

United States  
Department of  
the Interior



Bureau of Indian  
Affairs  
Bureau of Land  
Management  
Fish and  
Wildlife Service  
National Park  
Service

# Wildland Fire Management Fiscal Year 2012 Accountability Report

United States  
Department of  
Agriculture

Forest Service

October 28, 2013



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## From the Directors

Our common goal of serving the public by protecting and conserving our natural and cultural resources is what drives our diverse organizations. It is our responsibility to not only protect but conserve those resources for future generations.

Together, our agencies are responsible for nearly 600 million acres of public lands across the United States. Managing a wildland fire management program of that proportion is no small task. On the contrary, it is a big job—and one we do not take lightly!



These are challenging times to be public servants. Each year, budgets become more austere, we are asked to do more with less; and each year, our employees step up and rise to the occasion. As leaders, we recognize that no one agency or Department can be successful alone. We know our jobs and our responsibilities; we take them seriously.

As we reflect back on the 2012 wildfire season, we must once again remember those who lost their lives while protecting our communities and natural resources. Our hearts go out to the families, friends, and co-workers of these brave firefighters. Whether we work for the local volunteer fire department, the state, or the federal government, when a death or serious accident happens, we all suffer. We must remember them every time we respond to a call and before we take any action in the normal course of our duties. Success is defined only when everyone returns home safely at the end of each shift.

This year, the U. S. Forest Service and the Department of the Interior have joined forces to publish this report. The report is aligned with the primary factors and goals of the National Cohesive Wildland Fire Management Strategy, as defined by the interagency wildland fire management community—to restore and maintain resilient landscapes, create fire-adapted communities, and response to wildfire. You will see, as you read through the report, that together we have been accountable to the American people, and that we accomplished what we set out to do.

Each year brings with it new challenges—2013 will not disappoint us. Every year, our employees and partners—both nationally and internationally, work together to meet those challenges and make a difference.

We offer our combined 2012 report in the spirit of transparency. As leaders, we are proud of the accomplishments of our employees, and hope that this report appropriately reflects the good work they do every day.

*—Tom Harbour, Director*

Fire and Aviation Management  
U. S. Forest Service

*—Jim Douglas, Director*

Office of Wildland Fire  
U. S. Department of the Interior

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## Section 1: Review of the 2012 Wildfire Season

The initial seasonal outlook for 2012 for the Southern, Eastern, and Southwest Geographic Areas (GA's) called for above-normal fire potential across the East and Gulf Coast states from North Carolina to Louisiana and into Texas. Much of Minnesota also called for above-normal potential. Parts of Mississippi, the Ohio valleys, and across the Appalachians were predicted to be below normal.

Fire season was described as below normal nationally for both the number of fires and acres burned by the end of May. Less than 23,000 fires were reported nationally, burning approximately 710,000 acres. This represented just 74 percent of the fires and 57 percent of acres burned compared to the 10-year average for that time of the year. Several other areas of the country, however, experienced above-average fire activity for that time of the year (the Northwest, Northern and Southern California, Northern Rockies, Eastern Great Basin, Western Great Basin and Rocky Mountain GA's).

Figure 1. Geographic Area Coordination Centers



The Northwest (NW), Northern Rockies (NR), Eastern Great Basin (EGB), Western Great Basin (WGB), Southwest (SW), and Rocky Mountain (RM) GA's had above-average numbers of acres burned. The Western Great Basin burned 722 percent of its 10-year average acres, the Northwest 600 percent, and the Eastern Great Basin 465 percent of their average acres as of May 31.

Alaska (AK), Northern California (NO), Southern California (SO), Eastern and South Area (SA) GA's all experienced well below-average acres burned.

Only the Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA) had experienced higher than their 10-year average for both numbers of fires and acres burned by May 31.

The summer weather pattern over the United States, largely dominated by a ridge over much of the western and central states and a weak trough that lingered over the southeastern states, led to a much warmer than normal summer for most of the country. The summer heat wave placed 23 states in top ten warmest summers on record.

Dry conditions in the interior of the contiguous United States intensified and spread; and by the end of August, 40 percent of the nation was experiencing severe to exceptional drought. The fire potential outlook issued by National Interagency Coordination Center (NICC) for June through August called for above-normal significant fire potential through much of Arizona and parts of New Mexico, Colorado, Wyoming, Utah, Idaho, Oregon, Nevada, Hawaii, and the southern mountains of California.

The heat and dry conditions continued until early October when a Canadian trough dropped into the central United States bringing very cold air to much of the central section of the country. Precipitation in October favored the region along the Canadian border from Washington to northern Minnesota where heavy rain produced 200 to 400 percent of normal precipitation for the month. A storm across the Southwest brought heavy snow and rain to that area, and Hurricane Sandy brought rains and snow to the eastern portion of the country.

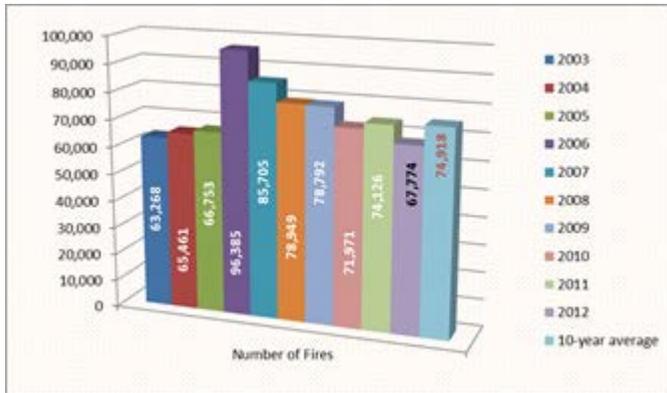
### 2012 National Fire Activity Synopsis<sup>1</sup>

The 2012 wildfire season was slightly below normal for number of wildfires reported (90 percent of the 10-year average). Total, there were nearly 68,000 wildfires reported, compared to the 10-year average of 74,918.

<sup>1</sup> Statistics/facts used in this report were gathered from the 2012 National Interagency Coordination Center (NICC) Wildland Fire Summary and Statistics Annual Report

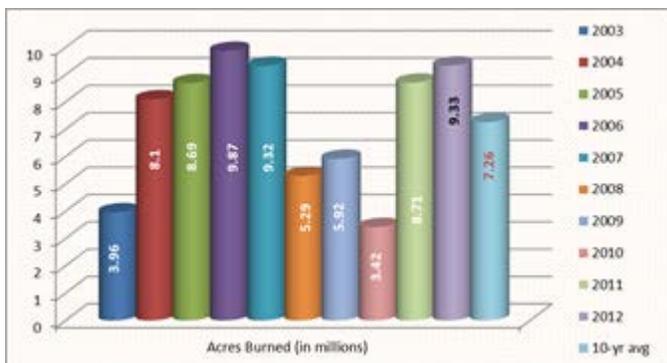
Four GA's reported above-average fire occurrences in 2012. They included the Eastern Great Basin, Northern Rockies, Rocky Mountain, and Western Great Basin.

Figure 2. Number of Fires Reported compared to the 10-year average (All Agencies)



The number of acres burned in 2012 totaled over 9.3 million acres or 128 percent of the 10-year average, which stands at 7.26 million.

Figure 3. Acres Burned in 2012 compared to the 10-year average (All Agencies)



The Eastern Great Basin Geographic Area led the nation with nearly 1.9 million acres burned. The Northern Rockies, Northwest, and Rocky Mountain GA's also burned more than one million acres each in 2012.

Fifty-one fires exceeded 40,000 acres in 2012, ten more than in 2011. Over 4,200 structures were reported destroyed by wildfires, including over 2,200 residences, nearly 2,000 outbuildings, and approximately 70 commercial structures. This is well above the annual average of approximately 1,400 residences, 1,300 outbuildings, and 50 commercial structures (data from 1999 through 2012, NICC). Colorado accounted for the most number of structures lost in 2012, reporting over 650 residences and 160

outbuildings. No commercial structures were reported lost in Colorado.

Figure 4. Percent of Fires by Geographic Area (All Agencies)

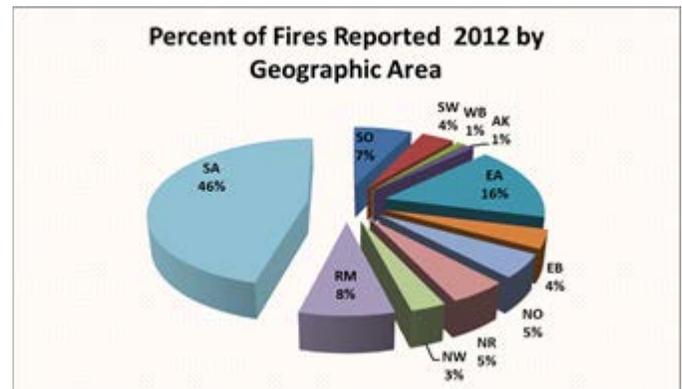
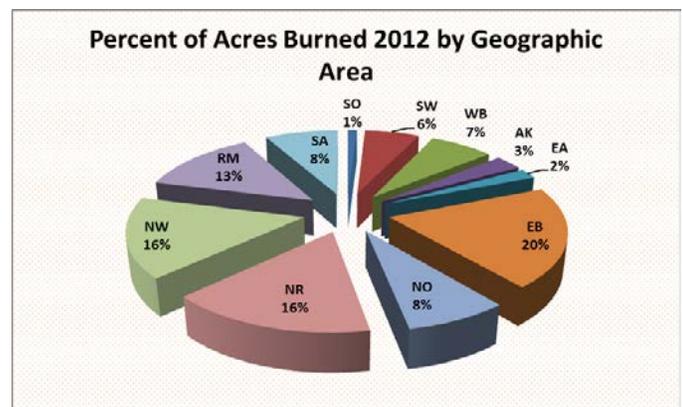


Figure 5. Percent of Acres Burned by Geographic Area (All Agencies)



## Firefighting Resources

Requests for wildland firefighting resources placed to the NICC during the 2012 fire season were above the 10-year average in most categories. Filled requests for Type 1 teams, overhead, engines, crews, and heavy airtankers all exceeded their respective 10-year averages. In fact, heavy airtanker mobilizations (including MAFFS and Canadian airtankers) set a new record. Requests for Type 2 teams and Type 1 helicopters were near average, and requests for Type 2 helicopters were below average.

## Military and International Resource Mobilizations

On June 23, a Request for Assistance for four military C-130 Modular Airborne Fire Fighting System (MAFFS) aircraft was approved, and the first MAFFS began flying fire missions in Colorado on June 25. All

available MAFFS aircraft (from California, North Carolina, Wyoming, and Colorado) were activated at various times during the 2012 fire season. By September 13, MAFFS had flown 922 sorties across the western United States, dropping over 2.4 million gallons of retardant. This is the highest number of gallons dropped by MAFFS since 1994. The last two MAFFS aircraft were released on September 14.

Canada provided five airtankers and three aerial supervision modules (“Bird Dogs”) from British Columbia, Alberta, and Saskatchewan, as well as two liaison officers. The first aircraft were mobilized June 6 and June 12 from British Columbia and Saskatchewan, respectively. Another airtanker and Bird Dog arrived on July 9 from Alberta. All flew missions in many of the western states. The last aircraft were released back to Canada on July 12 due to increased fire activity in that country.

## National Preparedness Level<sup>2</sup>

The National Preparedness Level (PL) is measured on a scale of one to five, as follows:

**PL 1:** There is minimal large fire activity nationally. Most GA’s have low to moderate fire danger. There is little or no commitment of national resources.

**PL 2:** Several GA’s are experiencing high to extreme fire danger. Wildland fire activity is increasing and large fires are occurring in one or more GA’s. Minimal mobilization of resources from other GA’s is occurring. There is moderate commitment of national resources with potential to mobilize additional resources from other GA’s.

**PL 3:** Two or more GA’s are experiencing wildland or prescribed fire activities requiring a major commitment of national resources. Additional resources are being ordered and mobilized through the NICC. Type 1 and 2 Incident Management Teams (IMTs) are committed in two or more GA’s and crew commitment nationally is at 50 percent.

**PL 4:** Three or more GA’s are experiencing incidents requiring Type 1 and 2 IMTs. Competition exists for resources between GA’s; and nationally, 60 percent of Type 1 and 2 IMTs and crews are committed.

<sup>2</sup> As defined in the National Interagency Mobilization Guide, Chapter 20

**PL 5:** GA’s are experiencing major incidents which have the potential to exhaust all agency fire resources. Eighty percent of Type 1 and 2 IMTs and crews are committed, as well as the majority of other national resources.

The National PL reached PL 4 for the first time on June 27 and remained at PL4 for a total of 45 days throughout the 2012 fire season. The National PL never rose to PL 5. The 10-year average for the number of days at the National PL of 4 and 5 is 34 days. In 2011, the National PL was at PL 4 and/or 5 for a total of 7 days.

