibilities, and resources involved in wildland fire management—between federal and nonfederal entities has been helpful for collaborating on fire preparedness activities. In addition, many federal officials and stakeholders said developing Community Wildfire Protection Plans (CWPP)—which outline ways communities aim to reduce their risk from wildland fire by, for example, prioritizing areas for fuel reduction in or near the community—enhances collaboration. Communities are not required to develop CWPPs, but when they do, the Healthy Forests Restoration Act of 2003 directs that CWPPs be developed collaboratively by local and state government representatives, in consultation with federal agencies and other interested

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<sup>41</sup>Various examples of Cohesive Strategy implementation can be found on the Forests and Rangelands website at <https://www.forestsandrangelands.gov/success/index.php>.

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parties.<sup>42</sup> Under the act, agencies can prioritize funding for fuel reduction projects that implement CWPPs.

Communities may benefit from CWPPs in several ways. For example, according to a 2015 Forest Stewards Guild report, CWPPs provide a structure for collaboration and building community capacity.<sup>43</sup> The report also suggested that fuel reduction treatments completed in New Mexico communities with CWPPs have changed fire behavior, and that projects identified in CWPPs are less likely to be canceled or postponed compared to projects conducted in areas without CWPPs. Eldorado National Forest officials said that a CWPP completed in 2016 that covers an area managed by state, federal, and private landowners has helped enhance collaboration with community members to reduce risk because participants came together to jointly determine priority projects, including the placement of fuel reduction treatments.<sup>44</sup> In addition, Florida state forestry officials said they used information from CWPPs to develop their statewide wildland fire risk assessment. According to these officials, the assessment helps identify communities at high risk and inform state land management decisions.

Some federal officials and stakeholders also said that regularly sharing information about wildland fire issues in person can enhance collaboration to reduce wildland fire risk. For example, community members near the Eldorado National Forest said that pre-season wildland

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<sup>42</sup>Forest Service officials said they require communities to have completed a CWPP in order to receive State Fire Assistance funding. Interior officials said that they encourage communities to develop CWPPs to increase awareness and engagement regarding wildfire risk, but that it is the responsibility of each individual Interior agency to determine the amount of emphasis to place on CWPP development.

<sup>43</sup>A. Evans, S. Auerbach, L. Wood Miller, R. Wood, K. Nystrom, J. Loevner, A. Aragon, M. Piccarello, and E. Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*, Forest Stewards Guild (Madison, WI; October 2015). This report's findings are primarily based on an assessment completed in New Mexico and not all findings are generalizable to all communities in the United States. According to its website, the Forest Stewards Guild is a nonprofit organization that consists of forest stewards, associated natural resource professionals, and affiliates who work to restore and sustain the integrity of forests across the country while working to meet the needs of the communities that rely on them. <https://www.forestguild.org/about-us>.

<sup>44</sup>Such collaborative planning efforts are consistent with our previous findings. For example, we reported in 2005 that agencies can enhance and sustain their collaborative efforts by engaging in multiple practices, two of which are to define and articulate a common outcome and then establish mutually reinforcing or joint strategies. For more information, see [GAO-06-15](#).



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fire response training simulations, which included approximately 15 federal and nonfederal entities, helped participants develop relationships and gain a better understanding of each stakeholder's responsibilities and concerns ahead of a potential wildland fire. These community members said that after participating in one such simulation, the state highway patrol agency began to understand the community's concerns about impediments to safe evacuation. In addition, meeting regularly to discuss wildland fire risk reduction also helps create and facilitate collaboration, according to some officials from federal and nonfederal entities. For example, a Deschutes County official in Oregon said he participates in monthly meetings with BLM officials and community members to exchange information about upcoming activities, including efforts to reduce risk from wildland fire. He also said such meetings help develop and maintain trust between federal and nonfederal entities. Similarly, a study titled *Fighting Fires with Education* reported that in-person communication can increase community mitigation efforts.<sup>45</sup>

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## Leadership

Many federal officials and stakeholders said that dedicated federal agency and community leadership enhances collaboration to reduce wildland fire risk to communities. Federal officials and stakeholders characterized leadership as seeking input from others, providing encouragement and support, committing, and collaborating. For example, according to Eldorado National Forest officials, leaders who actively seek input from multiple perspectives, including those with whom they may not agree, help strengthen relationships. Merritt Island National Wildlife Refuge officials said agency management's encouragement to engage in partnerships helps employees initiate collaboration with nonfederal entities.

Some Forest Service officials said that committed leaders who stay in their positions over a long period can help sustain relationships, which in turn help partners accomplish their goals of reducing wildland fire risk. For example, an Apache-Sitgreaves National Forest official said the length of time he has been at the forest—about 30 years—has helped him develop strong relationships with community members. In addition, federal officials

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<sup>45</sup>Sarah M. McCaffrey, "Fighting Fires with Education: What Is the Best Way to Reach Out to Homeowners?" *Journal of Forestry*, vol. 102, no. 5 (July/August 2004). This report's findings are based on a survey completed in one community—Incline Village, Nevada—and are not generalizable to all communities in the United States.

and community members said that engaged leaders enhance federal-nonfederal collaboration. For example, Eldorado National Forest officials said that the forest supervisor, who respects community members with differing views, has helped the forest successfully complete NEPA requirements for fuel reduction projects. A National Association of Counties representative said that having federal officials who are willing to engage with communities by providing frequent updates about agency risk reduction efforts shows people that federal officials consider themselves part of the community; in doing so, they can help reduce communities' risk of wildland fire.<sup>46</sup> Similarly, a Forest Service official said that in cases in which federal, state, and local representatives work together, mitigation actions are more likely to occur and be sustained.

Community members in Southern California cited an example of leadership they said enhanced collaboration. These community members said officials from NPS' Santa Monica Mountains National Recreation Area initiated a meeting with local agencies in early 2016 to address public concern regarding standing dead oak trees in the area. Some of these characteristics align with a set of leading practices we previously identified as enhancing collaboration. For example, we previously found that, while collaborative mechanisms differ in complexity and scope, they all benefit from certain key features, including leadership.<sup>47</sup>

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## Community Engagement

Many federal officials and stakeholders said an engaged community—that is, a community that understands the issues associated with wildland fire and is willing to take action to reduce risk—enhances federal-nonfederal collaboration to reduce wildland fire risk. According to federal officials and stakeholders, communities tend to be more engaged in wildland fire risk reduction activities if they have experienced recent fires,

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<sup>46</sup>According to the 2015 Forest Stewards Guild report, research has shown that having a government agency representative involved in wildfire preparedness is critical for success. One contribution that land management agencies such as the Forest Service and BLM can make, according to the report, is fire and fuel management expertise because residents are more supportive of management activities, such as prescribed burns, when experts who understand the local ecology and fire behavior are involved. Evans, Auerbach, Wood Miller, Wood, Nystrom, Loevner, Aragon, Piccarello, and Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*.

<sup>47</sup>GAO, *Managing for Results: Implementation Approaches Used to Enhance Collaboration in Interagency Groups*, [GAO-14-220](#) (Washington, D.C.: Feb. 14, 2014).

have resources to carry out risk reduction projects, and have a group of stakeholders from multiple jurisdictions dedicated to working collaboratively on wildland fire risk reduction. According to a 2013 Forest Service report, efforts to create and maintain fire-adapted communities must involve the entire community—including residents, government agencies, emergency responders, businesses, land managers, and others—if these efforts are to succeed.<sup>48</sup> Officials and stakeholders provided examples of actions on the part of engaged communities, including working to identify priority locations and actions for reducing risk, creating defensible space on properties, and establishing WUI codes and ordinances aimed at reducing risk.

Several federal officials and community members said that communities that have recently experienced nearby wildfires are often more eager to take action and work with federal agencies to reduce risk. For example, community members in Calabasas, California, and Topanga, California, said they created a multiagency fire council after the Old Topanga Fire in 1993, which burned about 18,000 acres, destroyed 359 homes, and resulted in three deaths. The community members said that working together through the council has helped them provide wildland fire education to community members and implement fuel reduction projects. FWS officials said that agencies and others should harness this interest in reducing risk because once a fire ends and time has passed, some community members may no longer feel the same urgency to reduce risk. In 2015, the Forest Service started a pilot program that officials said tries to take advantage of the “teachable moment” in communities recently affected by wildfires by deploying a “Community Mitigation Assistance Team” to these communities. Forest Service officials said the team focuses on, among other things, risk mitigation education and building local capacity to undertake mitigation actions.

Some federal officials and stakeholders also said communities that have access to financial or other resources tend to be more engaged in carrying out risk-reduction projects. For example, Oregon Department of Forestry officials said state funding has helped establish collaborative groups, consisting of diverse stakeholders, that focus on forest-related issues around the state. California officials said federal grant funds aimed

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<sup>48</sup>Department of Agriculture, Forest Service, Rocky Mountain Research Station, *Wildfire, Wildlands, and People: Understanding and Preparing for Wildfire in the Wildland-Urban Interface –A Forests on the Edge Report*, Gen. Tech. Rep. RMRS-GTR-299 (Fort Collins, CO: 2013).

at community risk reduction help communities purchase equipment for fuel reduction projects, thereby keeping these communities engaged in mitigation efforts. Some officials and stakeholders also said it can be helpful when communities have a designated person assigned to work on wildland fire mitigation by facilitating coordination, communication, activities, and projects aimed at reducing risk. For example, Deschutes County in Oregon hired a forester who is dedicated to collaborating with the community to reduce risk, providing education about risk reduction, and initiating and implementing fuel reduction projects, among other duties. Similarly, the Forest Stewards Guild reported in 2015 that having dedicated WUI specialists helped accelerate fuel reduction work and expand public outreach in a county in New Mexico.<sup>49</sup>

In addition, community engagement increases when groups of stakeholders from multiple jurisdictions are involved, according to BIA headquarters officials we interviewed. For example, 27 states have prescribed fire councils, in which federal agencies, nonfederal entities, and others gather to discuss priority areas for fuel reduction treatments and adopting building codes to mitigate wildfire risk, among other issues.

In contrast, some federal officials and stakeholders identified several potential impediments to community engagement. For example, some federal officials in certain areas said that residents are resistant to government intervention, including requirements that they take steps to reduce their risk on their own properties. On the other hand, an NPS official and stakeholders from western Colorado said some people expect firefighters to intervene and save their homes, and as a result these residents are not interested in taking steps to reduce risk. Furthermore, other stakeholders said that some residents resist fuel reduction treatments because they perceive the treatments as damaging the environment or because they want the privacy provided by the vegetation near their homes. Additionally, some federal officials and stakeholders said the public's tolerance of smoke from prescribed burns can be limited, which results in fewer prescribed fire treatments.