Figure 6. Number of Days at National Preparedness Levels 4 and 5



## Fires and Complexes Over 40,000 Acres<sup>3</sup>

There were 51 wildfire incidents during 2012 that were over 40,000 acres, across 14 different states—42 were caused by lightning, 3 by humans, 5 undetermined, and the cause of the Last Chance fire in Colorado was never reported.

## Significant Fire Activity

Significant fires are defined in the National Mobilization Guide as fires that are a minimum of 100 acres in timber fuel types, 300 acres in grass and brush fuel types, or are managed by Type 1 or 2 IMTs, a Wildland Fire Management Team (WFMT), or National Incident Management Organization (NIMO) Team.

<sup>3</sup> Information derived by the ICS-209 Reports

Significant wildfires represented approximately 1.9 percent of the total wildfires reported nationally in 2012. In total, there were 1,270 large or significant wildfires reported, with the greatest number—389, (30 percent) in the Southern Area, followed by 171 fires (13 percent) in the Eastern Great Basin, 154 (12 percent) in the Rocky Mountain, and 145 (11 percent) in the Northern Rockies.<sup>4</sup>

Figure 7. Percent of Reported Significant Fires by Geographic Area

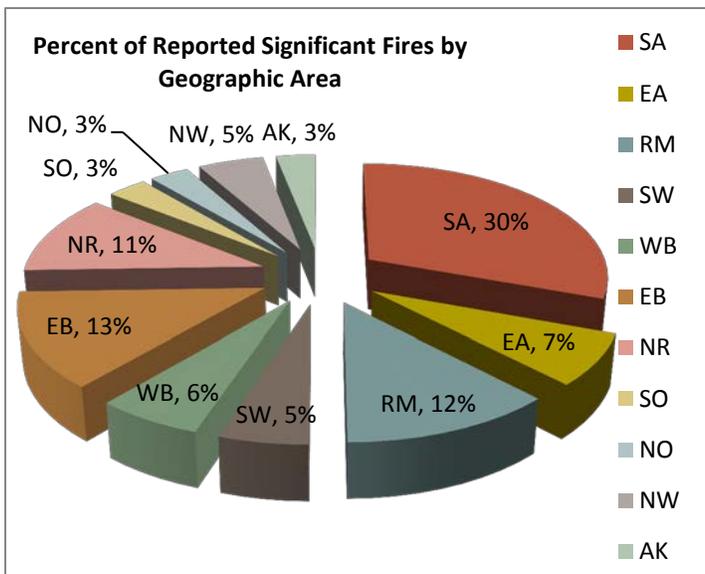


Figure 8. Significant Fires by Agency Protection (2012)

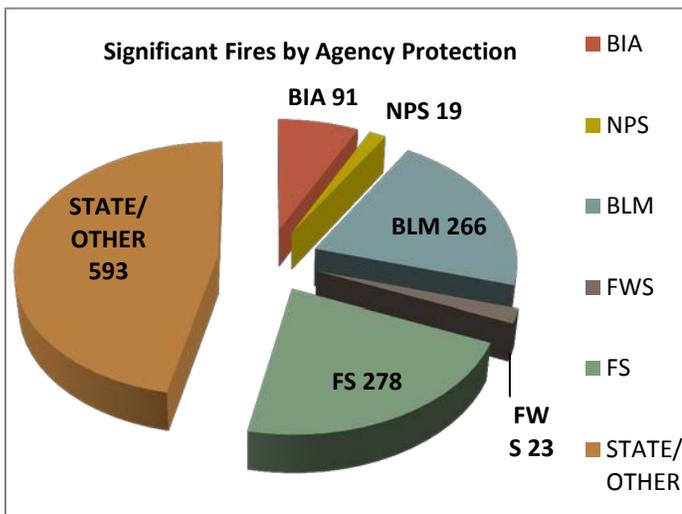
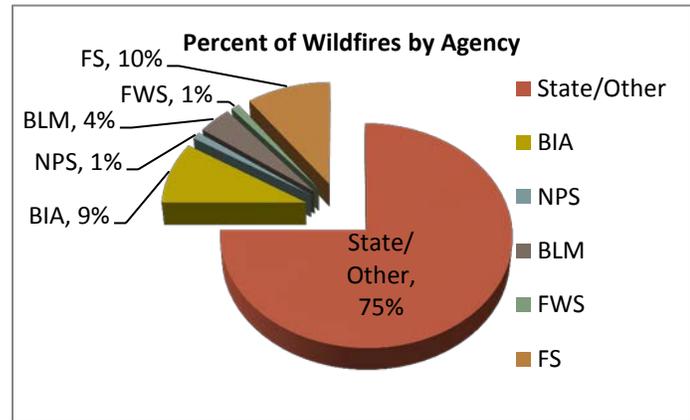


Figure 9. Percent of Wildfires by Agency



<sup>4</sup> Derived from ICS-209 through FAMWEB

## Section II: Wildland Fire Management Appropriation

### Overview

The Forest Service and Department of the Interior wildland fire management programs were funded for Fiscal Year (FY) 2012 by the Continuing Appropriations Act, 2012, H.R.2608, signed into law on October 5, 2011, as Public Law 112-36.

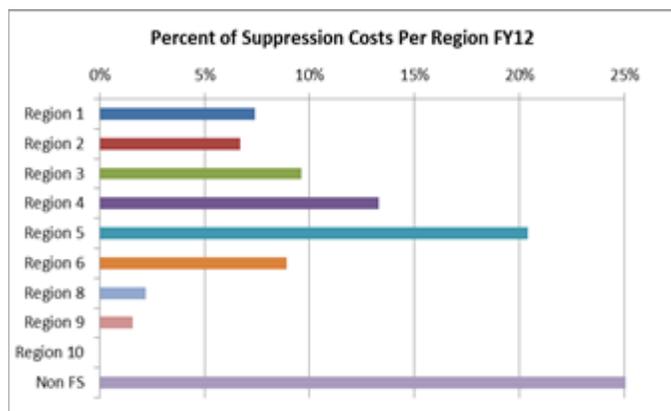
### U. S. Forest Service

This law provided the U. S. Forest Service (Forest Service) with a Wildland Fire Management Appropriation totaling nearly \$2.5 billion, and included funding for the FLAME Wildfire Suppression Reserve Fund at \$315 million. The FLAME fund is intended to address the challenges of budgeting for fire suppression and to enable the agency to respond effectively during highly variable fire seasons.

The Wildland Fire Management Appropriation represented 49 percent of the Forest Service's discretionary appropriations in FY 2012—equal to the 49 percent level in FY 2011, and down from 53 percent in FY 2010.

In FY 2013, Fire and Aviation Management (FAM) will continue to aggressively pursue strategies to enhance efficiency and cost effectiveness including risk-informed allocation of preparedness resources, increasing accountability for large fire management, establishing performance metrics for large fires, risk-informed prioritization of hazardous fuels treatments (Hazardous Fuels Prioritization Allocation System),

Figure 10. Percent of Forest Service FY 2012 Suppression Costs per Forest Service Region



prioritization of funds to states (State and Private Forestry Re-Design), and other actions.



President Obama and other dignitaries visit the Waldo Canyon Fire, outside Colorado Springs, Colorado (June 2012)

### Risk-Informed Decision Making

In FY 2012, the Forest Service reported over 7,089 wildfires on national forests and grasslands across the United States. These fires resulted in more than 2.4 million acres burned with suppression expenditures reaching \$1.46 billion. When compared to FY 2011, the numbers of fires decreased by approximately 1.5 percent while the numbers of acres burned increased by almost 140 percent. Increased level of fire activity is due to longer and more severe fire seasons, cumulative drought across the country, extensive insect kill in western forests, and regional shifts of populations into the wildland urban interface. Many of these causes may be attributable to the effects of changing climate. Additionally, risk information decisions on fires cause an increase in fire size as a result of choosing safer tactics rather than using direct attack. Many times, managers choose indirect tactics, such as burning out from an existing road or waiting until the fire reaches a shift in fuels, to increase the safety of the firefighters. These changes have resulted in more expense and greater complexity in meeting the challenges of managing wildland fire across America. Despite these challenges, the agency continued its efforts to manage costs.

In FY 2012, the agency expanded and continued to implement an aggressive hazardous fuels reduction program, accelerated the use of risk-informed fire management, expanded operational efficiencies and

continued the use of management controls. Specifically, Forest Service actions included:

- focused hazardous fuels treatments in the wildland urban interface (WUI) areas, and in the fire-adapted ecosystems that presented the greatest opportunity for restoration;
- expanded the use of the Wildland Fire Decision Support System (WFDSS) tools across the agency and continued the use of science-based tools giving fire managers more information on which to base better risk-informed decisions that provide better results;
- continued work with partners to build strong, cooperative frameworks that promoted safety, success, and ecosystem health; and
- implemented revised guidelines to the Federal Wildland Fire Management Policy that promoted efficient, effective management of both planned and unplanned wildland fires.

Fire and Aviation Management worked aggressively within the agency and with cooperators to implement these strategies and to manage suppression expenditures. While Forest Service suppression expenditures reached \$1.46 billion, the agency's costs would have been much higher without these management controls.

Region 5, the Pacific Southwest region, consumed 20 percent of the Forest Service's reported wildfire suppression costs in FY 2012—the greatest portion across the nine regions.

Region 4, the Intermountain Region, consumed approximately 13 percent; with Region 3, the Southwestern Region using 10 percent. Region 1, Northern Rockies, Region 2, Rocky Mountain, and Region 6, Pacific Northwest, averaged 8.6 percent each. Regions 8, 9, and 10 (Southern, Northeast, and Alaska) used 2, 2, and 0 percent respectively.

## Department of the Interior

The FY 2012 Wildland Fire Management Appropriation for the Department of the Interior provided funding to maintain sufficient wildland firefighting resources for the wildfire season, including over 4,700 firefighters and support personnel, 78 firefighting aircraft, 745 engines, and 206 other heavy

equipment including dozers, water tenders, etc. The Appropriation maintains funding based on the 10-year suppression average and maintains funding for hazardous fuels and other program components at previous year's levels.

Table 1. DOI Budget Comparison (2011 – 2012)

	FY 2011 Enacted	FY 2012 Enacted	Change from FY 2011 to FY 2012
<b>Fire Operations</b>	489,403	275,426	(213,977)
<b>Preparedness</b>	290,452	276,522	(13,930)
<b>Fire Suppression</b>	398,951	80,904	(318,047)
<b>Use of balances – not included in totals</b>	(200,000)	(82,000)	118,000
<b>Other Operations</b>	228,654	208,163	(20,491)
<b>Hazardous Fuels Reduction</b>	183,314	183,021	(293)
<b>Burned Area Rehabilitation</b>	33,203	13,205	(20,178)
<b>Fire Facilities</b>	6,137	6,127	0
<b>Joint Fire Science</b>	6,000	5,990	0
<b>Total Wildfire Appropriation</b>	718,057	483,589	(234,468)
<b>FLAME Wildfire Suppression Reserve Account</b>	60,878	91,853	30,975
<b>Total Wildland Fire Management Appropriation &amp; FLAME Reserve Appropriations</b>	778,935	575,442	(203,493)

In summary, the FY 2012 Enacted level for the Department of the Interior decreased more than 26 percent from the FY 2011 Enacted Appropriation level and decreased 30 percent when compared with the FY 2012 President's Budget.

Public Law 112-74 rescinded \$82 million in unobligated balances in the Department's Suppression Account and directed the program to exhaust prior year emergency supplemental balances of \$189.6 million

before obligating the \$80.9 million provided in the new budget authority for suppression.

Congressional notification was sent in March 2012 as required when obligation of \$80.9 million was imminent.

The Bill funded hazardous fuels treatments at the 2011 level with the funding directed to mitigate hazards and enhance the ability to control wildfires by focusing on the highest priority projects in the highest priority areas.

## Preparedness



The Preparedness activity funds resources for management of firefighters, aviation assets, and equipment as well as direct and indirect program costs.

The reduction between FY 2011 and 2012 was achieved through staffing attrition, reduced hiring, and management efficiencies.

In FY 2012, 3,312 firefighters were funded which was 217 less firefighters than in 2011.

## Suppression

The FY 2012 budget funds the 10-Year Suppression Cost Average in combination with the FLAME appropriation, which is used to ensure adequate suppression funding. Funds are directed to fire suppression activities, emergency and unpredictable operations, severity, and emergency stabilization.

In the Omnibus Appropriations, the Congress rescinded \$82 million in unobligated balances and

stipulated the use of \$189.6 million in unobligated balances first for Suppression Operations.

The Department of the Interior had a total of \$447 million available in FY 2012 to fund suppression costs to include \$189.6 in carry-over funding; \$80.9 in new Budget Authority; and \$176.7 from the FLAME account.

## FLAME Wildfire Suppression Reserve Fund

The FLAME Wildfire Suppression Reserve Fund was established in the 2010 Appropriations Act to fund more severe or complex fires. The fund serves as a contingency to suppression funds and requires the criteria outlined in Public Law 111-88 be met. In 2012, \$84 million was transferred to the suppression account.