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<sup>49</sup>Evans, Auerbach, Wood Miller, Wood, Nystrom, Loevner, Aragon, Piccarello, and Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*.

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## Agency Resources for Collaboration

Many federal officials and stakeholders said that the availability of agency resources, including funds provided to states and localities as well as funding for agency activities, affects federal-nonfederal collaboration to reduce wildland fire risk to communities and federal efforts to reduce wildland fire risk more broadly. Regarding funding for states and localities, federal officials and stakeholders cited cooperative agreements and grants provided under the Forest Service's State Fire Assistance (SFA) and Volunteer Fire Assistance (VFA) programs, and Interior's assistance aimed at rural fire districts and communities, as helping communities in their efforts to reduce risk. For example, the Forest Service's SFA program provides financial assistance through partnership agreements with state foresters for fire management activities, including helping communities become fire adapted.<sup>50</sup> According to the Forest Service's fiscal year 2017 budget justification, SFA is a critical part of the agency's efforts to reduce wildland fire risk to communities, residents, property, and firefighters, because the program helps ensure that state, local, and private landowners have the capacity and tools they need to prepare for, respond to, and mitigate fire risk in the WUI and other critical areas. (See app. V for descriptions of selected federal programs that provide risk-reduction funding to states and localities.)

Several federal officials and stakeholders said the uncertainty of federal funding through grants and assistance makes some nonfederal entities reluctant to undertake joint efforts to reduce risk. For example, California state officials said that landowners and other nonfederal entities may be reluctant to commit to joint efforts because federal funding may decrease, resulting in incomplete projects. In addition, several federal officials and stakeholders said that, in contrast to the cost-sharing mechanisms available for fire suppression activities, leveraging dollars for fuel reduction projects can be difficult because no standard procedures or agreements exist for sharing costs for such projects. According to a senior official from the National Association of State Foresters, state and federal agencies drafted a new "Supplemental Project Agreement"

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<sup>50</sup>The SFA program was authorized by the Cooperative Forestry Assistance Act of 1978 to provide financial and technical assistance to states and communities for wildland fire management. State foresters are to allocate SFA funds according to the priorities identified through State Forest Action Plans—strategic plans for all forests in each state that include an analysis of forest conditions and trends and that identify priority forest landscape areas.

appendix for the Master Cooperative Wildland Fire Management and Stafford Act Response Agreement template that includes standard procedures and agreements for sharing costs associated with non-suppression projects, such as fuel reduction projects.<sup>51</sup> As of February 2017, the updated Master Agreement template was undergoing review and awaiting final approval from the Departments of Agriculture and the Interior.

Many federal officials and stakeholders expressed concern about the amount of funding available for risk-reducing activities carried out by the agencies.<sup>52</sup> Some federal officials and stakeholders said the growing percentage of Forest Service funding spent to suppress fire has hampered the agencies' ability to invest in activities on federally managed lands that may reduce risk.<sup>53</sup> Similarly, several Interior officials said that Interior's funding reductions, and shifts in wildland fire management priorities over the past 2 years to include a greater emphasis on sagebrush steppe ecosystems, have affected their ability to carry out wildland fire risk reduction activities.<sup>54</sup> The officials also said that proposed changes to the department's process for determining funding

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<sup>51</sup>Federal agencies, states, and other stakeholders use the Master Cooperative Wildland Fire Management and Stafford Act Response Agreement as a template for state-level Cooperative Wildland Fire Management and Stafford Act Response Agreements. These agreements document the commitment of relevant parties to coordinate and exchange personnel, equipment, supplies, and funds in sustaining wildland fire management activities, such as prevention, preparedness, fuel reduction treatment, and fire response.

<sup>52</sup>In fiscal year 2014, Forest Service obligations for preparedness and fuel reduction were about \$1 billion and \$302 million, respectively. For the four Interior agencies, the totals for preparedness and fuel reduction were about \$274 million and \$147 million, respectively. For additional details, see [GAO-15-772](#).

<sup>53</sup>According to a 2015 report by Forest Service researchers, the amount the Forest Service spends on wildland fire management has increased from 17 percent of the agency's total funds in 1995 to 51 percent of funds in 2014. The report noted that the increased demand for wildfire suppression has come at the cost of other land management programs within the agency, such as vegetation and watershed management, some of which support activities intended to reduce future wildfire damage. David E. Calkin, Matthew P. Thompson, and Mark A. Finney, "Negative Consequences of Positive Feedbacks in U.S. Wildfire Management," *Forest Ecosystems*, vol. 2, no. 9 (2015).

<sup>54</sup>As we have previously reported, in January 2015, the Secretary of the Interior issued Secretarial Order No. 3336 to enhance policies and strategies "for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the West." For additional details, see [GAO-15-772](#).

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distribution to its four agencies may have similar effects.<sup>55</sup> Funding constraints can have various effects, according to officials and stakeholders. For example, Forest Service officials said that limiting agency travel can reduce the agency's ability to establish or maintain collaborative relationships with nonfederal entities. Forest Service officials also said that fire prevention efforts have been diminished in cases in which the agency has eliminated fire prevention positions or not filled them when they became vacant. A BIA official said that decreased fuel reduction funding reduced the number of acres the agency could treat on the Warm Springs Indian Reservation.

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## Other Factors that Indirectly Affect Collaboration

Many federal officials and stakeholders identified other factors that indirectly affect federal-nonfederal collaboration to reduce wildland fire risk in the WUI. These include community education, fire prevention messaging, and state and local requirements for private property owners to take steps to reduce risk.

### Community Education

Many federal officials and stakeholders identified community education efforts, such as the Firewise program and individual home risk assessments, as helping reduce community wildland fire risk. Some federal officials and stakeholders said Firewise, which encourages homeowners to take responsibility for their own properties by using fire resistant building materials and establishing defensible space, has helped reduce risk through community education.<sup>56</sup> For example, a Florida Forest Service official said the Firewise program helped communicate to communities across the state the importance of reducing wildland fire

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<sup>55</sup>Since 2014, Interior has been developing a Risk-Based Wildland Fire Management model to help determine funding distribution to the four Interior agencies. See appendix VI for a discussion of this issue.

<sup>56</sup>According to the National Fire Protection Association, as of February 2017, there were more than 1,300 recognized "Firewise communities" across the country. Other, similar programs exist; for example, according to the 2015 Forest Stewards Guild report, a similar movement started in California after the 1991 Oakland-Berkeley Hills Fire and developed into the fire safe councils that now operate in more than 100 California communities. Evans, Auerbach, Wood Miller, Wood, Nystrom, Loevner, Aragon, Piccarello, and Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland Urban Interface*.

risk. This official said the Firewise program works well in the state because it primarily relies on voluntary action rather than regulations. Figure 5 shows an example of a Firewise presentation at a community event and an advertisement for a Firewise event.

**Figure 5: Example of a Firewise Program Presentation at a Community Event and a Brochure Advertising a Firewise Event**



Sources: National Fire Protection Association Firewise Communities Program (photo); Pinetop Fire Department (brochure cover). GAO-17-357

Federal officials also said they have used the Ready, Set, Go! program to educate the public.<sup>57</sup> For example, officials from the Apache-Sitgreaves National Forest in Arizona said they use this program to help members of the public understand actions they can take to prepare for a wildland fire incident, such as making sure car gas tanks are at least half full so that homeowners can evacuate quickly in case of a wildfire.

Some federal officials said that conducting property risk assessments has been helpful to educate property owners about the steps they can take to reduce their risk of wildland fire. For example, BIA officials said fire managers at the Fort Apache Indian Reservation reach out to homeowners individually to teach them about risk-reducing actions they could take based on their home's characteristics; these actions could include clearing vegetation or relocating firewood to a spot away from

<sup>57</sup>The Ready, Set, Go! program, managed by the International Association of Fire Chiefs, helps fire departments teach individuals who live in high-risk wildfire areas—including the WUI—how best to prepare themselves and their properties against fire threats.



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their home. BIA officials said that because they make the effort to reach people at home, rather than provide general information to the broader public, homeowners are more likely to undertake risk-reducing activities pertinent to their homes. However, some officials said homeowners are not always receptive to having their properties evaluated, and some stakeholders said not all counties can afford to conduct risk assessments and not all homeowners want to pay to create defensible space. More broadly, a Forest Service headquarters official said that, while community education has been successful in increasing awareness about reducing risk, it does not necessarily result in individuals or communities taking action. In addition, this official said programs such as Firewise have increased risk awareness, but the extent of the risk reduction is unclear. To help address this, the official said the agency expects to complete a study in late 2017 that examines mitigation actions resulting from the Firewise program; the Forest Service is conducting this study in partnership with the National Wildfire Coordinating Group, the Wildland Urban Interface Mitigation Committee, and the National Association of State Foresters.<sup>58</sup> Also, this Forest Service official said the agency and the National Fire Protection Association are discussing making changes to the Firewise program to emphasize mitigation actions.

### Wildfire Prevention Messaging

Another factor that several federal officials and stakeholders identified as helping reduce wildland fire risk to communities is providing both consistent and targeted messaging to prevent human-caused wildfires. Regarding consistent prevention messaging, Forest Service officials said that numerous federal and state agencies in the western United States have used the One Less Spark–One Less Wildfire campaign, which started in California in 2012 and has since been used in other states.<sup>59</sup> In

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<sup>58</sup>The National Wildfire Coordinating Group consists of the Forest Service, BIA, BLM, FWS, NPS, and state forestry agencies through the National Association of State Foresters. The group's purpose is to coordinate participating wildfire management agencies' programs, and its goal is to provide more effective execution of each agency's fire management program. Within this group, the Wildland Urban Interface Mitigation Committee works to provide national leadership in WUI fire mitigation through the promotion and development of fire-adapted communities in the WUI.

<sup>59</sup>California officials said they started the One Less Spark–One Less Wildfire campaign to try to address the inconsistency of fire prevention messages across the state. The campaign includes a toolkit that contains educational materials, public service announcements, graphics, and other information. The campaign materials provide messages to the public regarding safe handling of campfires and proper equipment use, such as how to prevent vehicle tow chains from sparking fires along roadways.