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## Section III: Restore and Maintain Resilient Landscapes

### Hazardous Fuels Reduction

The Hazardous Fuels Reduction program provides funding for fuels treatments for the highest priority projects in the highest priority areas, with an emphasis on protecting communities and their values.

### Forest Service

The FY 2012 the Hazardous Fuels Reduction (HFR) budget for the Forest Service was just over \$298 million after funding was re-allocated off the top to fund the Integrated Restoration pilot in three regions.

Twenty biomass grant awards from the Woody Biomass Utilization Grant Program were made to small business and community groups across the country in FY 2012, totaling approximately \$3 million. Hazardous Fuels Treatments produced over 2.8 million Green Tons used for energy and over 932,000 CCF (hundred cubic feet) of wood products.

The Forest Service reduced hazardous fuels on a total of more than 2 million acres across the nation in FY 2012. These accomplishments were realized as follows:

- Over 1.2 million acres of prescribed (planned) fires;
- Over 662,000 acres of mechanical treatments;
- Managed wildfires to benefit natural resources and reduce hazardous vegetation on over 14,000 acres, and
- 17,000 acres through biological/chemical treatments, and grazing.

This accomplishment, while above the FY 2012 target, was slightly lower than FY 2011 in recognition of the increased risk of prescribed fire and managing of wildfires during the 2012 drought and record wildfire season.

The Wildland Urban Interface (WUI) remains the highest priority and nearly 1.3 million of the total treated acres were in the WUI. Of these treatments, 93 percent of the acres accomplished were identified as a

treatment priority in a Community Wildfire Protection Plan (CWPP) or an equivalent collaborative plan.

Fuel Treatment Effectiveness Monitoring (FTEM) continued in 2012. The FTEM database contains over 250 records of fuel treatment-wildfire interactions on Forest Service lands for the 2012 fire season. About 90 percent of these records showed fuels treatments being effective in either changing the fire behavior of the wildfire as planned in the treatment objectives and/or helping with control or management of the wildfire. When wildfires encounter fuel treatments, regularly the observation is that the fuel treatment led to one or more of the following outcomes, Improved Initial Attack Success, Improved Success in protecting homes and communities from wildfire, reduced wildfire damage and improved forest resilience after wildfire, increased management options for minimizing risk, reduced costs, and enhanced fire-adapted ecosystems. The Forest Service continues to push for a higher percentage of reporting of these treatment-wildfire interactions.

### Department of the Interior

The FY 2012 Interior HFR appropriation was just over \$183 million, virtually no change from FY 2011 but a reduction of approximately 11 percent from FY 2010.

The Department's Bureaus reduced hazardous vegetation on nearly 1 million acres during FY 2012 through the use of:

- Prescribed (Planned) fire on nearly 540,000 acres;
- Mechanical treatments on over 278,000 acres; and
- Other treatments (chiefly through the application of herbicides) to over 182,000 acres.

Accomplishment of this work exceeded the Department's target by more than four percent and exceeded the FY 2011 accomplishments by nearly 10,000 acres.

In addition to the acres treated through the HFR sub-activity, the Interior Bureaus reported more than 23,000 acres of fuels reduction accomplished by programs other than the Wildland Fire Management

(WFM) program, and nearly 158,000 acres of fuels treatments occurred as a beneficial effect of wildfire.

The Department realized effective fuel treatments on nearly 1.2 million acres of tribal and DOI-managed lands across the nation.

Table 2. DOI FY 2012 HFR Accomplishments

Bureau	WUI Acres	Non-WUI Acres	Total Acres
BIA	118.3	48.3	166.6
BLM	336.7	131.3	468.0
FWS	159.0	47.9	206.9
NPS	119.3	39.1	158.4
<b>DOI Total</b>	<b>733.4</b>	<b>266.6</b>	<b>1000.0</b>

Together, the Federal wildland fire management program treated nearly 3.2 million acres in FY 2012 by managing wildfires for resource benefits, performing prescribed (planned) burn operations, and through the use of mechanical and other treatments.

### Post-Wildfire Activities

Post-fire emergency stabilization and rehabilitation activities are an integral part of wildfire incidents. These activities and treatments, unlike wildfires, are assessed and planned by Burned Area Emergency Response Teams prior to implementation.

The Forest Service and Interior agencies use Burned Area Emergency Response (BAER) and Burned Area Rehabilitation (BAR) programs respectively to manage unacceptable post-fire risks within a year of a wildfire being contained. These efforts, also known as Emergency Stabilization (ES), protect life and property and prevent further degradation of natural and cultural resources.

### What BAER Teams Do

BAER teams are staffed by specially trained professionals: hydrologists, soil scientists, engineers, biologists, vegetation specialists, archeologists, and others, who rapidly evaluate the burned area and prescribe emergency stabilization treatments. A BAER assessment usually begins before the wildfire has been fully contained.

In most cases, only a portion of the burned area is actually treated. Severely burned areas, very steep slopes, places where water runoff will be excessive, fragile slopes above homes, businesses, municipal water supplies, and other valuable facilities are focus areas. The treatments must be installed as soon as possible, generally before the next damaging storm. Time is critical if treatments are to be effective. Teams work in a rigorous yet methodical manner as follows:

- assess significant threats and risks to health, safety, life, property, cultural and natural resources, and downstream values at risk;
- determine probability and possible magnitude of damages or losses if emergency, human health, and or safety issues exist; and
- prescribe treatments and activities when feasible to mitigate emergency conditions through warnings, closures, or by stabilizing or reducing soil erosion, water control, and debris movement, and impede impairment of ecosystems.

In 2012, over 9.3 million acres burned across the United States. The Forest Service had nearly 2.7 million acres burned and Interior burned over four million acres in the lower 48 states. For Interior, the closest previous year in the last 10 years was 2006 with three million acres burned. This active 2012 fire season created significant ES and BAR funding needs in 2012. Because of the nature of the Interior ES and BAR programs, work will extend beyond 2012.

For the Forest Service, over 2.2 million acres were evaluated for ES needs. Over 131,000 acres and 945 miles of ES treatments were implemented. In Fiscal Year 2012, the number of Interior treated burned acres that achieved the desired condition was nearly 1.8 million acres.

### Emergency Stabilization

Landscapes that are threatened from post-fire floods, debris flows, or are susceptible to serious degradation are assessed and treated by the ES program within the Suppression Operations account. To ensure that the highest priority needs are met first and that funds are used in a consistent manner across the Departments, the National Burned Area Emergency Response Coordinators have an open dialog to facilitate

collaborative relationships across interagency boundaries.

### Burned Area Rehabilitation

The Department of Interior is allocated funding for BAR. The BAR program initiates longer-term actions to repair damages caused by wildfire and protects resources by maintaining proper ecosystem function in landscapes and beginning the recovery of fire-damaged lands. These objectives are achieved by such actions as reseeding to control invasive species, rehabilitating tribal trust resources, restoring wildlife habitat, and repairing minor facilities damaged by wildfire.

Table 3. Forest Service and DOI Emergency Stabilization Expenditures

Agency	Expenditures
Forest Service	\$45,800,000
Bureau of Indian Affairs	\$1,916,000
Bureau of Land Management	\$19,276,000
US Fish and Wildlife Service	\$541,000
National Park Service	\$2,068,000
<b>Total</b>	<b>\$69,601,000</b>

Table 4. Department of the Interior, Burned Area Rehabilitation

Bureau	Expenditures (in \$ millions)
Bureau of Indian Affairs	\$3.8
Bureau of Land Management	\$28.9
US Fish and Wildlife Service	\$1.3
National Park Service	\$1.7
<b>Total</b>	<b>\$35.7</b>



## 2012 Activities

Forest Service facts and figures for FY12:

- 93 approved BAER plans
- Over 2.2 million acres evaluated for emergency stabilization (ES) needs
- Over 131,000 acres and 945 miles of ES treatments implemented
- \$45.8 million dollars spent on ES treatments

Bureau of Land Management facts and figures for FY2012

- 145 plans prepared, approved, and prioritized with 67 funded. (2012 fire season)
- 2.6 million acres evaluated for ES and burned area rehabilitation (BAR) needs (2012 fire season)
- Over 1.7 million acres and 222 miles of ES treatments implemented (2011 fire season)
- \$23.1 million spent on ES and BAR treatments (2011 fire season); \$22 million on seed (2012 fire season) applied in FY 2013.

US Fish and Wildlife Service

- 11 approved BAER Plans
- Nearly 223,000 acres treated

National Park Service

- 13 approved BAER Plans
- Over 6,300 acres treated

Bureau of Indian Affairs

- 8 approved BAER Plans
- Over 3,200 acres treated

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## Success Stories: Restore and Maintain Resilient Landscapes

### Fuels Program Accomplishments

#### Fuels Treatments Improved Initial Attack Success

##### *Swain's Creek Fire, Dixie National Forest, Utah*



Firefighters conduct mop-up on the Swain's Creek Fire in June 2012 (Photo Credit: Eric Eastep, Dixie NF)

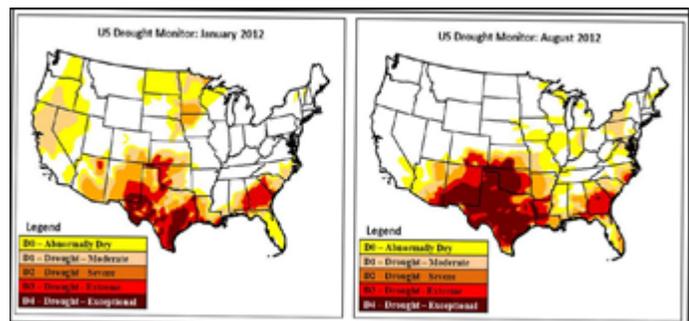
Local firefighters expected structure loss when this fire was reported on June 20 due to “high” fire danger, proximity to structures, and large fire growth experienced in recent weeks throughout southern Utah. Once on scene, it was determined that this human-caused fire was within the Duck Creek Fuels Project, previously thinned, piled and burned in 2008. The fire was on Forest Service land about 100 feet from private land and structures. Observed flame lengths were six to eight inches burning in ponderosa pine needle litter. The fuels treatment greatly reduced flame lengths, prevented torching and spotting, and allowed firefighters to easily contain and control the wildfire at one-half an acre.

##### *Southeastern National Forests*

One notable observation is that the southeast United States was in drought conditions for a large portion of last year yet did not experience the type of large-scale wildfire occurrence that the western U. S. saw. In a query of the FTEM database, we found that over 66 percent of all wildfire-fuel treatment interactions were from wildfires that were less than 20 acres in size, a large number of which occurred on National Forest Wildland Fire Management FY 2012 Accountability Report

System lands in the southeastern U. S. It is arguable that this is due to a variety of factors; however, there is a strong feeling among managers in the Southeast that their initial attack success is due in large part to the robust prescribed burning program in this region which aims to treat the majority of the coastal plain forests every three to five years.

In calendar year 2012, the Forest Service treated over 695,100 acres with prescribed fire, compared to just over 85,000 acres burned by wildfire in the South (Southern Area Coordination Center).



U. S. Drought Monitor images illustrate drought conditions in the southeastern U. S. for January and August 2012

##### *Gladiator Fire, Prescott National Forest, Arizona*



The Gladiator Fire exhibited 20 to 30-foot flame lengths in decadent chaparral, May 2012 (Photo Credit: Fred Hernandez, USFS)

The Gladiator Fire was detected on May 13, 2012, at approximately 10:45 in the morning. The fire was human caused and started on private land in the town of Crown King, Arizona. Initial attack efforts focused on structure protection in Crown King. The fire quickly grew to 500 acres and a Type 1 Incident Management team was assigned.

On May 18, the area experienced red flag conditions as the fire, now close to 10,000 acres, burned through chaparral with 20- to 30-foot flame lengths.

Crews prepared for a burnout operation along the “Senator Highway” (FSR 52) road in an attempt to contain the northwest spread of the fire towards the Pine Flat subdivision. Once the fire entered the Ash Creek Prescribed fire area, a 2003 treatment, the fire slowed dramatically, allowing the crews to contain the fire edge directly rather than attempt the riskier backfiring operation.

## **Fuels Treatments Improved Success in Protecting Homes and Communities from Wildfires**

### ***Fontenelle Fire, Bridger-Teton National Forest, Wyoming***

The Fontenelle Fire started in a mixed-conifer forest on Sunday, June 24, 2012. It was located approximately 18 miles west of Big Piney, Wyoming. The fire behavior included torching, crowning, and prolific spotting, with spotting distances of up to one-half mile. By Sunday July 1, the fire had grown to more than 45,000 acres, with more than 400 firefighters and support personnel on the scene—and more coming.

One area of concern for fire fighters was the 12 summer homes in Middle Piney. Fortunately for homeowners and fire fighters, a fuels treatment project around these summer homes had been implemented 10 years prior. The project was designed to offer a degree of protection for these homes from wildfire by selective understory thinning to open the forest canopy, removing the ladder fuels that can cause crown fires, and removing dead trees and other fuels around the homes.

As the Fontenelle Fire moved closer to Middle Piney summer homes, it was obvious to firefighters that—because of extreme fire behavior—they would have to do a burnout operation to protect these homes. Around 2:30 p.m. on Sunday, July 1, fire crews started burnout operations near the Middle Piney summer homes as the Fontenelle Fire began moving down slope.

While the burnout started as a surface fire—as planned—it quickly transitioned into the crowns as it was drawn into the wildfire. By 8 p.m., the firefighters had successfully defended the Middle Piney summer

homes and transitioned to building firelines to secure the perimeter. The Division Supervisor at Middle Piney said: “We had a good plan and were able to execute without a hitch. We only had a few spot fires in the meadow and a few around the homes.” In addition he said, “These treatments helped firefighters protect the homes,” and emphasized that the fuel treatments “absolutely” allowed for firefighter safety.



Firefighters start the burnout operation at the top of the fuel treatment area--away from homes. (Photo Credit: Travis Chamberlin)

## **Fuels Treatments Reduced Wildfire Damage and Improved Forest Resilience to Wildfire**

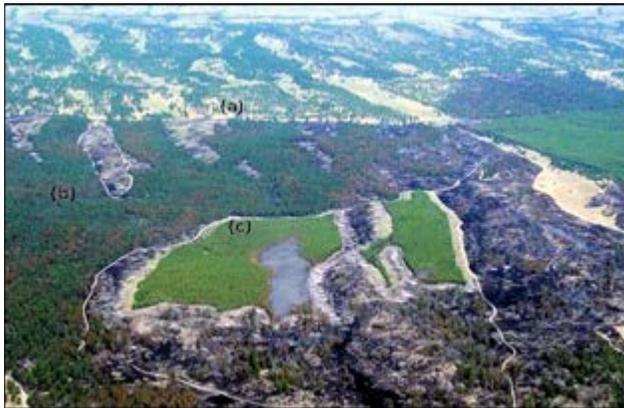
Fuels treatments were largely successful in reducing wildfire intensity, resulting in desirable post-wildfire effects including mosaic burn patterns, retention of seed-banks, and retention of overstory cover, which is expected to allow for appropriate recovery of plant and wildlife populations after wildfire.

### ***Camp V (five) Fire, Nebraska National Forest, Nebraska***

On June 30, the Camp V fire entered the Bessey Fuels Treatment area where thinning and prescribed burning had been completed.

Drought conditions were prevalent and this same week the Governor of Nebraska declared a “state of emergency” to address the continuing fire problem in the state. In taking action on the Camp V fire, the fuel treatments were used as a control feature to burn out along a road where fuels had been removed in order to control the fire. In evaluating the post-fire effects, the District Ranger observed that, “*We were really lucky on this one...It burned through an area that we had*

thinned, and recently done a prescribed burn....(the fire) stayed on the ground and out of the canopy in a lot of places,” he said, which helped most of the hand-planted trees to survive the fire (Starhearl.com 2012).



Aerial photo of the Camp V (five) Fire post-fire effects where past fuels treatments altered fire intensity, allowing for control (a) and reduced damage to pine (b) and cedar (c) plantations. (Photo credit: Tim Buskirk, Nebraska NF)

### ***Central Idaho Fires***

Three large fires in central Idaho covered a combined area of more than 662,000 acres (Halstead fire for 179,557 acres and Mustang Complex for 336,028 acres both on the Salmon/Challis National Forest, and Trinity fire for 146,741 acres on the Boise National Forest). Each had a series of fuels treatments performed in the areas of the fires. While the scale of most of these treatments was dwarfed by the immense size of these wildfires, the immediate post-fire effects indicate that fire intensity was reduced within the areas of the fires.

## **Fuels Treatments Created Management Options for Minimizing Risk, Reducing Costs, and Enhancing Fire-Adapted Ecosystems**

### ***Elbow Pass Complex, Bob Marshall***

In 2003, the High fire on the Flathead National Forest, just west of the continental divide and Lewis and Clark National Forest, burned a mere 122 acres but required over \$400,000 and significant exposure of heavy helicopters to control. Although the High fire was well within the Bob Marshall Wilderness complex, suppression action was deemed appropriate due to the threat of it leaving the wilderness and impacting values on private lands to the east. Soon after this fire, local managers crafted a plan to proactively reduce the cost



The High Fire on the Flathead National Forest burned a mere 122 acres but required over \$400,000 and significant exposure of heavy helicopter to control

and exposure to firefighters in the future while also allowing fire to play its role in wilderness as the 1964 Wilderness Act intended. Previous wildfires and rugged terrain with sparse vegetation offered a landscape with opportunities to interrupt future wildfire spread. A series of prescribed fires were planned and ignited between 2003 and 2011 to reduce the likelihood of future wildfires escaping the Wilderness. Completing the prescribed fires “put the cork in the bottle” as the local Fire Management Officer described it.

From July 12 through July 31, 2012, five different lightning fires ignited, eventually merging into one fire, the Elbow Pass Complex. Managers were able to contain these fires within the area of the wilderness with less effort and cost than had been expended in years past due to the strategic placement of prescribed fires. The South Fork prescribed fires effectively stopped the fire’s spread to the north allowing managers to focus actions on small pockets in between rock escarpments, previous wildfires, and the prescribed fire areas. Final size for the complex was just over 26,000 acres; approximately 17,000 acres on the Lewis and Clark National Forest; 7,500 acres on the Flathead National Forest, and 1,200 acres on the Lolo National Forest, all within the Bob Marshall and Scapegoat Wilderness Areas where land management plans state the primary objective of fire management is to allow fire to play its natural role.



Past fuels treatments allowed managers to choose a strategy where they could control the portion of the fire outside the Rapid River drainage while not assuming the added cost or risk related to completing control lines

**Wesley Fire, Payette National Forest, Idaho**

After escaping initial attack on September 9, the Wesley fire continued its march to the northeast until it ran into the headwaters of the Rapid River where prescribed burning had been completed over the past 15+ years. Between a historical wildfire scar (Curren Fire, 1989), the Rapid River prescribed fires (1995 to 2009), and the topography which was not well aligned with predominant winds, the continued growth at the head of the Wesley fire was severely limited.

As a result, managers felt confident that the fire would have a difficult time growing even under the persistent dry conditions which were dominating the weather forecast. This allowed them to choose a strategy where they could control the portion of the fire outside the Rapid River drainage, about 70 percent of the then 15,289 acre fire, while at the same time not assuming the added cost or risk related to completing control lines within Rapid River. Once control lines were completed around the 70 percent outside Rapid River, the management organization was reduced from a Type I Incident Management Team with over 600 personnel assigned, to a Type III team with about 200 personnel, thus reducing the rate of expenditure and final fire cost. The fire in Rapid River was monitored from September 23 to October 15 and grew an additional 821 acres before rain and snow stopped it at a final size of 16,010 acres. The majority of those additional acres within Rapid River were moderate to low intensity as the fire backed downhill, mostly burning ground fuels with

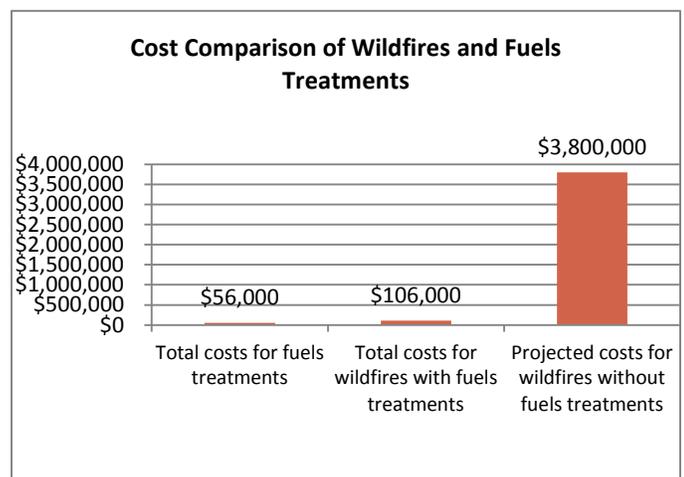
only isolated torching exactly the type of fire behavior managers envisioned to meet land management goals in this area which are largely aimed at reintroducing fire into this fire adapted ecosystem.

**Merritt Island National Wildlife Refuge— Fuels Treatment Effectiveness**

Much of Merritt Island National Wildlife Refuge (NWR) is comprised of very volatile and fire dependent habitats, bordered by urban development and intermixed with sensitive NASA infrastructure. Three lightning caused wildfires in May of 2012 burned 1,353 acres of Merritt Island NWR. The size and cost of the wildfires would have been much greater without previous hazardous fuels treatments. The projected reduction of acres was over 40,000 acres and suppression cost savings were over \$3.6 million! This does not include costs of potential NASA mission delays and potential infrastructure losses if the fire were not contained.

Merritt Island NWR vegetation types require continual management to maintain vegetation growth to a level that is safe for firefighters to protect NASA and DOD property from wildfire. The Refuge has actively managed over 10,000 acres of hazardous vegetation in the past five years to reduce the risks for communities and community values while benefiting critical habitat for endangered species.

Figure 11. Cost comparison chart using actual cost compared to projected costs from FSPro analysis using stratified cost index (SCI) modeling fire size potential without fuels treatments.



## Hazardous Fuels Reduction Treatments

Burn Unit 2.3 and 7.2.A were treated with prescribed fire on June 2010 and January 2012 respectively for a combined that of 6,164 acres and a combined cost of \$56,000 to implement.

## Wildfires

Photo of the Center Fire (May 6, 2012), taken from the Max Brewer Memorial Parkway—11 miles NW of the fire.



The Center Fire on May 6, 2012, was suppressed within Burn Unit 2.3. Final size of the fire was 800 acres.

The Just Missed Fire started on May 6, 2012, and was managed within Burn Unit 7.2.A. The fire burned just 20 acres due to the January 2012 prescribed fire.

Unit 7.2.A, as seen from the air the day after the prescribed fire, performed on January 31, 2012. The NASA Vehicle Assembly Building is in the background.

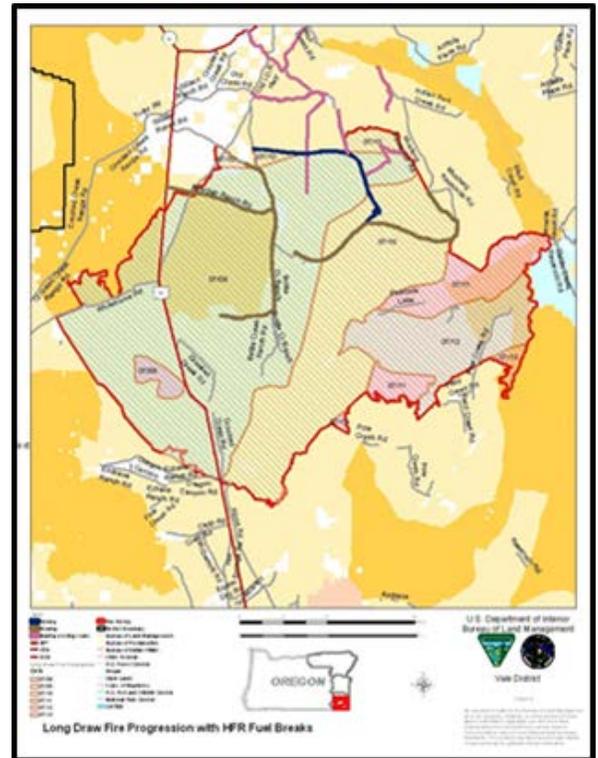


The Just Missed Again Fire on May 11, 2012, also managed within Burn Unit 7.2.A, burned 533 acres of the January 2012 prescribed fire area.

## *The Long Draw Fire*

The Long Draw Fire, on the Vale District of the BLM, started on June 8, 2012, by lightning and was wind driven to the north and east towards outlying ranches and the community of Rome, Oregon. Before the fire could reach the community, it ran into several fuel breaks that were built and maintained with Hazardous Fuels Reduction funding prior to the onset of the fire season. These fuel breaks were built along existing roads.

Figure 12. Over 17 miles of fuels breaks stopped or slowed the north and east progression of the Long Draw Fire and prevented the fire from reaching private land and the outlying community of Rome, Oregon



## *Summary*

From the observations made during the 2012 fire season, it is surmised that the fuels management program did influence outcomes on wildfires on both Forest Service and Department of the Interior trust/managed lands. Hundreds of instances were seen where fuels treatments offered firefighters environments where suppression efforts were more successful and safer. There is evidence of reduced fire

intensity within fuels treatment areas where the prospects for renewal are now better because of proactive fuels treatments. Managers were able to employ strategies that reduced suppression costs and reduced exposure to firefighters when dealing with wildfires. Numerous cases were seen where wildfires would have grown larger and potentially more damaging had firefighters not had fuels treatments already in place.

## Burned Area Rehabilitation

The Forest Service had several fires of national significance in 2012. The Whitewater-Baldy Complex, at 297,845 acres, on the Gila National Forest was the largest fire in the history in New Mexico. The BAER Team determined that bridges, railings, and associated infrastructure from the Catwalk Recreation Area had the potential to be washed into the community of Glenwood and Highway 180 because of flash flood risks. This infrastructure was temporarily removed.