An example of fire prevention messaging in Estes Park, Colorado, near Rocky Mountain National Park



Source: GAO | GAO-17-357

addition, some federal officials we spoke with said they use the Smokey Bear campaign and materials as part of fire prevention efforts in their communities.

A community in Arizona, which attracts recreation visitors but is prone to fires, created a working group to improve the consistency of local fire prevention messages. Specifically, officials from the Apache-Sitgreaves National Forest, the BIA Fort Apache Agency, surrounding counties, the Pinetop-Lakeside community, and other entities formed the White Mountain Fire Restrictions Working Group. Working group members said they issue unified, cross-jurisdictional fire restrictions (i.e., limitations on activities such as building campfires or using fireworks) to help ensure the consistency of information provided to the public. According to working group members, before they formed this group, the area was at greater risk of human-caused fire because each jurisdiction issued its own level of fire restriction, which led to public confusion because the fire restrictions often differed across jurisdictions. Working group members said that as a result of their efforts, the risk of fire has decreased because the public is less confused about where and when fire-related activities can be conducted.

Regarding targeted fire prevention messaging, Forest Service officials cited National Fire Prevention Education Teams as an example of federal-nonfederal efforts to provide targeted fire prevention information. These officials said the National Wildfire Coordinating Group sends teams—which may include members from the Departments of Agriculture and the Interior, states, and others—to areas at high risk of wildland fire to raise awareness of actions communities can take to reduce their risk. According to the National Interagency Fire Center, these teams can help reduce the loss of human life, property, and resources. They can also improve interagency relations.<sup>60</sup>

BIA officials said that, in part because of targeted efforts aimed at reducing arson, the number of human-caused fires on the Fort Apache Indian Reservation in Arizona decreased from several hundred in 2004 to

<sup>60</sup>[https://www.nifc.gov/prevEdu/prevEdu\\_wfrTeams.html](https://www.nifc.gov/prevEdu/prevEdu_wfrTeams.html), last accessed February 27, 2017.

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40 in 2016.<sup>61</sup> BIA officials estimated that these types of efforts also helped reduce the number of fires caused by youths on the Warm Springs Indian Reservation in Oregon from 17 in 2009 to 2 in 2016. A study conducted by the Forest Service and Interior agencies found that large-scale wildfire prevention programs on tribal lands are highly effective and such programs have reduced the number of wildfire ignitions caused by campfire escapes, arson, and youth-ignited wildfires, among others.<sup>62</sup>

### State and Local Requirements for Private Property Owners to Reduce Risk

Several federal officials and stakeholders noted that state and local laws governing home location, construction, and landscaping can reduce wildland fire risk to communities. Some states and local governments require homeowners in certain locations to use fire-resistant building materials or to create a certain amount of “defensible space” around structures on their properties by removing or reducing potentially flammable vegetation. For example, under Oregon’s Forestland-Urban Interface Fire Protection Act, property owners in identified forestland-urban interface areas must reduce excess vegetation around structures and along driveways that can fuel a fire.<sup>63</sup> According to Oregon state officials, the law, at the time of our review, was applicable to 17 of Oregon’s 36 counties identified as having a higher wildland fire risk. Oregon state officials said it is helpful that the state legislature recognizes the need for individual homeowner action in risk mitigation, and they said they are reviewing the law to determine ways it could be improved.

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<sup>61</sup>BIA officials developed a national Youth Fire Intervention Program in 2008 and the White Mountain Apache Tribe began participating in this program in 2010. The goal of this program is to help youths who misuse fire or who have started dangerous and unsupervised fires learn responsibility to protect their family, tribal community, and natural resources from fire. Since its inception, the Youth Fire Intervention Program—combined with effective wildfire prevention programs—has reduced fires started by youths on reservations nationally by more than 50 percent, according to a BIA official.

<sup>62</sup>J.P. Prestemon, *A Fire Prevention Effectiveness Assessment for Multiple Ownerships*, Joint Fire Science Program, JFSP Project Number: 09-1-9-2 (2012).

<sup>63</sup>Under the Forestland-Urban Interface Fire Protection Act, the Oregon Department of Forestry established criteria for identifying forestland-urban interface areas in each county. The criteria include, for example, lands within a county that are also inside an Oregon Department of Forestry protection district, lands that meet the state’s definition of “forestland,” and lands that meet the state’s definition of “suburban” or “urban.”

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California state law also requires property owners in certain areas to maintain a specified amount of defensible space around structures.<sup>64</sup>

Local governments in several states have codes or ordinances aimed at wildland fire risk reduction by requiring fire resistant building materials, requiring the creation of defensible space, or limiting where homes can be built. For example, the San Diego, California, municipal code's Landscape Regulations aim to reduce the risk of fire through site design and management of flammable vegetation.

An official from the National Association of Counties said that local policies promoting resiliency and fire readiness through building codes and zoning ordinances can be helpful but also resource intensive. As a result, this official said, county decision-makers should weigh the costs of requiring such actions against the benefits gained through reduced risk. Forest Service headquarters officials said codes and ordinances can help reduce wildland fire risk in some circumstances, but they said no data are available to show what type of community planning is instrumental in reducing risk. These officials also noted that taking action does not guarantee that a home will be spared, given the conditions and severity of a fire.

According to a nonfederal researcher we interviewed, it is also helpful when communities integrate actions or requirements to reduce risk into comprehensive county land-use plans. For example, the Community Planning Assistance for Wildfire program, established in 2015 by Headwaters Economics and Wildfire Planning International, is a grant program that works with communities to help reduce wildfire risk through improved land-use planning.<sup>65</sup> In Wenatchee, Washington, the program developed recommendations to help the community improve its land-use plans specific to its wildland fire risk. While the community has high-frequency fires, they are not high intensity and most are grass fires, though many buildings have been lost in recent fires. Through the program, community planners determined that it was unnecessary to require the entire community to use fire-resistant building materials and

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<sup>64</sup>California Public Resources Code § 4291.

<sup>65</sup>Communities that have received assistance from the program include Summit and Huerfano Counties, Colorado; Boise, Idaho; Bemidji, Minnesota; Missoula, Park, and Lewis and Clark Counties, Montana; Taos County, New Mexico; Bend and Ashland, Oregon; Austin, Texas; and Wenatchee and Chelan, Washington.

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create defensible space; instead, they decided to place such requirements on homes located in the community's highest risk areas.

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## Federal Officials and Stakeholders in Our Review Identified Several Actions They Said May Improve Their Ability to Reduce Wildland Fire Risk

Federal officials and stakeholders we interviewed said that improving implementation of the Cohesive Strategy, increasing collaborative planning, expanding education, increasing prevention efforts, and improving local timber-processing capabilities could improve federal agencies' and nonfederal entities' ability to reduce wildland fire risk to communities. Officials and stakeholders also identified actions that, while not necessarily within federal agencies' control, could help reduce wildland fire risk to communities. These include increasing state and local adoption of laws and ordinances that encourage fire-resistant building and landscaping and that limit development in certain areas, and providing insurance incentives to encourage property owners and communities to adopt risk-reducing measures.

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### Improving Implementation of the Cohesive Strategy

Many federal officials and stakeholders said that improving the implementation of the Cohesive Strategy could help reduce wildland fire risk to communities. For example, some stakeholders said that federal agencies could improve communication about the Cohesive Strategy, which could further its implementation. One such stakeholder said that he believes some federal land management officials still have not heard of the Cohesive Strategy (issued in 2014), and that roles and responsibilities for implementing the strategy are not well defined at the national level. Some officials and stakeholders said it is important to increase accountability for implementing the Cohesive Strategy, such as through the use of performance measures as part of implementing the strategy. The Cohesive Strategy states that its successful implementation depends in part on monitoring and accountability, noting that "A set of national outcome performance measures will allow Congress, the national wildland fire management community, and other stakeholders to monitor and assess progress toward achieving the results for each of the three national goals." This emphasis on monitoring and accountability is

consistent with key characteristics we have described for developing and implementing effective national strategies.<sup>66</sup> Likewise, one of the key collaboration practices we have identified is that federal agencies engaged in collaborative efforts should develop mechanisms to monitor, evaluate, and report on results.<sup>67</sup> We found that reporting on these activities can help key decision makers within the agencies, as well as clients and stakeholders, obtain feedback for improving both policy and operational effectiveness.

The agencies use “success stories” to share what they consider successful or effective efforts at implementing the Cohesive Strategy. However, the success stories we reviewed focus on individual projects or efforts and do not generally indicate the role, if any, that the Cohesive Strategy played or describe the extent to which the projects or efforts have individually or cumulatively contributed to achieving the strategy’s goals. More broadly, the Wildland Fire Leadership Council (WFLC)—the interagency organization responsible for oversight and leadership in implementing the Cohesive Strategy (and which includes the Forest Service and Interior as members)—has not developed measures to assess progress on the part of federal and nonfederal participants in meeting the national goals of the Cohesive Strategy.

According to a December 2016 WFLC report, a performance measure task group was convened in January 2013 and proposed several performance measures that could be used to track progress in achieving the broad goals of the Cohesive Strategy.<sup>68</sup> One such measure was the percentage of communities at risk with a high probability of withstanding wildfire without loss of life and infrastructure; this measure was intended to assess the extent to which the threat to communities at risk from wildfire had decreased. However, the Wildland Fire Executive Council, a former advisory council to WFLC, concluded that, while performance information for many of the 2013 task group’s proposed measures could be collected using reporting measures the agencies already had in place, fully implementing the proposed performance measures would likely place undue burden on the agencies and nonfederal partners. The Forest

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<sup>66</sup>GAO, *Combating Terrorism: Evaluation of Selected Characteristics in National Strategies Related to Terrorism*, [GAO-04-408T](#) (Washington, D.C.: Feb. 3, 2004).

<sup>67</sup>[GAO-06-15](#).

<sup>68</sup>Wildland Fire Leadership Council (National Strategic Committee), *Cohesive Strategy Crosswalk and Strategic Alignment* (December 2016).

Service and Interior each have performance measures to monitor and assess their wildland fire management efforts. For example, one of Interior's performance measures is the amount of fuel reduction conducted in the WUI, which is consistent with the Cohesive Strategy's emphasis on resilient landscapes. However, these agency measures are intended to separately assess each agency's performance—or, in some cases the performance of specific programs—and do not represent the set of measures to assess national progress toward meeting the Cohesive Strategy's goals, as called for in the strategy.

The 2016 WFLC report states that the use of research findings, remote sensing, and modelling can help quantify the effects of activities over time and can contribute to showing accountability and success in meeting the goals of the Cohesive Strategy. Because the report was issued in December 2016, Forest Service and Interior officials said they have not had sufficient time to determine which, if any, research findings can be useful in this effort. By working with their WFLC partners to develop measures, the Forest Service and Interior could better assess national progress toward achieving the goals of the Cohesive Strategy.

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## Increasing Collaborative Planning

Many federal officials and stakeholders said increasing collaborative planning could help reduce fire risk to communities. Several federal officials and stakeholders said such planning could occur by developing or improving CWPPs, and some said increasing the frequency of collaborative in-person meetings ahead of fire seasons could help reduce risk. These suggested actions align with a 2013 Forest Service study that found that, while individual homeowner actions are essential to reduce the potential for wildfire damage to property, it is also critical for entire communities to work together on a broader planning and development scale.<sup>69</sup>

Regarding CWPPs, some officials and stakeholders said that more communities developing CWPPs and taking steps to improve their usefulness could enhance collaborative efforts to reduce wildland fire risk to communities. The National Association of State Foresters estimates

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<sup>69</sup>Department of Agriculture, Forest Service, Rocky Mountain Research Station, *Wildfire, Wildlands, and People: Understanding and Preparing for Wildfire in the Wildland-Urban Interface—A Forests on the Edge Report*, Gen. Tech. Rep. RMRS-GTR-299.

that, as of fiscal year 2015, about 20 percent of the approximately 76,000 communities identified as being at risk from fire were covered by a CWPP. Because it is helpful to collaboratively plan, a stakeholder with the Northeast Regional Cohesive Strategy Committee said the committee is encouraging more communities to develop CWPPs or equivalent plans and to make collaborative planning a priority.

In addition, some stakeholders said that updating and assessing CWPPs is important to maintaining their usefulness because some are outdated and many are not comprehensive, suggesting that the plans do not reflect changing circumstances such as increased housing development or altered landscape conditions. Community members in Southern California said their CWPP states that the plan should be updated every 5 years, or sooner if social, political, or economic factors warrant. This language aligns with the Forest Service's *Best Management Practices for Creating a Community Wildfire Protection Plan*, which includes as a best practice to "quickly identify changes affecting the CWPP and adapt the plan to new conditions as they arise."<sup>70</sup> In some locations we visited, we found that CWPPs outlined communities' plans to monitor and evaluate their risk-reduction efforts every 5 years or on an annual basis, such as in Central Oregon's Greater La Pine CWPP. Forest Service and Interior officials said they participate in community efforts to develop and implement CWPPs, but they said it is not their role to direct communities about how and when to develop and maintain CWPPs or to oversee their implementation.

As another way to improve collaborative planning, a senior NPS official and community members in California said the frequency of collaborative in-person meetings ahead of fire seasons should increase. For example, these community members said it would be beneficial to resume pre-fire season meetings that the community formerly held with local fire chiefs, state and county officials, and Eldorado National Forest officials, during

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<sup>70</sup>Similarly, a guide developed by the National Association of State Foresters, the Western Governors' Association, and others notes that effective monitoring and evaluation of wildfire planning efforts at the local, state, and national levels will provide important opportunities to evaluate the overall effect of CWPPs in reducing wildfire risk and improving planning processes. Communities Committee, Forest Guild, International Fire Chiefs Association, Louisiana State University, National Association of State Foresters, National Association of Counties, The Nature Conservancy, Oregon Department of Forestry, Resource Innovations, Society of American Foresters, Sustainable Northwest, and the Western Governors' Association, *Community Guide to Preparing and Implementing a Community Wildfire Protection Plan* (August 2008).



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which participants discussed issues such as resources and evacuation plans in the event of a wildfire. These community members said these meetings were a good way to foster trust and develop relationships, thereby increasing the chances of a successful response in the event of a wildland fire.<sup>71</sup>

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## Expanding Education

Many federal officials and stakeholders said that expanding the amount of education provided to communities about the benefits of wildland fire and the steps individuals can take to reduce their risk could help reduce wildland fire risk to communities. Some stakeholders said it is important to provide more education on the ecological role of fire and the benefits it can provide. For example, a representative of the Southern Group of State Foresters said it would be helpful for private landowners across the United States to understand the benefits of prescribed burning because this could help landowners reduce risk on their properties and become more accepting of prescribed burning as a treatment on adjacent public lands.

Some federal officials and stakeholders also said that expanding education about mitigation steps communities and individuals can take can help reduce risk. For example, some federal officials and stakeholders said sharing success stories about ways communities have reduced their wildland fire risk could help increase awareness about actions other communities could take. Some community members also said that tailored and more creative public education materials (i.e., those that reflect the unique topography, vegetation, culture, and building type of a particular community) describing steps individuals can take to reduce their wildland fire risk could prompt homeowners to act. For example, community members in Estes Park, Colorado, said that their county's Firewise materials were tailored to reflect the community's characteristics. These community members said the Colorado State Forest Service has provided such materials to counties in Colorado for approximately 20 years. According to 2006 and 2013 Forest Service reports, among the key ingredients for successful educational programs are publications that are geared toward specific geographic areas, as well as varied

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<sup>71</sup>GAO previously reported that trust is one of the factors that run throughout leading practices necessary for a collaborative working relationship. See [GAO-06-15](#).

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educational approaches and information pathways that meet differing learning styles.<sup>72</sup>

Some federal officials and stakeholders said that a clearinghouse that provides information about resources could help communities better understand actions they could take to reduce their risk. Interior Office of Wildland Fire officials said that a cooperative effort between the Forest Service and the Interior agencies resulted in a website, [www.forestsandrangelands.gov](http://www.forestsandrangelands.gov), that provides fire, fuels, and land management information to government officials, land and fire management professionals, businesses, communities, and other interested organizations and individuals.

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## Increasing Prevention Efforts

Many federal officials and stakeholders said that increasing fire prevention efforts could help reduce wildland fire risk to communities, because many wildland fires are caused by humans. According to the National Interagency Fire Center, from 2001 to 2011, approximately 85 percent of wildland fires in the United States were caused by humans. Some federal officials we interviewed said consistent prevention messaging across locations, such as through the nationwide Smokey Bear campaign, is important; this is because it helps the public identify with the message no matter where they travel. Federal officials said that, in addition, targeting prevention messages to specific groups is important because the origin of human-caused fires varies depending on the location and characteristics of the community. For example, some areas may have more instances of juvenile arson, while other areas may have more instances of campers not fully extinguishing their campfires. A senior Forest Service official said that communities can benefit from developing prevention plans that identify a targeted prevention audience. Otherwise, this official said, communities and federal officials “throw darts at a board” rather than targeting prevention efforts at specific fire-causing activities unique to a particular area. Similarly, Oregon Department of

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<sup>72</sup>Department of Agriculture, Forest Service, North Central Research Station, *Social Science to Improve Fuels Management: A Synthesis of Research Relevant to Communicating with Homeowners About Fuels Management*, Gen. Tech. Rep. NC-267 (St. Paul, MN: 2006), and Department of Agriculture, Forest Service, Rocky Mountain Research Station, *Wildfire, Wildlands, and People: Understanding and Preparing for Wildfire in the Wildland-Urban Interface—A Forests on the Edge Report*, Gen. Tech. Rep. RMRS-GTR-299.

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Forestry officials said that better studies and analyses on how human-caused fires start could help target prevention efforts. Both Forest Service and Interior officials, however, said limited resources affect their ability to take additional steps to increase targeted prevention messaging.

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### Improving Timber-Processing Capability

Many community and tribal members said that improving their timber-processing capability could help reduce wildland fire risk. Some said that their community's timber-processing capability no longer exists, thereby affecting the market for timber or other materials removed as part of fuel reduction projects. Community members in northern California said limited timber-processing capability affects their ability to process the vegetation removed as part of fuel reduction efforts. Because timber is valuable to some communities, the ability to process it can help support jobs and the local economy. Apache-Sitgreaves National Forest officials in Arizona cited the usefulness of establishing biomass processing facilities near communities, noting that such facilities located near the neighboring community of Snowflake have helped facilitate a local timber-processing market.<sup>73</sup> One stakeholder said a more developed biomass industry could help reduce wildland fire risk by providing an outlet for removed vegetation but noted that it is a more localized solution that may not work in every community.

The Forest Service has multiple efforts aimed at maintaining and spurring the timber industry. For example, through its Wood Innovations grant program, formerly known as the "Woody Biomass Utilization Grant" program, the Forest Service has awarded grants to stimulate widespread use of forest byproducts for renewable energy, wood products, and innovative wood building materials. From fiscal years 2005 through 2016, the program awarded more than \$54 million to more than 200 grant recipients, including small businesses, non-profit organizations, tribes, and state agencies.

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<sup>73</sup>Biomass processing facilities generally process woody material that is not suitable for higher-value uses such as being sawn into lumber. For more information about woody biomass, see GAO, *Natural Resources: Woody Biomass Users' Experiences Offer Insights for Government Efforts Aimed at Promoting Its Use*, [GAO-06-336](#) (Washington, D.C.: Mar. 22, 2006).

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## Adopting State and Local Laws and Ordinances

Many federal officials and stakeholders said that increased state and local adoption of laws and ordinances that encourage fire-resistant building and the removal of potentially flammable vegetation around structures could help reduce wildland fire risk. Some stakeholders also said that local nonfederal land-use plans should discourage development in areas at high risk from wildland fire. A 2013 Forest Service study found that 91 percent of WUI residents interviewed in California, where defensible space ordinances are in place, have lowered fire risk by removing flammable vegetation from their properties.<sup>74</sup> Community members in western Colorado said it would be helpful if communities that develop such ordinances track their effectiveness in reducing wildland fire risk and publicize the results to help other communities make informed decisions about implementing their own ordinances. Community members in central Florida said that without such ordinances, homeowners and developers are less likely to take steps to reduce their risk.

Some stakeholders said that increasing communities' responsibility for the costs of suppressing fires could create an incentive for communities to take actions to reduce their wildland fire risk. One state recently took action to create such an incentive. In 2016, the Utah state legislature passed a law under which the state will assume certain wildland fire suppression costs for local governments that implement prevention, preparedness, and mitigation actions to reduce the risk and cost of wildfire. Local governments that do not implement such actions will be responsible for wildland fire costs within their jurisdictions. This new law was developed with the involvement of the Utah Association of Counties, the Utah League of Cities and Towns, the Utah State Fire Chiefs Association, local fire departments, various policy workgroups, and others.