The Murphy Fire burned the Big Branch Marsh National Wildlife Refuge in November 2010. The fire impacted wildlife resources, particularly the endangered Red-cockaded Woodpecker. Prior to Hurricane Katrina in 2005, almost half the number of Red-cockaded Woodpecker cavity trees on the refuge occurred on the Salmon Tract. The Murphy Fire that occurred a few years after the hurricane added insult to injury and resulted in accumulated impacts to the remaining forest and endangered wildlife resources on the Salmon Tract. Native southern pine trees (longleaf and slash pines) that could have served as seed trees for natural regeneration of the forest were lost to the wildfire. In addition, increased re-sprouting of the invasive Chinese tallow tree in the burned area out-

competed any regeneration of tree seedlings through competition and shading effects. A Burned Area Rehabilitation (BAR) plan was approved to provide an opportunity to recover natural resources from damages caused by the wildfire. To date and as a direct result of this rehabilitation project, the initial application of herbicide has killed about 95 percent of the Chinese Tallow Trees and nearly 24,000 native tree seedlings (longleaf pine) have been planted in the burned area to re-establish the native forests for Red Cockaded Woodpecker habitat in the future.

The Locust fire began on May 6, 2011 in the community of Whiteriver, Arizona on the Fort Apache Indian Reservation. This human-caused fire burned 364 acres before being contained on May 18, 2011. A Burned Area Emergency Response (BAER) team was assembled to assess and develop a BAER plan to address post-wildfire effects on the steep, burned slopes above the community. The BAER team determined that a high potential existed for flooding and debris flow affecting homes downslope of the burn. This prompted a risk assessment and evaluation of fifty-seven homes identified at risk, with protection treatments of K-rails and sandbags to reduce this threat. Additionally, floatable debris in the drainages upstream of the homes was removed and culverts cleaned or replaced to better handle flood water flow. In 2012, these treatments successfully protected the community from flash floods.



## Section IV: Fire Adapted Communities

### Forest Service

#### Cooperative Fire

The Cooperative Fire Program has two main components, the State Fire Assistance (SFA) program and the Volunteer Fire Assistance (VFA) program. The SFA program assists several national initiatives such as Firewise and the Smokey Bear campaign. The program also provides funding to the state forestry agencies for a variety of activities such as wildfire response, coordination and delivery, compliance with national safety and training standards, deployment to Federal wildfires and other emergency situations, hazard assessments and fuels treatments projects, and public education. In FY 2012, over 16,500 communities received SFA grants from the Forest Service to build firefighting capacity.

The Volunteer Fire Assistance (VFA) program is administered by the state forestry agencies through the distribution of 50/50 cost-sharing grants to local fire departments in rural communities. The program's main goal is to provide Federal financial, technical and other assistance for the organization, training and equipping of rural fire departments with a population of 10,000 or less. In FY 2012, the Forest Service provided grants to over 10,000 communities.



DC-7 and trailer were acquired by the state of Texas through the FEPP program

### Federal Excess Personal Property Program

The Federal Excess Personal Property (FEPP) program is a Forest Service sponsored program that allows the loan of Forest Service-owned property, including much-needed equipment and supplies, to state foresters to assist state and rural agencies and volunteer firefighters in preparedness for suppression and pre-suppression missions on Federal, state, and community lands. The program provides items from fire hoses to heavy equipment, thereby, allowing substantial savings to the taxpayers.

In 2012, over 128,000 property items were acquired by nearly 43 state cooperators. This included just shy of 600 pieces of rolling stock. Trucks and trailers are normally equipped with tanks, generators, and pumps to assist firefighters on wildland and brush fires.

State foresters and the Forest Service have mutually participated in the FEPP program since 1956. Currently, the inventory property value exceeds \$1 billion with over 140 operable aircraft and more than 35,000 items on Federal inventory, including close to 22,000 vans, trucks, and trailers. In FY 2012, the program acquired more than \$53 million in fire equipment and supplies to be used for firefighting. Inventoried items include vehicles, trailers, generators, heavy equipment for road maintenance, forklifts, and fire boats. Common durable items such as pumps, tanks, and small generators (with a value less than \$5,000) are typically acquired to be placed onto vehicles or trailers. Consumable, low-dollar property items include vehicle and aircraft parts, blankets, boots, gloves, hoses, hand tools, office equipment, and construction materials. Currently, 50 States and five territories participate in the FEPP program.

## Department of Defense Federal Firefighter Property Program



Former Coast Guard boat was acquired by the Los Angeles County Fire Department through the FFP program

The Federal Firefighter Property (FFP) program was started in March of 2006. Through the FFP program states are afforded the opportunity to acquire title to excess military equipment; then, assign that equipment to rural fire departments. The Department of Defense (DoD) authorized the Forest Service FEPP program to manage the transfer of DoD property through a Memorandum of Agreement.

The major difference between the FFP program and the FEPP program is the ownership of the items acquired. All items acquired through the FEPP program remain the property of the Forest Service and are loaned to the recipient agency, while items acquired through the FFP program belong to the recipient. The FFP program's assets are screened at a higher level, therefore, making better quality and larger quantities of property available to the firefighting agencies. The program also acquires items for emergency services such as search and rescue, hazardous material spills, and emergency medical services in addition to firefighting, making it of more benefit to participating agencies. These

functions often fall within the firefighting agencies' responsibilities but are not applicable to the FEPP program.

Currently, 39 states participate in the FFP program—seven more than last year. Participants include the states of Alabama, Alaska, Arkansas, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming. In 2012, over \$90 million in equipment was distributed to 27 states. Through FFP, state cooperators acquired more than 800 vehicles in 2012 with an original acquisition cost of over \$46 million. Vehicles are refurbished and equipped with pumps and generators to assist in rural and wildland firefighting.

## Fire Adapted Communities Strategy

The Forest Service fire adapted communities strategy was developed as a result of recommendations from the 2005 and 2009 Quadrennial Fire Reports. It recommended that the best way to address increasing costs and risk of wildfire in the WUI was to foster development of fire adapted communities—communities that can successfully live with wildfire because they understand the risks, have taken action to mitigate and are prepared for wildfire.

The fire adapted communities (FAC) effort was under development prior to when the National Cohesive Wildfire Management Strategy process identified the FAC as one of its three elements. Creating fire adapted communities in the WUI and restoring the larger landscape are integral to successful wildfire management. Collaborative involvement is a key to making that happen.

Figure 13. Three major factors of the National Cohesive Wildland Fire Management Strategy



The Forest Service definition of a fire adapted community is a knowledgeable and engaged community in which the awareness and actions of residents regarding infrastructure, buildings, landscaping, and the surrounding ecosystem lessens the need for extensive protection actions and enables the community to safely accept fire as a part of the surrounding landscape.

Table 5. Fire Adapted Communities Actions, Results, and Benefits

Fire Adapted Communities		
Actions	Results	Benefits
<ul style="list-style-type: none"> <li>Promote FAC</li> <li>Supply the tools</li> <li>Collaborate/ leverage</li> <li>Identify Opportunities</li> <li>Create FAC Network</li> </ul>	<p>Educated and informed residents, land managers, policy makers, builders, and fire managers who understand and implement pre-fire mitigation practices consistently on a national, state and local scale.</p>	<ul style="list-style-type: none"> <li>More public involvement</li> <li>Reduced risk to public and firefighters</li> <li>Reduced damage to homes, infrastructure and resources</li> <li>Reduced suppression costs</li> <li>Better public understanding</li> <li>More decision space and reduced fire response complexity in the WUI</li> </ul>

The fire adapted communities strategy is not a new *program*; it is a collaborative, consolidated *strategy* to share responsibility for mitigation with all stakeholders who can work together to deliver the holistic, bundled mitigation message and its tools to reduce risk to fire adaptation.

The fire adapted community strategy starts with a multi-jurisdictional local partnership of stakeholders who share the responsibility to facilitate:

- a working community wildfire protection plan (CWPP)
- prevention education
- local capacity to educate, mitigate, prepare, and protect (*Ready, Set, Go!*)
- defensible space and hardened structures (*Firewise* principles)
- fuels treatments in and around the community
- WUI codes and ordinances
- evacuation routes and internal safe zones

### Prevention Efforts

The Forest Service’s wildfire prevention effort, famous for Smokey Bear is an important element of the fire adapted communities strategy since one of the most effective ways to reduce the risk of damage to homes or property from a wildfire is to prevent an ignition in the first place. Communities with robust wildfire prevention programs are likely to have fewer human-caused ignitions.

In 2012, USFS Researcher Jeff Prestemon and partners undertook a study of the impact of wildfire prevention programs on multiple ownerships. Preliminary

Figure 14. The Fire Adapted Community Strategy



findings on tribal lands indicate that fire prevention programs significantly reduce the occurrence of human-caused wildfires—particularly campfire escapes, arson, and children ignited wildfires.

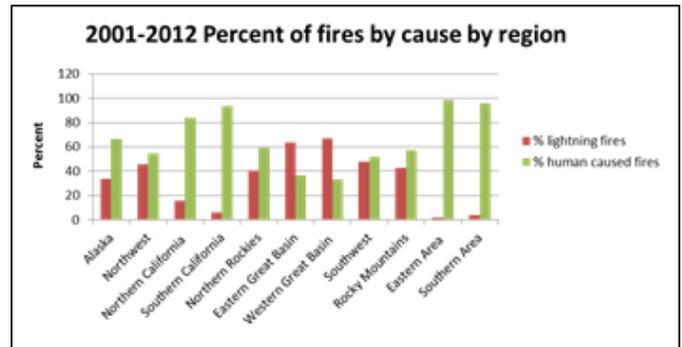
The overall average reduction in the number of wildfires due to the prevention programs on tribal lands ranges from 19 percent to 93 percent. Economic assessments (benefit/cost figures) will be available in mid- to late-2013. However, the researchers expect results similar to their Florida study where for every dollar of increased spending on wildfire prevention education, \$35 in wildfire-related losses and suppression costs could be saved, a 35:1 benefit-to-cost ratio.

To read the full report go to <http://www.bia.gov/cs/groups/xnifc/documents/text/idc-021761.pdf> or look up Prestemon, Jeff P. 2012. A Fire Prevention Effectiveness Assessment for Multiple Ownerships.

In Calendar Year 2012, 86 percent of the wildfires reported to the National Interagency Fire Center were human-caused (see chart below). CY2012 data show the normal trend that human-caused fires account for most wildfires nationwide except in the Great Basin areas.

The Wildfire Prevention Campaign with Smokey Bear through the Ad Council received more than \$40 million dollars in donated advertising media in Calendar Year 2011 and more than \$32 million dollars in the first 3 quarters of calendar year 2012 (full results were not available as of the date of this report). Smokey Bear remains a successful icon for prevention education. Among all respondents age 18+ in a 2012 campaign

Figure 15. Percent of fires by cause by region



survey, 87 percent of respondents identified Smokey Bear on an unaided basis, and nearly all respondents (97 percent) recognized his image on an aided basis. Prevention specialists at all levels use this recognition to gain peoples' attention to explain local fire and prevention information.

### Fire Prevention and Education Teams

Fire Prevention and Education Teams can help reduce the risk of human-caused fires, educate communities to reduce their risk from wildfires, and work on special fire related events. Their primary role is to supplement and support the wildfire prevention efforts of local personnel and agencies. Such a team was called into Utah to head an interagency effort to coordinate prevention messages and simplify fire restrictions of Federal and state agencies into an uncomplicated message (see one example below). Agency personnel, as well as the public, found the messaging direct and understandable.

Figure 16. Fire Restriction Message



The national fire adapted communities effort is led and funded by the Forest Service, Fire and Aviation Management, Partnerships in conjunction with a wide array of partners with expertise, interest, and audiences in the wildland urban interface. The *Fire Adapted Communities Coalition* leverages budget and staff with invested partners to reach the large audience, reduce redundancy, and collectively cross-promote the valued mitigation tools and programs that help communities-at-risk adapt to wildfire.

***Fire Adapted Communities Coalition***



The Fire Adapted Communities Coalition is comprised of the Forest Service, the International Association of Fire Chiefs (IAFC), the U. S. Fire Administration (USFA), National Fire Protection Association (NFPA), the Insurance Institute for Business and Home Safety (IBHS), the National Volunteer Fire Council (NVFC), the National Association of State Foresters (NASF), the Department of the Interior (DOI), and the Nature Conservancy (TNC). The FAC Coalition, Ad Council, and Forest Service are the first line of message and tool delivery for the fire adapted communities strategy.

***The AD Council***

The AD Council launched the national awareness campaign at the Congressional briefing in June. TV,

radio, print, outdoor and web PSAs were distributed to over 33,000 media outlets nationwide. Fire Adapted Communities web banners went to 150-200 web partners in the top 10-15 online ad networks. In the first three weeks the campaign received over \$3.4 million in donated media. The DIY Network created a TV PSA to air on that network. The multimedia news release garnered 1,364,417 web hits. The radio media tour included 13 interviews across 11 states, and generated 328 stories. This coverage reached over 1.54 million listeners. To date the newspaper MAT release has generated 1,756 news articles in 48 different states with a readership of 5 million.