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## Providing Insurance Incentives for Property Owner Action

Many federal officials and stakeholders said that it can be helpful for insurance companies to provide incentives such as discounts or lower rates on insurance premiums for actions homeowners take to reduce their

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<sup>74</sup>Department of Agriculture, Forest Service, Rocky Mountain Research Station, *Wildfire, Wildlands, and People: Understanding and Preparing for Wildfire in the Wildland-Urban Interface—A Forests on the Edge Report*, Gen. Tech. Rep. RMRS-GTR-299.

vulnerability to wildfire. Such discounts are provided in some areas; for example, according to the National Fire Protection Association, one insurance company provides homeowners in Arizona, California, Colorado, New Mexico, Oregon, Texas, and Utah with a discount on their insurance premiums if they are located in a Firewise-designated community. Stakeholders in Southern California also said some insurance companies have refused to provide homeowner's insurance to property owners unless they undertake risk-reducing actions. For example, these stakeholders said that property owners in a community identified as being at particularly high wildland fire risk successfully obtained insurance only after using fire-safe building materials on their homes and other structures and clearing their properties of vegetation within 200 feet of their structures.<sup>75</sup>

Some federal officials and stakeholders, however, suggested that the effects of such insurance incentives may be limited. For example, a senior Forest Service official said insurance discounts may not be large enough to incentivize property owners to make risk-reducing changes. This official also noted that providing discounts to homeowners in Firewise communities does not guarantee that every homeowner within the community has taken action to reduce risk. Similarly, a 2016 review by Headwaters Economics reported, based in part on conversations with insurance industry experts, that it is unlikely that insurance rates and policies alone will determine whether a landowner decides to build a new home on wildfire-prone land.<sup>76</sup> The 2015 Forest Stewards Guild report stated that some residents see insurance as a substitute for risk-reducing efforts, and that insurance therefore becomes a disincentive to such efforts.<sup>77</sup>

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<sup>75</sup>According to the 2015 Forest Stewards Guild report, California's Fair Access to Insurance Requirements program provides economic incentives for residents to reduce fuel in a buffer zone of 200 to 300 feet around structures, use fire-resistant building materials, and improve firefighter access. The report also stated that the State Farm insurance company started wildfire hazard inspections in Colorado in 2003 and has expanded the program to 12 western states. Evans, Auerbach, Wood Miller, Wood, Nystrom, Loevner, Aragon, Piccarello, and Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*.

<sup>76</sup>Headwaters Economics, *Do Insurance Policies and Rates Influence Home Development on Fire-Prone Lands?* (Bozeman, MT: June 2016).

<sup>77</sup>Evans, Auerbach, Wood Miller, Wood, Nystrom, Loevner, Aragon, Piccarello, and Krasilovsky, *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*.

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## Conclusions

Abnormally dense accumulations of vegetation, combined with drought and other climate stressors, have contributed to larger and more severe wildland fires; at the same time, more people are choosing to live in fire-prone locations. Because fire can cross jurisdictions, efforts to reduce the risk of fire to communities involve a multitude of entities working together, including federal land management agencies, state and local governments, Indian tribes, and others. One area of focus for both federal and nonfederal entities has been the development of the Cohesive Strategy, which emphasizes the importance of coordination across entities and frames comprehensive national goals for mitigating the risk of wildland fire. However, WFLC has not developed performance measures to assess the combined efforts of federal and nonfederal participants in meeting the goals of the Cohesive Strategy. The Forest Service and Interior each have performance measures to monitor and assess their wildland fire management efforts, but those measures apply to the agencies individually and do not represent the set of national measures called for in the Cohesive Strategy. By working with the interagency body WFLC to establish such measures, the Forest Service and Interior, together with federal and nonfederal partners, could better assess national progress toward achieving the goals of the Cohesive Strategy.

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## Recommendation for Executive Action

To help determine the extent to which the goals of the Cohesive Strategy are being met, we recommend that the Secretaries of Agriculture and the Interior direct the Chief of the Forest Service and the Director of the Office of Wildland Fire, respectively, to work with WFLC to develop measures to assess national progress toward achieving the strategy's goals.

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## Agency Comments and Our Evaluation

We provided a draft of this report for review and comment to the Departments of Agriculture and the Interior. We received written comments from the Forest Service (responding on behalf of the Department of Agriculture), which are reproduced in appendix VII. In its letter, and in a subsequent discussion with the Forest Service audit liaison, the Forest Service stated that it generally agreed with our findings and recommendation, and that it is committed to implementing the

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Cohesive Strategy and will continue to work with WFLC and other entities towards reducing the risk of wildland fire on all lands in the United States. We also received written comments from Interior, which are reproduced in appendix VIII. Interior did not concur with our recommendation, citing three primary areas of disagreement.

First, while acknowledging that measures to assess national progress toward achieving the goals of the Cohesive Strategy could be beneficial, Interior noted in its letter that the Wildland Fire Executive Council had previously determined that instituting the measures that had been presented to it would place undue burden on the agencies and nonfederal partners.<sup>78</sup> Interior also stated that assessing national progress toward achieving the Cohesive Strategy's goals would cost taxpayers more than it would save, and cited a 2013 study that noted the challenging nature of efforts to assess the effectiveness of fuel reduction and restoration treatments. More recently, however, as we note in our report, a December 2016 WFLC report stated that the use of research findings, remote sensing, and modelling can help quantify the effects of activities over time and can contribute to showing accountability and success in meeting the goals of the Cohesive Strategy. During our review, Interior officials said they had not had sufficient time to determine which, if any, research findings could be useful in this effort, and Interior's letter does not refer to this aspect of the 2016 WFLC report. As a result, it is not clear whether Interior has fully considered the potential for using research findings or other tools described in the 2016 report to measure national progress in a cost-effective way.

Second, Interior stated that in 2014 it changed its strategic performance metrics to demonstrate departmental progress toward meeting the strategy's goals. Our report describes an example of one such departmental measure that is consistent with the Cohesive Strategy's emphasis on resilient landscapes. However, as we note in our report, agency performance measures are intended to separately assess each agency's performance—or, in some cases the performance of specific programs—and do not represent a set of measures to assess national progress toward meeting the Cohesive Strategy's goals, as called for in the strategy. Such measures could, as noted in the Cohesive Strategy, allow Congress and other stakeholders to monitor and assess progress

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<sup>78</sup>These measures were proposed to the Wildland Fire Executive Council by a 2013 task group, as discussed in our report.


toward achieving the strategy's goals. Interior did not indicate any steps it would take to meet the Cohesive Strategy's call for measuring national, rather than departmental, progress in meeting the strategy's goals.

Third, Interior noted that federal entities cannot control or mandate response or participation from non-federal partners. However, given the Cohesive Strategy's emphasis on collaboration between federal and nonfederal entities to achieve its goals, the WFLC—as the interagency body charged with implementing the strategy—is an appropriate forum for working to develop measures. While we understand that federal entities cannot control or mandate response or participation from non-federal partners, we believe that, as members of WFLC, Interior and other federal agencies can provide leadership in helping ensure accountability for the mutually agreed upon goals of the Cohesive Strategy.

Interior also provided technical comments regarding the Cohesive Strategy. In response, we incorporated additional information to note that implementation of the Cohesive Strategy is not separately funded.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Secretaries of Agriculture and the Interior, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions regarding this report, please contact me at (202) 512-3841 or [fennella@gao.gov](mailto:fennella@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to the report are listed in appendix IX.



Anne-Marie Fennell  
Director, Natural Resources and Environment



## Appendix I: Objectives, Scope, and Methodology

This report examines (1) factors federal officials and nonfederal stakeholders cited as affecting federal-nonfederal collaboration aimed at reducing wildland fire risk to communities and (2) actions federal officials and nonfederal stakeholders said could help improve their ability to reduce wildland fire risk to communities.

To perform this work, we reviewed various laws, policies, guidance, state and local zoning codes and ordinances, agency budget justifications, academic literature, and reviews related to federal wildland fire management. Among the laws we reviewed were the Federal Land Assistance, Management, and Enhancement Act; Healthy Forests Restoration Act of 2003; Good Neighbor Authority; Wyden Amendment; and Tribal Forest Protection Act of 2004.<sup>1</sup> In addition, we reviewed policy documents and agency budget justifications, such as the *2009 Guidance for Implementation of Federal Wildland Fire Management Policy*, the National Cohesive Wildland Fire Management Strategy, and the Forest Service fiscal year 2017 budget justification. We also reviewed other documents such as the *2014 Quadrennial Fire Review Final Report*, the U.S. Global Change Research Program's 2014 National Climate Assessment, Headwaters Economics' paper *Do Insurance Policies and Rates Influence Home Development on Fire-Prone Lands?*, and the Forest Stewards Guild report *Evaluating the Effectiveness of Wildfire Mitigation Activities in the Wildland-Urban Interface*. We conducted a basic assessment of these studies' methodologies, assumptions, and limitations and determined them to be sufficiently credible for our purposes. We also interviewed headquarters officials from each of the five federal land management agencies responsible for wildland fire management—the Forest Service in the Department of Agriculture and the Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service in the Department of the Interior—as well as Interior's Office of Wildland Fire. Because our report addresses reducing risk to communities, we focused our review on federal wildland fire management activities intended to reduce risk before

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<sup>1</sup>These laws are described in appendix III.

a potential wildland fire occurs, through fire preparedness, fuel reduction, prevention, and education.

To address our first objective, we interviewed fire management officials from 10 federal land management units, such as national forests and national parks, as well as representatives of communities near these lands. We selected land management units from each of the five federal agencies using the following criteria: the size of the estimated population in nearby wildland-urban interface areas, as defined by the Forest Service, with high wildland fire hazard potential; the size in acres of the land management unit; input from regional land management agency officials; and the geographic location of the land management unit, with units selected to provide geographic diversity. We then selected communities adjacent to the federal land management units by considering input from local land management agency officials. For each community selected, we interviewed representatives from nonfederal entities with which land management unit officials interacted; these representatives included county officials, local fire department officials, and homeowners. Using these criteria, we selected land management units and adjacent communities in five states: Arizona, California, Colorado, Florida, and Oregon. During our interviews with federal officials and community representatives, we asked about ways in which federal and nonfederal entities collaborated and factors that enhanced or hindered their ability to collaborate.