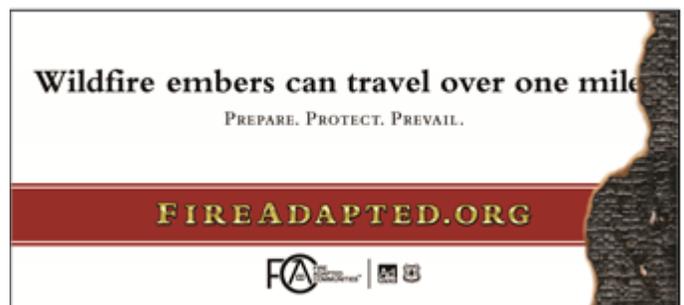
Goal: Build national awareness of the fire adapted communities term and concept and direct audience to the website <http://fireadapted.org/>.

Next Steps: Continue to promote Fire Adapted Communities messaging to the general public and direct the audience to the FAC website thus fostering adoption of the strategy and increase the number of fire adapted communities.

***Insurance Institute for Business and Home Safety***

Insurance Institute for Business and Home Safety (IBHS) is an independent, nonprofit, scientific and educational organization supported by the property insurance industry. IBHS is wholly supported by the membership of insurers and reinsurers that comprise 80 percent of the homeowners' market share and 47 percent of the commercial market share in the U.S.

Figure 17. Web banner used with Fireadapted.org



IBHS is a leader in promoting fire adapted communities tools and messages to its national audience. Its scientists played a leading role in the Waldo Canyon Post-Fire Mitigation Assessment in Colorado Springs (for the full report “Lessons from Waldo Canyon” go to <http://fireadapted.org/>).

IBHS spearheaded the statewide *Colorado Rebuilds Fire Adapted Communities* public awareness event and workshop series with help from Lowe’s Home Improvement Stores, the FAC Coalition, and national, state, and local partners who support pre-fire mitigation.

IBHS hosted “Creating Fire Adapted Communities Together: The Insurance-Fire Service Summit on FAC” at the Wildland Urban Interface Conference in Reno. The summit brought together wildfire and insurance professionals to discuss the impact of wildfire on communities and ways to work collaboratively to create fire adapted communities.

Goal: Increase public awareness for the need to and benefit of creating fire adapted communities.

Next Steps: Increase insurance company engagement in sharing messages, using tools, and creating fire adapted communities. Assist in providing the needed scientific and technological tools.

### ***The National Fire Protection Association***

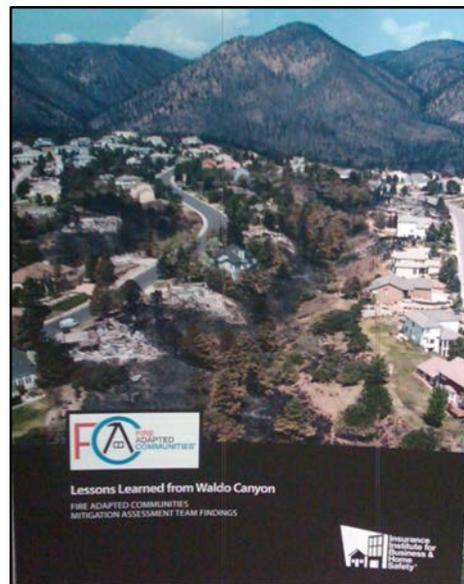
The National Fire Protection Association (NFPA) kicked off a national awareness campaign at a Congressional briefing in Washington D.C. in June which included Congress, the FAC Coalition, the Ad Council and extensive media outreach to coincide with the Congressional event.

NFPA developed and maintains <http://fireadapted.org/> through a co-operative agreement with the Forest Service. The web site received more than 50,000 visits in the first few months, a precedent for a new site. The site is a key component of message delivery and provides information on FAC and links to the various programs (Firewise, Ready, Set, Go!. CWPP development sites, states, insurance, etc.) that provide fire adapted communities tools. NFPA also helps coordinate the FAC Coalition, creates messaging opportunities, provides outreach, and information. NFPA was a key partner in “Colorado Rebuilds Fire Adapted Communities” public awareness event and



**FAC Coalition hosts Colorado Rebuilds Fire Adapted Communities:** First row left to right beginning with Candace Iskowitz of IBHS, Molly Mowery of NFPA, Colorado Springs Fire Marshal Brett Lacey, Chief Steve Pischke, and Smokey. Second row left to right Colorado Insurance Commissioner Jim Riesberg, Jill Ozarski, wildfire policy advisor for Sen. Mark Udall; Colorado Division of Fire Prevention and Control Director Paul Cooke, Lowe’s Market Director - Stores Dan Golec, Colorado State Forester Joe Duda and Brian Bischof USFS Region 2 Fire Planner.

workshop series held after wildfires impacted that state.



NFPA participated in the Waldo Canyon Post Fire Mitigation review in Colorado Springs and was instrumental in production of the resulting video “*Creating Fire Adapted Communities: A Case Study from Colorado Springs and the Waldo Canyon Fire.*” To view the full 12-minute video, go to <http://fireadapted.org/>.

Goals: Increase awareness of the fire adapted communities strategy for reducing wildfire risk and work with Coalition partners to support the tools needed to assist communities adapt.

Next steps: Increase awareness of the website <http://fireadapted.org/> and identify and create opportunities to increase public awareness of FAC.

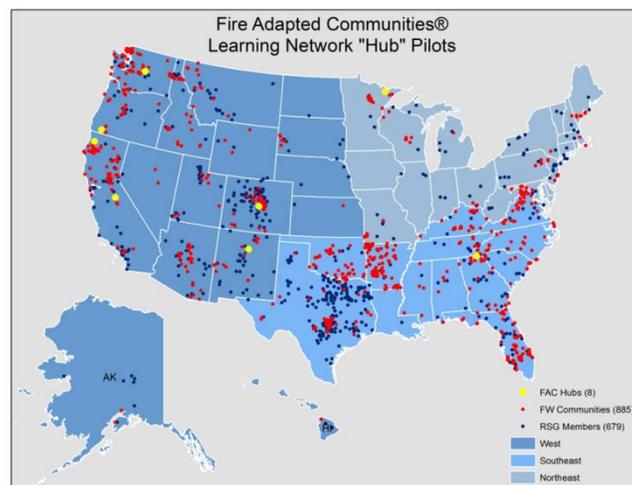
### ***Firewise Communities USA***



NFPA's *Firewise* Communities USA is one element of a fire adapted community. The recognition program as touched more than 1.1 million residents and garnered over \$103 million in community mitigation from 2003-2011, about \$11.4 million annually in voluntary mitigation on the ground. The *Firewise* program provided support for agency partners through coordinated "quick response" to media following WUI fires (in six states) and through face-to-face visits with state forestry staff and other partners (six by NFPA staff and an additional 58 visits by Firewise Regional Advisors). Firewise saves were documented in Idaho, Washington, Colorado, Texas, Georgia and Virginia. Orders for Firewise literature more than doubled in 2012, website hits increased by 53 percent, social media hits increased 90 percent. NFPA matches federal funding dollar for dollar.

Goal: Promote individual responsibility in creating defensible, survivable space and protecting private property through Firewise (one of the FAC elements) principles.

Next Steps: Continue this successful program, as part of the fire adapted communities strategy which garners significant return on investment in mitigation effort and reduces risk in the interface.



Firewise Communities Ready, Set, Go! Fire Departments and FAC Learning Network Sites nationwide (map by NFPA 4/2013)

### ***International Association of Fire Chief's (IAFC) Ready, Set, Go!***

The International Association of Fire Chiefs' (IAFC) *Ready, Set, Go!* program is three years old and has stakeholders in all 50 states and over 600 program members. *Ready Set Go!* (RSG!) engages local fire departments to deliver the fire adapted communities message using *Firewise*, wildfire situational awareness, wildfire preparedness, and safe evacuation planning and execution.

RSG! has developed beneficial relationships between fire and forestry in many states, bringing local fire departments to the table. It has also provided strong support to the Fire Adapted Communities effort and advanced its messaging. IAFC also plays a leadership role in the National Cohesive Wildfire Management Strategy development.

IAFC has added a Fire Adapted Communities education and training track to their annual Wildland Urban Interface Conference. The track is designed to help deliver the FAC message to volunteer and career fire departments and to other wildfire professionals nationally.

Goal: Continue to engage the nation's fire departments in promoting the fire adapted communities mitigation message and reducing risk in WUI communities.

Next Steps: Lead the effort to keep fire departments engaged in creating fire adapted communities and

production and distribution of wildfire mitigation kits designed to help communities prepare for wildfire.

### ***The U. S. Fire Administration***

The U.S. Fire Administration has been an active partner in wildland urban interface and especially with FAC issues over the past four years. It helped fund Ready, Set, Go in 2011 and the FAC and NAFC efforts in 2012. In addition, USFA has shared the fire adapted communities message with its wide audience of fire departments and emergency responders nationwide through regular and targeted e-blasts.

USFA's National Fire Academy began development of a wildland urban interface training course in 2011 based on creating fire adapted communities. In 2012 USFA is leading this effort with subject matter expert input from Fire Adapted Communities Coalition members and the National Wildfire Coordination Group's training section.

Goal: One integrated and cohesive training course that is developed, promoted, supported and offered by all major wildfire management organizations thus focusing the training and reducing duplication.

Next Steps: Final walk-through of the curriculum with fire adapted communities subject matter experts; final course corrections; schedule course offerings in 2013 at U. S. Fire Academy.

### ***The Nature Conservancy***

The Nature Conservancy (TNC) has played an important role in reducing risk through the national Fire Learning Network (FLN) which fosters collaboration in landscapes across the country, supports communication and public outreach about fire and restoration, provides experiential training opportunities, and guides targeted restoration actions including prescribed fire on a variety of landscapes.

The partnership connects these activities to make each more effective at promoting healthy ecosystems and fire adapted communities. In 2012, the Fire Learning Network had eight regional networks and four additional demonstration landscapes, encompassing 53 million acres and over 215 partners. Through these networks TNC and their partners implemented nearly 57,000 acres of prescribed fire and other fuels management and restoration treatments.

Funding provided in previous fiscal years also resulted in another 11,000 acres of treatments completed in 2012. FLN partnerships also helped bring \$11.4 million in other funding to their landscapes to complete priority work to further restoration and community safety. The experiential training, which utilized integrated fire management practices, was delivered to over 300 people, which included participants representing Federal, state, local, and military personnel, as well as private individuals, non-governmental organizations, universities and several international entities.

Additionally, beginning in 2012 TNC entered a partnership with the Watershed Research and Training Center (Watershed Center) to begin a Fire Adapted Communities Learning Network pilot. The FAC Network is designed to help communities work toward being more fire adapted, identify best practices to share on a wider scale, and grow a network of communities at reduced risk as a result of adapting to wildfire.



FAC Learning Network: Representatives from the FAC Coalition (U.S. Forest Service, TNC, NFPA, IBHS, IAFC) met with the first eight communities to participate in the FAC Learning Network Pilot designed by The Watershed Center. Pilot communities are: Santa Fe NM, Ely MN, Incline Village CA, Rogue Valley OR, Hiwassee and Towns County GA, Lake George CO, Glenwood, Wenatchee and Yakima WA, and Orleans and Somes Bar (Karuk Tribe) CA.

Local organizations working with the eight FAC Learning Network include, to date, the Chestatee Chattahoochee RC&D Council, Georgia State Forestry Commission, University of Colorado, Dovetail Partners, the City of Ely, MN, the Coalition for the Upper South Platte, Colorado State University, The Forest Guild, Santa Fe County Wildland Division, The Nature Conservancy of Eastern Washington, Chumstick Wildfire Stewardship Coalition, North Lake Tahoe Fire Protection District, Northern

California Prescribed Fire Council, Tahoe Regional Planning Agency, Southern Oregon Forest Restoration Collaborative, Josephine and Jackson County Coordinating Group, the Karuk Tribe, the Mid-Klamath Watershed Council, and the Orleans Somes Bar Fire Safe Council.

The effort will result in a widespread and replicable model for creating more fire adapted communities and integrating the Cohesive Strategy elements of Fire Adapted Communities, restoring and maintaining resilient landscapes, and response to wildfire. The effort is supported by the FAC Coalition.

The following FAC Network goals have been identified:

- Work with place-based partners to facilitate the development of sub-regional peer learning networks.
- Use regional peer learning networks as venues to accelerate the adoption, innovation and diffusion of best practices associated with FAC programs across communities and geographies.
- Share learning and innovation across the three goals of the National Cohesive Wildland Fire Strategy; fire adapted communities, resilient landscapes, and response to wildfire, supporting their purposeful integration to build truly fire adapted communities.
- Provide a meaningful and efficient feedback loop to the FAC Coalition and Federal program leaders to more efficiently and effectively support fire adapted communities.