In addition, for the five states we selected, we interviewed officials with state wildland fire and forestry agencies. To gain a wider range of perspectives from states that were not included in our site selection, we interviewed officials with the National Association of State Foresters, the Southern Group of State Foresters, and the Northeastern Area Association of State Foresters, which represent states across the country.<sup>2</sup> In addition, to gain a better perspective on the Cohesive Strategy, we interviewed members of the Wildland Fire Leadership Council (WFLC) and the three regional committees—Northeast, Southeast, and West—responsible for overseeing the Cohesive Strategy’s implementation. We also interviewed representatives of nongovernmental organizations that were identified by federal officials we interviewed or in reports we reviewed as being involved in federal-

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<sup>2</sup>We were unable to schedule an interview with representatives of the Council of Western State Foresters, which represents states in the western United States.

nonfederal efforts to reduce wildland fire risk. During these interviews we asked about ways in which they collaborated with federal land management agencies, factors that enhanced or hindered their ability to collaborate. Table 2 provides a list of nonfederal associations, organizations, and committees included in our review.

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**Table 2. Nonfederal Associations, Committees, and Organizations Included in our Review**

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Fire Adapted Communities
Headwaters Economics
Intertribal Timber Council
National Association of Counties
National Association of State Foresters
National Fire Protection Association
Northeastern Area Association of State Foresters
Northeast Regional Cohesive Strategy Committee
Southeast Regional Cohesive Strategy Committee
Southern Group of State Foresters
The Nature Conservancy
West Regional Cohesive Strategy Committee
Wildland Fire Leadership Council

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Source: GAO. | GAO-17-357

We reviewed and analyzed interviewees' responses and identified broad categories of factors they said enhance or hinder federal-nonfederal collaboration to reduce fire risk to communities and actions they said could improve their ability to reduce such risk. In response to our interview questions about factors that affect collaboration efforts aimed at reducing risk to communities, officials and stakeholders described factors that we defined as having affected direct collaboration and indirect collaboration. For example, direct collaboration (i.e., situations involving a tangible relationship between two or more parties) includes federal policies and authorities that require or enable collaboration. Factors that affect indirect collaboration (i.e., situations in which actions by one entity

may affect other entities attempting to achieve a similar outcome) include community education, which can affect communities' ability to take risk reduction actions that may or may not include collaboration with others. We include both types of factors in our report, distinguishing between direct and indirect collaboration as appropriate.

Based on the frequency of factors identified, as well as information we obtained through our review of documents mentioned above related to this topic, we reported on factors associated with nine categories. The list of factors and associated definitions we used for analytical purposes were:

- **Federal authorities:** laws that authorize federal and nonfederal entities to conduct risk-reducing efforts across jurisdictions.
- **State and local authorities:** state and local laws or ordinances that may require homeowners, businesses, or communities to conduct certain risk-reducing actions or meet specified building requirements.
- **Initiatives:** federal efforts aimed at conducting cross-jurisdictional projects to reduce risk.
- **Joint planning:** federal-nonfederal efforts to discuss and document future risk reduction activities.
- **Agency resources for collaboration:** the ability of federal and nonfederal entities to share staff or funding and the presence of staff or funding to engage in collaborative activities.
- **Leadership:** efforts to collaborate, communicate, and seek input from others, among other characteristics.
- **Education:** efforts to educate individuals about steps they can take to reduce risk.
- **Wildfire prevention messaging:** efforts to provide prevention information or materials.
- **Community engagement:** the extent to which communities are aware of and engaged in taking actions to reduce risk, such as establishing defensible space.

Two analysts coded each response into these categories. Because many of the responses were broad in nature and could be categorized into multiple categories, analysts verified each other's categorizations. After completing the categorization of responses, we assessed the frequency with which responses occurred in each category to help identify factors to

discuss in our report. Our report generally does not discuss infrequently identified factors.

To address our second objective, we interviewed federal officials and nonfederal entities described above to obtain information about actions they said could reduce risk to communities from wildland fire. We categorized and coded their responses using the method described above. Based on the frequency of solutions identified, as well as information we obtained through our review of documents mentioned above related to this topic, we reported on solutions associated with seven categories: improving implementation of the Cohesive Strategy, increasing collaborative planning, expanding education, increasing prevention efforts, improving timber-processing capability, adopting state and local ordinances, and providing insurance incentives. To increase our understanding of the actions identified, we reviewed information about related programs and initiatives, including information about the Forest Service's Wood Innovations grant program, documents such as *Best Management Practices for Creating a Community Wildfire Protection Plan*, and information about the Smokey Bear campaign. We reviewed the Cohesive Strategy and action plans for implementing it, various "success story" project descriptions, guiding documents for WFLC and its regional committees, and other relevant documents. We also reviewed Cohesive Strategy implementation guidance and a 2016 report on the Cohesive Strategy by WFLC's National Strategic Committee. We then compared agency efforts to assess progress toward achieving the Cohesive Strategy's goals against guidance contained in the strategy and associated action plans. To obtain additional insight into the use of performance information on the part of federal agencies, we reviewed our previous reports related to interagency strategies and agencies' efforts to collaborate. We also reviewed various state and local ordinances that encourage fire-resistant building and the removal of potentially flammable vegetation around structures and that discourage development in areas at high risk from wildland fire. In addition, upon completing our analysis of interviewee responses, we followed up with Forest Service and Interior headquarters officials to learn the extent to which the agencies were implementing or considering the actions the interviewees suggested.

For both objectives, when providing general statements to describe factors that affect collaboration and actions to reduce risk, we use the term stakeholders to refer to representatives of the nonfederal entities listed above. When describing individual examples, we often refer to the

specific type of stakeholder, such as community members.<sup>3</sup> In addition, because this is a nonprobability sample, the information we report is not generalizable to all land management units and communities. It does not represent a comprehensive list of collaborative programs or efforts nationwide or in these states but, rather, provides illustrative examples from a geographically diverse range of land management units and communities that are at high risk of experiencing wildland fire.

We conducted this performance audit from October 2015 to May 2017 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.

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<sup>3</sup>In this report, we use the following qualifiers when summarizing federal officials' and stakeholders' views: "some," which we define as two or three federal officials and stakeholders collectively; "several," which we define as four to six federal officials and stakeholders collectively; and "many," which we define as seven or more federal officials and stakeholders collectively.

## Appendix II: Full Text of Figure 2, Characteristics of Communities Included in Our Review

Table 3 shows various characteristics of the communities included in our review.

**Table 3: Descriptions of Communities Included in Our Review**

Name and population	Description
Fort Apache Indian Reservation, Arizona 13,409	Located in eastern Arizona adjacent to the Apache-Sitgreaves National Forest. The almost 1.7 million-acre Fort Apache Indian Reservation is home to 15 White Mountain Apache tribal communities. Recreational activities, such as fishing and hunting, and timber management are important sources of revenue for the White Mountain Apache Tribe. The tribe has experienced wildland fires, including the 2011 Wallow Fire, which burned more than 534,000 acres, of which almost 13,000 acres were on the reservation.
Pinetop-Lakeside, Arizona 4,282	Located in eastern Arizona, bordered to the north and west by the Apache-Sitgreaves National Forest and to the south by the Fort Apache Indian Reservation. The area is a tourist destination for recreational activities, such as fishing and camping, and the community includes many second-home owners and part-time residents. The community has experienced several wildland fires nearby, including the 2002 Rodeo-Chediski Fire, which burned more than 460,000 acres, destroyed nearly 500 homes and other structures, and forced the evacuation of more than 30,000 people.
Calabasas and Topanga, California 23,058 (Calabasas) 8,289 (Topanga)	Located in the Santa Monica Mountains in Southern California, within densely populated Los Angeles County. The area has a hot, dry, Mediterranean climate with steep terrain. Predominant vegetation includes chaparral shrublands, one of the most fire-hazardous landscapes in North America. The Topanga community includes homes scattered throughout Topanga Canyon, with more homes and businesses clustered along the canyon road that runs from the Pacific Ocean north to Highway 101. Calabasas, in the northern Santa Monica Mountains, includes many homes located in close proximity. The area has experienced numerous fires, including the 1993 Old Topanga Fire, which destroyed more than 300 structures; the 1996 Calabasas Fire; and the 2016 Old Fire.
Grizzly Flats, California 1,066	Located in northern California, approximately 60 miles east of Sacramento and adjacent to the Eldorado National Forest. Grizzly Flats is one of several communities located near a major highway that intersects the Eldorado National Forest between Sacramento and Lake Tahoe. Recent nearby fires include the 2014 King Fire, which destroyed 80 structures, of which 12 were residences and 68 were other buildings.

**Appendix II: Full Text of Figure 2,  
Characteristics of Communities Included in  
Our Review**

Name and population	Description
Estes Park, Colorado 5,858	Located about 70 miles northwest of Denver, Colorado, at the eastern entrance of Rocky Mountain National Park. Approximately 4 million people visit Rocky Mountain National Park annually, and many of those visitors stay in or travel through Estes Park. Some homeowners live in the town of Estes Park while other residents live in homes scattered throughout wooded areas around the community. The 2012 Fern Lake Fire, which occurred inside Rocky Mountain National Park, threatened the community but was extinguished within the park.
Rifle and Silt, Colorado 9,172 (Rifle) 2,930 (Silt)	Located along the Colorado River in western Colorado in Garfield County, where BLM and the Forest Service manage 62 percent of the land. The area contains diverse ecosystems and recreational opportunities, as well as substantial oil and gas drilling infrastructure. Significant nearby fires include the 1994 South Canyon Fire, which resulted in the deaths of 14 firefighters.
The Great Outdoors, Florida 3,000 (in winter)	Located east of Orlando near the Atlantic coast of Florida, adjacent to the Merritt Island National Wildlife Refuge. This 2,800-acre community primarily includes a recreational vehicle community, along with some houses. Each home or vehicle site was planned to leave as much vegetation as possible. Many residents are part-time residents who live in the community only during the winter months. Recent fires include the 2011 Iron Horse Fire, which burned nearly 17,500 acres and one home.
La Pine, Oregon 1,653	Located southwest of Bend in central Oregon, surrounded by BLM and Forest Service lands. The area contains a significant amount of public land with developed and dispersed recreation sites, resulting in seasonal fluctuations in the number of visitors to the area. Dense stands of trees and thick ground vegetation contribute to the overall wildland fire risk in the La Pine area.
Warm Springs Indian Reservation, Oregon 4,000	Located north of Bend in central Oregon, adjacent to BLM and Forest Service lands. The 640,000-acre Warm Springs Indian Reservation is home to a confederation of three tribes: the Warm Springs, Wasco, and Paiute tribes. The town of Warm Springs is the most populated area on the reservation. The reservation is characterized by timber resources, fisheries, and other natural and cultural resources.

Sources: Bureau of Indian Affairs, Bureau of Land Management, Forest Service, Fish and Wildlife Service, U.S. Census Bureau, GAO review of Community Wildfire Protection Plans, GAO interviews with community members, and Columbia River Inter-Tribal Fish Commission. | GAO-17-357

Notes: We generally obtained information for these descriptions from each community's Community Wildfire Protection Plan, if available, as well as from officials with the adjacent federal land management unit. Population numbers are generally based on 2010 U.S. Census data for incorporated towns, cities, and Census Designated Places. As such, these figures may not include populations that live in surrounding unincorporated areas. Areas within land management unit boundaries may include both federal and nonfederal lands.

Community members near the Ocala National Forest did not respond to our request for a telephone interview.



# Appendix III: Summary of Federal Laws Aimed at Reducing Wildland Fire Risk through Collaboration

Table 4 describes several federal laws aimed at reducing wildland fire risk through collaboration.

**Table 4: Descriptions of Several Federal Laws Aimed at Reducing Wildland Fire Risk through Collaboration**

Federal Law	Description
Cooperative Forestry Assistance Act of 1978 (Pub. L. No. 95-313)	Authorizes the Secretary of Agriculture to provide financial, technical, educational, and related assistance to state foresters or equivalent state officials to carry out activities such as protecting forest lands from damage caused by fire.
Good Neighbor Authority (Consolidated Appropriations Act, 2014)	Authorizes the Forest Service to permit state forest management agencies to conduct certain watershed restoration activities—such as reducing hazardous fuel to prevent wildland fires, addressing insect outbreaks, and improving drainage to prevent sediment from eroding into forest watersheds—on Forest Service lands when conducting similar activities on adjacent state or private lands. Under the act, the state may in some circumstances act as an agent of the federal government to conduct these projects. Although the projects are conducted by the state, projects on federal lands remain subject to the provisions of the National Environmental Policy Act (NEPA), which requires federal agencies to consider any significant environmental impacts that may result from their actions.
Good Neighbor Authority (2014 Farm Bill) (16 U.S.C. § 2113a)	Authorizes the Forest Service and Bureau of Land Management (BLM) to enter into “good neighbor” agreements with state governors, under which the federal agencies and the states can carry out similar and complementary forest, rangeland, and watershed restoration services, including fuel reduction projects, on both federal and nonfederal lands. Such agreements can take the form of cooperative agreements or grants. Although the projects are conducted by the state, projects on federal lands remain subject to the provisions of NEPA.
Healthy Forests Restoration Act of 2003 (16 U.S.C. § 6501 et. seq.)	Authorizes the Forest Service and BLM to carry out fuel reduction projects on federal lands, including within the wildland-urban interface and certain municipal watersheds. One of the main purposes of the act is to reduce wildfire risk to communities, municipal water supplies, and other at-risk federal lands through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects. The act requires the agencies to prioritize projects identified in Community Wildfire Protection Plans, which identify the community’s wildland-urban interface and are developed collaboratively with federal, state, and local entities to identify priority fuel reduction projects. <sup>a</sup>
Tribal Forest Protection Act of 2004 (Pub. L. No. 108-278)	Authorizes the Secretaries of Agriculture and the Interior to enter into agreements or contracts with Indian tribes meeting certain criteria to carry out projects to protect Indian forest lands.
Wyden Amendment (16 U.S.C. § 1011a)	Under the Wyden Amendment, the Forest Service and BLM may enter into cooperative agreements with landowners for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private lands, as long as the agreement benefits the fish, wildlife, and other resources on national forest and BLM lands within the watershed.

Source: GAO analysis of federal laws shown. | GAO-17-357

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**Appendix III: Summary of Federal Laws Aimed  
at Reducing Wildland Fire Risk through  
Collaboration**

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<sup>a</sup>The act also authorizes the agencies to prioritize projects in communities that do not have Community Wildfire Protection Plans but that have taken proactive measures to encourage willing property owners to reduce fire risk on private property.

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## Appendix IV: National and State Air Quality Standards

Several federal officials and stakeholders we interviewed said that some national and state air quality standards under the Clean Air Act have the effect of limiting fuel reduction treatments that rely on prescribed burning. Under the act, the Environmental Protection Agency (EPA) establishes standards for controlling air pollution. Pollutants in smoke, including those emitted from prescribed fires, can cause health issues and also cause air quality to exceed EPA's health standards for fine particulate matter and ozone. Wildfire smoke can reach hazardous levels in downwind communities for long periods of time, while prescribed fire can cause nuisance and shorter but still significant smoke impacts. To help ensure that EPA's standards are met, state officials responsible for enforcing the act might not in all cases provide land managers with the permits necessary to conduct prescribed burns.

Federal agencies have taken steps to address the issue of balancing the need to protect public health with conducting prescribed burns as a method of fuel reduction. Specifically, since 2015, the Wildland Fire Leadership Council's priorities have included smoke and air quality, and in January 2016, EPA and the Departments of Agriculture and the Interior issued a joint Wildland Fire and Air Quality summary. Among other things, the summary describes EPA's commitment to working with land managers to effectively use prescribed fire to reduce the effects of wildfire-related emissions. EPA's Exceptional Events Rule provides regulatory relief for states that exceed national air quality standards because of emissions from certain sources of pollution, including wildfires and certain prescribed fires. EPA finalized updates to the rule in October 2016 intended to simplify and shorten the process for state air quality agencies to address the impacts of wildfire smoke in their air quality plans.<sup>1</sup> EPA also released a guidance document in 2016 intended to help state air quality agencies develop supporting information for wildfires that affect monitored ozone concentrations.

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<sup>1</sup>81 Fed. Reg. 68216 (October 3, 2016).

# Appendix V: Selected Federal Programs Providing Risk-Reduction Funding to States and Localities

This appendix provides information about selected federal programs that provide risk-reduction funding to states and localities.

- The Forest Service’s State Fire Assistance (SFA) program provides financial assistance through partnership agreements with state foresters for fire management activities, including helping communities become fire adapted.<sup>1</sup> According to the Forest Service’s fiscal year 2017 budget justification, SFA is a critical part of the agency’s efforts to reduce wildland fire risk to communities, residents, property, and firefighters because it helps ensure that state, local, and private landowners have the capacity and tools they need to prepare for, respond to, and mitigate fire risk in the wildland-urban interface (WUI) and other critical areas. In each fiscal year from 2014 through 2016, approximately \$78 million was enacted for the program. Of the total \$78 million enacted for SFA in fiscal year 2015, \$15.9 million was spent on hazardous fuel reduction treatments in the WUI, directly paying for the treatment of 148,020 acres of hazardous fuel and contributing to the treatment of another 126,368 acres with in-kind partner support, according to the Forest Service’s fiscal year 2017 budget justification. In addition, SFA funding supports national partnerships and agreements, including, among others, the National Fire Protection Association’s Firewise program, the wildfire prevention

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<sup>1</sup>The SFA program was authorized by the Cooperative Forestry Assistance Act of 1978 to provide financial and technical assistance to states and communities for wildland fire management. State foresters are to allocate SFA funds according to the priorities identified through State Forest Action Plans—strategic plans for all forests in each state, that include an analysis of forest conditions and trends and that identify priority forest landscape areas.

campaign with the Ad Council, and The Nature Conservancy Fire Learning Network.<sup>2</sup>

- The Forest Service's Volunteer Fire Assistance (VFA) program provides technical and financial assistance to local volunteer fire departments serving rural communities with a population of 10,000 or fewer. According to the Forest Service's fiscal year 2017 budget justification, rural fire departments represent the first line of defense in addressing fires and other emergencies, and without the cooperation of rural fire departments, the agency would be unable to provide the level of fire response needed to keep fires near communities small. In each fiscal year from 2014 through 2016, \$13 million was enacted for the program. In 2015, this funding helped 9,318 communities to train 22,272 firefighters and purchase, rehabilitate, and maintain \$8.1 million in equipment, according to the 2017 budget justification.
- The Department of the Interior's Rural Fire Assistance program (RFA) provided assistance in education and training, as well as supplies and equipment, to rural fire districts.<sup>3</sup> However, funding for this program ended in fiscal year 2012 because of the increased availability of other fire assistance grant programs outside of Interior, according to officials with Interior's Office of Wildland Fire.
- Interior's Community Assistance is intended to support activities that improve and sustain community and individual responsibilities to adapt to, prepare for, and respond to wildfire. Unlike the Forest Service's VFA or Interior's now-expired RFA, Interior does not manage Community Assistance as a grant program, but as an activity under the existing wildland fire management programs of fuel reduction and preparedness, with funding levels determined by each Interior agency. Interior officials estimated that overall Community Assistance funding decreased from fiscal year 2009 through fiscal year 2013. For example, during this period, funding for Community Assistance decreased from an estimated \$4.5 million to \$2.1 million

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<sup>2</sup>The Nature Conservancy Fire Learning Network is a coalition of hundreds of federal and nonfederal partners in 30 landscapes working to promote the resiliency and restoration of fire-adapted ecosystems across the United States.

<sup>3</sup>Under the RFA program, Interior agencies worked with state foresters and other partners to allocate funding to rural fire departments serving communities with populations of 10,000 or fewer in the WUI and with the capability to meet a minimum 10 percent cost share.

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**Appendix V: Selected Federal Programs  
Providing Risk-Reduction Funding to States  
and Localities**

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for BLM and from an estimated \$1.2 million to \$355,000 for Bureau of Indian Affairs, according to these officials.<sup>4</sup>

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<sup>4</sup>Interior officials could not provide more recent estimates.