Next steps: Assist FAC pilot communities to be successful, share the lessons learned, and enable the FAC Network to grow.

The Fire Adapted Communities program provides national-level support and educational tools to help WUI communities reduce risk from wildfire. Those tools give communities and the Forests they are near the information they need to prepare. As part of the National Cohesive Wildfire Management Strategy, fire adapted communities addresses the pre-fire mitigation tasks that can, ultimately, save lives, property, resources, and money.

### ***FAC Measures***

The Cohesive Strategy calls for funding to develop a tracking system for fire adapted communities. Until that happens, targets are currently measured by the number of communities:

- Covered by a Community Wildfire Protection Plan (CWPP)
- Recognized as Firewise Communities
- Fire Departments who are Ready, Set, Go! members
- 2 measures will begin in 2013: # of FAC Affiliates and # of FAC Network members (which will indicate communities and organizations adopting and promoting FAC principles)

Table 6. FAC Accomplishments for 2012 to Date

<b>Accomplishments</b>	<b>2012</b>	<b>To date</b>
<b>Communities at risk</b>	72,397	
<b>Communities covered by CWPPs</b>	14,755	
<b>Communities at reduced risk</b>	3,973	
<b>Firewise Communities (40 states)</b>	800	885
<b>Ready, Set, Go fire depts. (50 States)</b>	500	679
<b>FAC Learning Network (7 states)</b>		8

## Department of the Interior

In recent years, the Interior HFR program focused primarily on mitigating the risk of wildfire to communities. Specifically, as defined by the Interior Fire Executive Council (IFEC), the program “*removes or modifies wildland fuels, to reduce or assist communities in reducing, the risk of wildland fires to communities and their values.*”<sup>5</sup> The Department defines community values consistent with their state and non-governmental organization (NGO) partners as other areas of community importance, such as critical wildlife habitat; significant recreation and scenic areas; and landscapes of historical, economic, or cultural value that would benefit from treatment to reduce wildfire risks.<sup>6</sup>

Wildland Urban Interface (WUI) remains the highest priority for treatment with more than 733,000 of the total acres treated in the Interior HFR program in WUI. Of these treatments, nearly 99 percent of the acres accomplished were identified as a treatment priority in a Community Wildfire Protection Plan (CWPP) or an equivalent collaborative plan.

The Department’s HFR treatments have helped to mitigate the effects of wildfire on approximately 1,900 individual communities on average per year. In FY 2012, Interior fuels treatments affected approximately 1,436 individual communities across the country.

Community Assistance has been a small yet active component of the Department’s HFR program since its inception. The Interior bureaus dedicated approximately \$2.3 million to assisting local communities in FY 2012 to accomplish risk assessments, prepare mitigation plans, and participate in local fire education and risk mitigation activities.

The Department is a member of the Fire Adapted Communities (FAC) coalition, and provides a modest amount funding for the Firewise Communities program of the National Fire Protection Association (NFPA).

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<sup>5</sup> See IFEC proposal *Definition of DOI HFR Program* (Revised) of August 1, 2012; approved on August 3, 2012.

<sup>6</sup> See *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* by the Communities Committee National Association of Counties (NACo), National Association of State Foresters (NAFC), Society of American Foresters (SAF), and the Western Governors’ Association (WGA)



In FY 2008, the Forest Service developed an application called the Fuels Treatment Effectiveness Monitoring (FTEM) application. When a wildfire burns into an existing fuels treatment, fire management specialists conduct an assessment to determine if the treatment affected wildfire behavior through reduced intensity and/or rate of spread, or if wildfire suppression effectiveness was improved through enhanced firefighter safety, reduced suppression costs, and/or reduced fire damage.

The DOI Bureaus gained access to this application in 2012 and are currently populating the database with relevant information. To date, nearly 900 assessments among the Bureaus have been completed, and the data show that treatments have been effective in reducing wildfire behavior and improving wildfire suppression effectiveness.

## Success Stories: Fire Adapted Communities

### Community Wildfire Protection Plans Developed Collaboratively in the Ozarks

#### *Ozark National Science Riverways, Missouri*



Community members gather for an open house in order to learn more about wildfire prevention in conjunction with developing the Shannon County Community Wildfire Protection Plan (NPS Photo)

The fire management staff from the Missouri Area Park Group, located at Ozark National Scenic Riverways, worked with other agencies, local volunteer fire departments, and community leaders to help a local county develop a Community Wildfire Protection Plan (CWPP) which was finalized in 2012.

Shannon County is a rural county located in the south central part of Missouri, where the largest portion of Ozark National Scenic Riverways is situated. It is approximately 1,004 square miles in size and has a population of 8,423. Roughly half of the land mass of the county is public land that is administered by state and Federal government or private land management organizations. Most of this public land is maintained as forest and woodlands, with glades, savannahs, streams and rivers woven throughout. Private residences and structures are scattered amongst the parcels of public land. There are also numerous government-owned facilities and historic structures related to Ozark culture.

A project technician was hired to coordinate the development of the CWPP and was responsible for drafting the plan while working closely with local land management agencies, county commissioners, volunteer fire departments, businesses, and community

leaders. The project technician also conducted community outreach through various efforts. A mass mailing of 3,500 letters was sent to local residents with information and surveys on wildfire preparedness and defensible space. Home audits were made available to residents who volunteered to have their residences inspected to assess their preparedness for a wildfire. Open houses and educational presentations were held at several local volunteer fire departments and for local school children to distribute information and increase understanding of wildfire in the Ozarks.

Completion of this CWPP is a huge accomplishment for a rural area such as Shannon County. The CWPP lays the framework that will allow the county to reduce risk to firefighters and communities, to protect property and the environment, to improve the ability to respond to wildfires, and to preserve vital government and community operations in the event of a major wildfire. These benefits will be possible largely due to the eligibility of the county and the communities located within to now tap into national funding sources to help with community fire planning, hazardous fuel reduction, and wildfire prevention. Improved capabilities for fire prevention and wildfire response by the local communities will increase the support they are able to provide for the suppression of wildfires in Shannon County. Four of the volunteer fire departments that maintain Memorandums of Understanding with Ozark National Scenic Riverways for structural and wildfire support are located in Shannon County and will have the opportunity to directly benefit from the completion of the CWPP.

### Wildland Fire Science in the Classroom

#### *Saguaro National Park, Arizona*

On May 1, 2012, National Park Service Fire Communication and Education Specialist Michelle Fidler presented six 50-minute programs for 8th grade science classes, about 155 students, at the Emily Gray Junior High School in Tucson, Arizona. Topics included fire science, fire ecology, wildland fire management, prescribed fire, and fire careers. The outreach program taught students about the need to restore and maintain resilient landscapes, create fire-adapted communities, and effectively respond to wildfire.

Students submitted Post-it® notes after the program describing what they had learned. Their comments included the following:

I learned...

- There are two kinds of fire: wildfire (unplanned) and prescribed fire (planned).
- Fire needs three things to burn: fuel, heat, and oxygen.
- Fire is always different based on where it is.
- Fire burns quicker uphill.
- Most of Saguaro National Park's fires are caused by lightning.
- For purposely set fires a fireline is created, which is soil without fuel, so that the fire does not burn out of limits.
- They [firefighters] use [belt weather] kits to test weather.
- They [firefighters] use slurry to put the fire down to the ground so that the fire people can put them out.
- They [fire managers] prescribe fires to make sure a forest stays healthy.
- In the forest, fire can be good to keep fuel from building up and becoming a hazard to fuel large and dangerous forest fires.
- Ponderosa pine trees shed their lower branches as they grow as part of their adaptation to fire.
- Fire in the desert causes a lot of damage.
- Buffelgrass burns faster than most people can run.

## Hazardous Fuels Loading Reduced through Mechanical Operations

### *Saratoga National Historical Park, New York*

Saratoga National Historical Park (SARA) is the site of the first significant American victory of the American Revolutionary War. The park is located on the upper Hudson River, New York and manages 3,400 acres of land categorized as:

2,300 acres or 68 percent of which is mixed hardwoods and white pine forest



The five-day project resulted in an improved fire adapted human community condition in areas surrounding park structures (Photo Credit: NPS)

800 acres or 27percent of which is grassland

300 acres is a combination of other vegetation and developed areas

In August 2012, crews undertook a mechanical reduction project to remove hazardous fuels on 15 acres of land surrounding park structural complexes. The goal was to establish fire-adapted community conditions and reduce threats to park structures from future wildfires.

The buildup of hazardous fuels that threaten infrastructure in SARA dates back to 2008 when a severe ice storm created a tremendous amount of tree damage, including broken tree tops and branches, hazardous snags, and downed trees throughout the park. Following the storm, the Northeast Region's Olmsted Center for Landscape Preservation (OCLP) coordinated a National Park Service (NPS) team of certified arborists and arborist-trainees to mitigate hazards along the auto tour road and tour stops. Mitigation was limited to improving life safety conditions at the park. Tree damage and fuel loading issues adjacent to park structures such as the administrative or maintenance complexes and undeveloped areas were not addressed at that time.

Since the storm, SARA managers investigated funding opportunities for mitigation of the fuel hazards immediately surrounding the park's structural complexes. The right opportunity came along in 2012 through collaboration with the NPS Northeast Region's North Country Fire Management (NCFM) program

based at Acadia National Park. Staff from the NCFM was asked to address the fuel loading issues within the Wildland Urban Interface zone adjacent to the park structures. After assessing the issues, the NCFM Operations and Fuels manager, Fred Mason, determined that trained arborists were required due to the complexity and safety issues in removing hazard trees in close proximity to structures. The operations and fuels manager also identified an additional concern in the work area: numerous beech trees were affected by beech bark disease. These dead and dying trees added to the hazardous fuel load and further complicated safety concerns.

The NCFM obtained hazardous fuel reduction funding from the NPS Northeast Regional Office to utilize the NPS Northeast Region Arborist Incident Response (AIR) program for the project. The AIR Team was chosen because of their experience with removal of large diameter, standing dead and storm-damaged trees in close proximity to structures. The AIR team had to dismantle many trees in sections through the use of climbing, using rope and saddle methods and advanced rigging techniques.

The forested area surrounding the maintenance complex was also included in the project due to the life safety hazard and the secondary safety issue related to hazardous materials, should they be threatened by fire. The maintenance complex consists of seven buildings which house tools, equipment, vehicles, fuel storage tanks, gas and diesel pumps, a paint storage area, and black powder and hazardous materials storage.

The project area totaled 15 acres; it was divided into six treatment zones. An estimated 200 standing trees of varying diameters up to 20 inches diameter at breast height (dbh) were removed from the forested areas during the project. Downed trees, broken and hanging branches, and woody forest floor debris were also removed.

Material less than five inches in diameter was chipped and scattered or used in other designated areas of the park. Hardwood logs were collected for distribution to low income area families for firewood, facilitated through a partnership with the New York State Department of Corrections. Softwood debris was stacked into burn piles. Piles will be burned by NPS Northeast Regional fire personnel during winter 2013.

## **Fire Safe Montana: The Community “Staff Ride” provides motivation for wildfire preparedness**

One of the three goals of the Cohesive Strategy is fire-adapted communities—communities in which “human populations and infrastructure can withstand a wildfire without loss of life and property.” Since its formation in 2006, FireSafe Montana (FSM), a private, non-profit organization, has maintained an active program of outreach and education, much of it designed to raise public awareness of wildfire risk and to encourage communities and individual landowners to develop strategies for dealing with the risk. FSM also has fostered the creation of local FireSafe councils around the state, and they usually take a leadership role in local planning and mitigation efforts. Wildfire awareness has increased significantly, but motivating individuals and communities to take the next step—to put their mitigation plans into action—can be a formidable challenge.

During the 2010 Communities and Wildfire Conference, Bob Mutch, member of the board of the Painted Rocks Fire District and retired Federal wildfire researcher/manager, approached the FSM board for their support in using a unique approach of conducting a “staff ride.”

Staff rides have been used by the military since the late 1800’s as a means of learning from the past in order to be more successful in the future. Participants study a historic battle, then tour the site where it was fought to see how events actually played out on the ground and finally discuss their observations at length—what worked; what didn’t; and why? The object is not to find fault or fix blame but to learn from others’ experiences.

As a fire researcher, Bob has been on the scene of many severe fires, but he was particularly moved by a 2003 tragedy that occurred during the Paradise Fire near Valley Center, California, an event he studied in depth while preparing a 2007 report for the Wildland Fire Lessons Learned Center. In that incident, a 16-year-old girl, Ashleigh Roach, perished; and her 20 year-old sister, Allyson suffered second and third degree burns over 86 percent of her body as they and other family members tried to escape the wildfire and reach the safety of their local fire station, only 600 yards, one-third of a mile away.

How could that happen? What lessons could be learned? And, perhaps most importantly, could the thoughts and emotions that would be generated through a staff ride that would re-enact the Roach family's experience in California somehow motivate better participation in Montana?