# Appendix VI: Department of the Interior's Risk-Based Wildland Fire Management Model


Since 2014, the Department of the Interior's Office of Wildland Fire has been developing a Risk-Based Wildland Fire Management model, which it plans to use to help support decisions about how to distribute funding for preparedness and fuel reduction to four Interior agencies: Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), Fish and Wildlife Service, and National Park Service. The proposed system is to assess the probability and likely intensity of wildland fire, values at risk,<sup>1</sup> and the expected value of acres likely to burn. Several Interior officials we interviewed raised concerns about the equity of the model because it makes determinations based on priority values at risk across the four Interior agencies, which can be challenging given the variation in agency missions and types of land they manage. For example, a threatened species located primarily on BLM lands may be among that agency's highest priorities, but a forested area relied upon by an Indian tribe for its livelihood may be among BIA's highest priorities. We found in 2015 that Interior officials said they expected to identify the prioritized values and issue guidance on the proposed system by the end of calendar year 2015 and use its results to inform their fiscal year 2016 funding distributions to the four agencies.<sup>2</sup> As of February 2017, officials with Interior's Office of Wildland Fire said they had not completed final revisions to the model but planned to do so in 2017.

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<sup>1</sup>Values at risk can include ecological, social, and economic values that could be lost or damaged due to fire, including people, property, infrastructure, natural and cultural resources, and air quality.

<sup>2</sup>See GAO, *Wildland Fire Management: Agencies Have Made Several Key Changes but Could Benefit from More Information about Effectiveness*, [GAO-15-772](#) (Washington, D.C.: Sept. 16, 2015).

# Appendix VII: Comments from the Department of Agriculture

	United States Department of Agriculture	Forest Service	Washington Office	201 14th Street, SW Washington, DC 20024
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File Code: 1420; 5100  
Date: APR 17 2017

Anne-Marie Fennell  
Director, Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548


Dear Ms. Fennell:



The U.S. Department of Agriculture appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report "Wildland Fire Risk Reduction: Multiple Factors Affect Federal-Nonfederal Collaboration, but Action Could Be Taken to Better Measure Progress, (GAO-17-357)." We generally agree with the findings in the GAO draft report.

The Forest Service takes the responsibility of collaborating with our Department of the Interior partners, State partners, Tribal, non-governmental and other partners very seriously, and is committed to implementing the 2014 National Cohesive Wildland Fire Management Strategy (Cohesive Strategy). We will continue to work with Wildland Fire Leadership Council and other entities towards reducing the risk of wildland fire on all lands in the United States.

Thank you, again, for the opportunity to review the draft report. If you have any questions, please contact Antoine L. Dixon, Chief Financial Officer, at 202-205-0429 or [aldixon@fs.fed.us](mailto:aldixon@fs.fed.us).

Sincerely,

  
THOMAS L. TIDWELL  
Chief

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# Appendix VIII: Comments from the Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, DC 20240

APR 24 2017

Ms. Anne-Marie Fennell  
Director, Natural Resources and Environment  
U.S. Government Accountability Office  
441 G Street NW  
Washington, DC 20548

Dear Ms. Fennell:

Thank you for the opportunity to review and comment on the Government Accountability Office (GAO) draft report entitled, *Wildland Fire Risk Reduction: Multiple Factors Affect Federal-Nonfederal Collaboration, but Action Could Be Taken to Better Measure Progress* (GAO-17-357). We appreciate GAO's review of the factors affecting Federal-nonfederal collaboration aimed at reducing wildland fire risk and the actions that could improve their ability to reduce risk to communities.

The GAO issued one recommendation to address its findings. GAO recommends that, in order to help determine the extent to which the goals of the Cohesive Strategy are being met, the Secretaries of Agriculture and the Interior direct the Chief of the Forest Service and the Director of the Office of Wildland Fire respectively to work with the Wildland Fire Leadership Council (WFLC) to develop measures to assess national progress toward achieving the strategy's goals.

The Department of the Interior (Department) does not concur with the recommendation. While acknowledging that measures to assess national progress towards achieving the goals of the National Cohesive Strategy could be beneficial, such measures were previously developed and presented to the Fire Executive Council (FEC), a group chartered by the Departments of Agriculture (USDA), Homeland Security (DHS), and the Interior to provide a common integrated, and coordinated Federal agency approach to wildland fire policy, leadership, budget, and program oversight. The FEC determined and recommended to WFLC that instituting the measures would place an undue burden on the agencies and their partners<sup>1</sup> by necessitating a considerable amount of time and cost to collect, review, and analyze the information. Without the adoption of national measures, the Department's Office of Wildland Fire (OWF) used existing programmatic reporting metrics to assess the Department's progress towards achieving the goals of the National Cohesive Strategy. We also recognize that Federal entities cannot control or mandate response or participation from Non-federal partners.

The Department's Wildland Fire Management (WFM) guiding principles and priorities are to restore and maintain fire-resilient landscapes, promote fire-adapted communities, reduce human-

<sup>1</sup> United States, Cohesive Strategy National Strategic Committee. Cohesive Strategy Crosswalk and Strategic Alignment. Washington, D.C.: n.p., 2016. Print.

caused ignitions, and safely and effectively respond to wildfires through direct program activities and Federal, Tribal, State, and local collaboration. These guiding principles and priorities align with the three goals of the National Cohesive Strategy. In 2014, the WFM changed strategic performance metrics<sup>2</sup> to demonstrate Departmental progress towards meeting the goals of the National Cohesive Strategy by increasing: (1) percent of Department-managed landscape acres that are in a desired condition as a result of fire management objectives; (2) percent of Department-managed treatments that reduce risk to communities that have a wildland fire mitigation plan; and (3) percent of wildfire on Department-managed landscapes where the initial strategy(ies) fully succeeded during the initial response phase.

In light of the above and in the spirit of enterprise risk management and efficiency, the Department believes it would cost more than it would save taxpayers to assess national progress toward achieving the Cohesive Strategy's goals. The Department believes the existing measures are sufficient at this time to adequately measure progress towards implementation of the Cohesive Strategy. As the Ecological Restoration Institute has noted, developing measures to assess progress *"understanding the ecologic and economic effectiveness of hazardous fuel and restoration treatments at the national level poses challenges that prevent simple answers to these questions."*<sup>3</sup>

The following technical comments are for your consideration as you finalize the report.

**Pages 20 to 21, Lines 467 – 485** from the Statement of Facts should not have been excluded from the draft report.

**Pages 20 to 21, Lines 467 – middle of line 474** describes how the Forest Service and Departmental interviewees responded to concerns of the Cohesive Strategy. *"In addition to federally funded landscape-scale initiatives, many officials and stakeholders said that the Cohesive Strategy, which was issued in 2014, provides for enhanced collaboration. Unlike the initiatives discussed above, implementation of the Cohesive Strategy is not separately funded because the agencies do not consider it a program. Rather, several Forest Service and Interior agency officials described the Cohesive Strategy as a "way of conducting business."* This statement accurately captures some of our discussion on March 31, 2017, recognizing that developing measures to assess national progress toward achieving the strategy's goals may take significant resources and the difficulty of such when the Cohesive Strategy is not a "nationally funded program."

**Page 21, Lines 474 – 485** describes one of the Department's longest standing examples (Greater Okefenokee Association of Landowners) of how a localized group of diverse stake holders can achieve the goals of the Cohesive Strategy when they work together.

<sup>2</sup> "DOI strategic Plan 2014 – 2018." , Mission Area 1: Celebrating and Enhancing America's Great Outdoors, Goal #1: Protect America's Landscapes, Strategy #3: Manage wildland fire for landscape resiliency, strengthen the ability of communities to protect against fire, and provide for public and firefighter safety in wildfire response. . N.p., n.d. Web. 6 Apr. 2017.


<sup>3</sup> Ecological Restoration Institute. 2013. Efficacy of hazardous fuel treatments: A rapid assessment of the economic and ecologic consequences of alternative hazardous fuel treatments: A summary document for policy makers. Northern Arizona University. 28 pp.

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**Appendix VIII: Comments from the Department  
of the Interior**

If you have any questions about this response, please contact Craig Leff, Deputy Director - Policy and Budget, Office of Wildland Fire, at (202) 606-3053 or cleff@blm.gov.

Sincerely,

  
Amy Holley  
Acting Assistant Secretary  
Policy, Management and Budget

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# Appendix IX: GAO Contact and Staff Acknowledgments

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## GAO Contact

Anne-Marie Fennell, (202) 512-3841 or [fennella@gao.gov](mailto:fennella@gao.gov)

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## Staff Acknowledgments

In addition to the individual named above, Steve Gaty (Assistant Director), Ulana M. Bihun, Mark Braza, Richard P. Johnson, and Keesha Luebke made key contributions to this report. Important contributions were also made by Martin (Greg) Campbell, William Carrigg, Lee Carroll, Charles Culverwell, Christopher P. Currie, Dan Royer, and Sarah Veale.

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# Appendix X: Accessible Data

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## Data Tables

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### Figure 3: Actions to Help Reduce Wildland Fire Risk in the Wildland-Urban Interface

Education and prevention can help inform the public about steps that can be taken to make homes and buildings less susceptible to wildland fire and to respond in the event of a wildland fire, and ways to prevent fires caused by humans from occurring.

Fuel reduction treatment projects reduce flammable vegetation, which can minimize the severity of wildland fires, increase landscape resiliency to fire, and provide firefighter access during fire suppression activities.

Land use and development regulations and ordinances may restrict development within areas at high risk from wildland fire, require property owners to manage hazardous vegetation on their properties, require fire-resistant construction materials for new developments and housing retrofits, or require other features such as adequate water supply for firefighting efforts and minimum road widths for safe evacuations.

Preparedness includes efforts by federal, tribal, state, and local agencies and communities to ensure the availability of firefighting assets (e.g., fire engines and crews) and establish clear responsibilities with regard to fire response in advance of wildland fire seasons.

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## Agency Comment Letters

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### Text of Appendix VII: Comments from the Department of Agriculture

#### Page 1

USDA United States Department of Agriculture

Forest Service

Washington Office

201 14th Street, SW Washington, DC 20024

File Code: 1420; 5100

Date: APR 17 2017

Anne-Marie Fennell

Director, Natural Resources and Environment

U.S. Government Accountability Office 441 G Street, NW

Washington, DC 20548 Dear Ms. Fennell:

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Page 1

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OFFICE OF THE SECRETARY

Washington, DC 20240

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## Page 2

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3 Ecological Restoration Institute. 2013. Efficacy of hazardous fuel treatments: A rapid assessment of the economic and ecologic

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consequences of alternative hazardous fuel treatments: A summary document for policy makers. Northern Arizona University. 28 pp.

Page 3

If you have any questions about this response, please contact Craig Leff, Deputy Director - Policy and Budget, Office of Wildland Fire, at (202) 606-3053 or cleff@blm.gov.

Sincerely,

Kathy Holle

Acting Assistant Secretary Policy, Management and Budget

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