FSM's board enthusiastically embraced the staff ride project and committed funds for capturing the event on video so that the experience could be shared with anyone who was not able to attend in person. With additional financial support from the Wildland Fire Lessons Learned Center and the Wolf Creek-Craig Fire Department, and with the kind cooperation of the Roach family, the project went forward.

On August 7, four groups of 10 participants each, most of them residents of Painted Rocks and West Fork Fire Districts, slowly walked one-third of a mile along a narrow two-lane road from a local resident's home to the Painted Rocks Fire Station.



FireSafe Montana holds staff ride to enlist support of local community for mitigation and planning activities

Along the way they stopped four times. At the first stop, a member of the Fire District in the role of John Roach (Ashleigh's father) set the stage, telling how in mere minutes a clear, bright autumn morning turned into a nightmare of smoke, fire, and noise; their house caught fire; and the family and visiting friends ran for their several vehicles to try and outrun the fire to the safety of Fire Station 73, just 600 yards, or one-third of a mile, away.

At the subsequent stops, other District members told the other Roach family members' stories—how Allyson got to her truck but found she didn't have her keys with her, so instead started up the driveway on foot, through flames. How her brother Jason and sister

Ashleigh, who were both in Jason's car, saw and stopped for her, and in doing so became separated from the rest of the family when their father and mother drove right by them, unable to see their children through the now-blinding smoke.

How with Station 73 in sight, Jason's car was forced off the road by another vehicle racing out of an intersecting road. How Jason shouted at Allyson and Ashleigh to get out of the car and run.

Jason and Allyson made it to the fire station, and from there, by ambulance, to the hospital.

As staff ride participants neared the Painted Rocks Fire Station, they came to a burned car, smoldering in a ditch. There was no presentation at that stand. Everyone was simply asked to stop and remember Ashleigh, who perished, still in the backseat of Jason's car.

The staff ride was a somber, moving event—a facilitated discussion of the experience and the participants' thoughts on what they had seen and heard followed—that was not videotaped.

After lunch, there were presentations and demonstrations related to planning and mitigation activities that the community members could complete prior to the next fire season.

The video-taped staff ride is available for viewing on the [FSM website](#) and YouTube.

## Section V: Response to Wildfire

The Forest Service and Department of the Interior's mission for response to wildfire includes protecting property and resources from the detrimental effects of unwanted wildfires while providing for firefighter and public safety.

The Department of the Interior bureaus carry out wildfire response in national parks, wildlife refuges and preserves, Indian reservations, and on public lands. The Forest Service is responsible for wildfire response on National Forest System lands and the national grasslands.

These diverse lands include historic and cultural sites, commercial forests, rangelands, and valuable wildlife habitat, as well as some lands managed by other Federal and state agencies. Fire prevention, readiness, and wildfire response programs are implemented by Federal fire crews, through cooperative protection agreements with Federal and state agencies, through self-governing tribes and through contracts.

Together, the Department and Forest Service fund preparedness activities on more than 600 million acres of public lands, and enter into cooperative agreements with other Federal agencies as well as state, tribal, and local governments to leverage resources and gain efficiency. Under these arrangements, protection responsibilities are exchanged and resources are shared. These cooperative relationships minimize overall protection costs for all parties and build relationships that are key to developing a cohesive and coordinated approach to managing wildfires, creating fire adapted communities, and reducing and mitigating risks through hazardous fuels reduction.

### Wildfire Ignitions and Role of Prevention

2012 was a challenging, active, and severe fire season. Although the number of fires was lower than the 10-year average the acres burned were well above with over 9.3 million acres. 2012 was ranked 2nd for acres burned since 1960, following 2006. More than 19,000 fire personnel were assigned to fire incidents at the peak of the season. Each of the three Area Command Teams were mobilized once, the 17 national Type 1 teams were mobilized for a total of 33 assignments,

and regional or state Type II teams were mobilized 80 times, that's a record since 2000. Structural losses, firefighter fatalities, and resources mobilized were average for 2012.

In FY 2012, approximately 4,713 Department of the Interior wildland firefighters responded to more than 9,149 wildfires on Department land that burned approximately 4.2 million acres. DOI firefighters also responded to a significant number of the more than 67,750 wildfires that burned approximately 9.3 million acres of land under the jurisdiction of other Federal, state and local government agencies.

The Forest Service responded to nearly 7,000 fires which burned close to 2.6 million acres.

Some of the conditions that contribute to the number of unwanted wildland fire ignitions include human-caused fires, climate change and drought, the proliferation of highly combustible invasive species in arid ecosystems, and excessive hazardous fuel accumulations from decades of fire suppression. Both the Department and Forest Service strive to achieve a technically effective fire management program that meets resource and safety objectives, while minimizing both the cost of suppression and damage to resources. Although the intent is to minimize the number of unplanned and unwanted wildland fires, thousands still occur each year.

### Wildfire Response and Suppression Effectiveness

Wildfire response resources are located to best meet historic local fire workloads and are deployed in advance of fire emergencies based on analysis of historic and predicted needs for the coming fire season to ensure that the Interior bureaus are ready to respond when wildfires occur. Preparedness program resources include unit-level assets, plus regional and national shared resources such as interagency hotshot crews that are available to fight fires on Federal and non-federal lands protected under exchange agreements or cooperative agreements. These resources may also be used to assist local communities and states when fires exceed the capabilities of those entities and they request assistance.

Initial attack activities were highly successful in 2012 with 97 percent and 98 percent of all unplanned and

unwanted wildfires on Interior and Forest Service lands controlled during initial attack, respectively. The performance reflects excellent coordination and planning by the DOI, Forest Service, and their partners in monitoring and detecting wildfire ignitions and rapidly deploying sufficient resources to address these fires before they escalate to larger, multi-day events.

### Interior Suppression Expenditures

In FY 2012, the total Suppression expenditures of \$465.8 million exceeded the funding available resulting in Section 102 transfers within the Wildland Fire appropriation and from the National Park Service (NPS) construction fund. The combination of those transfers was \$29.4 million. The DOI's 10-year average for suppression expenditures was \$368.5 million.

In FY 2012, DOI conducted suppression operations on 76 wildland fires (19 on DOI lands and 57 on Forest Service lands) that met the criteria for FLAME funding due to their significant complexity, severity, or the threat they posed to public safety and property. These fires exceeded 300 acres in size and were sufficiently complex, as documented in complexity analyses, to warrant the assignment of a Type 1 or Type 2 IMT and Area Command Teams where multiple long duration fires persist. The DOI's FLAME Suppression expenditures for the 19 eligible wildfires with large fire suppression operations were \$91.8 million.

Figure 18 compares the 2012 cumulative number of wildfires (all agencies) to the 10-year average (2001-2010); Figure 19 represents a comparison of acres burned to the 10-year average. The plots demonstrate the number of wildfires is below the 10-year average; however, the number of acres burned exceeds the 10-year average.

Figure 18. 2012 Cumulative Number of Wildfires (all agencies) to the 10-Year Average (2001 -2010)

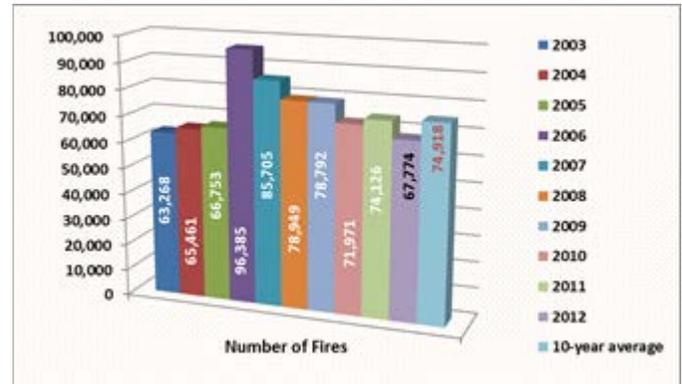
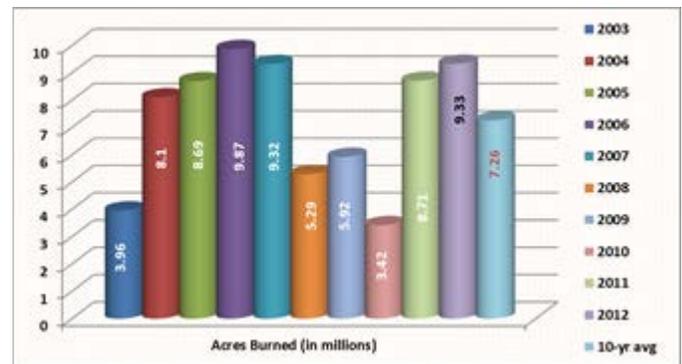


Figure 19. Comparison of acres burned FY 2012 to the 10-year average



## Firefighter Safety

### Wildland Firefighter Fatalities

For statistical purposes, DOI and Forest Service wildland firefighter employee fatalities are reported regardless of the location or jurisdiction where they occur. Only fatalities occurring while these employees were on duty are reported. Cooperating agencies' employee fatalities are included in this report only if they occur on land under DOI/Forest Service jurisdiction in association with Federal wildland fire management activities.

For contractors, fatalities are reported only if they are in pay status and under the operational control of one of the Federal agencies at the time of an accident. Therefore, this report does not include wildland firefighter fatalities occurring under other Federal, state, or local agency jurisdiction.

There were nine DOI/Forest Service wildland firefighter fatalities in CY 2012.

Table 7. CY 2012 Federal Firefighter fatalities

Agency	Location	Situation
DOI/BLM	White Rock Fire, Ely District, NV	P2V airtanker crash resulted in fatalities of pilot and co-pilot
DOI/BIA	Montezuma Fire, Papago Agency, AZ	Single vehicle rollover resulted in the fatality of driver
USDA/FS	White Draw Fire, Black Hills NF, SD	C-130 MAFFS airtanker crash resulted in fatalities of four military aircrew members
USDA/FS	Steep Corner Fire, Nez Perce-Clearwater NF, ID	Fire-damaged tree fell on its own, causing fatal injuries to one firefighter
USDA/FS	Klone Fire, Okanogan-Wenatchee NF, OR	Contract timber faller suffered a fatal heart attack

### Serious Accidents

There were 17 additional firefighters involved in a variety of serious accidents during 2012. Of the 26 total, 23 were Federal employees and three were contractors.

### Entrapments

2012 saw a downturn from the previous year in the number of Forest Service entrapments and entrapment-related fatalities. In 2011 the Forest Service had 16 people entrapped, with 1 entrapment-related fatality. In 2012, there were two entrapments under Forest Service jurisdiction involving a total of nine people, (2012 Safety Gram indicates 5) with no entrapment-related fatalities.

Of the people entrapped on Forest Service incidents in 2012, four were Forest Service Fire employees and five were cooperating agency employees. Both Forest Service entrapments in 2012 occurred in Northern California and both involved engine crews. No serious injuries or fatalities resulted from these entrapments; one engine was destroyed by fire and another damaged.

The DOI reported one BLM entrapment in 2012 on the Ridge Top Fire during extended attack. This number

was up from zero reported in 2011. There were no DOI reported fatalities in 2012 associated with entrapments.

### Driving

Twelve Federal firefighters were injured in driving accidents in 2012. This remains the same number reported in 2011.

On June 8, two BIA firefighters were injured when their engine rolled over en route to the Montezuma Fire in Arizona. One firefighter was treated and release from the hospital; the other remained hospitalized for his injuries.

On July 24 during extended attack, while scouting the fire line on the Ash Creek Fire on National Forests in Nebraska, a BLM employee suffered a broken clavicle and bruises when the all-terrain vehicle (ATV) he was operating rolled backward and flipped over.

On November 13, while returning from the State Highway 68 Fire southwest of Taos, New Mexico, nine firefighters were injured when their crew carrier rolled over. Two were seriously injured and seven were treated and released from the hospital.

### Hazard Tree

On August 20, during mop up on the Chips Fire of the Plumas National Forest in California, a contractor faller was treated for a concussion and released from the local medical facility after been struck by a falling limb.

On August 25, on the Trinity Ridge West Fire in Idaho, two BLM firefighters were treated and released to full duty from the hospital and another was treated and released home after a 40-foot log rolled over them during mop up activities.

### Aviation

On July 1, a MAFFS airtanker crashed on the White Draw Fire on the Black Hills National Forest. Two crewmen were treated at the regional hospital. Four men died.

### Other Medical Emergencies

On August 23 during initial attack on the MM 71—I-84 Fire in Idaho, a BLM firefighter received burns to the wrists and elbows and was treated and released from the regional hospital.

On October 11, during a prescribed (planned) fire operation, a Forest Service firefighter sustained second and third degree burns to 20 percent of his body after a fuel spill. The firefighter was referred to the Seattle Burn Center.

### **Trend Analysis**

Nationwide for all agencies, wildland firefighter fatalities increased slightly in CY 2012 from the number reported in 2011.

Conceptual modeling of incident risks suggests that multiple pathways exist for reducing firefighter injuries and fatalities. These can be grouped as efforts that emphasize improvements in the firefighter workforce, refinements in the way fire incidents are managed, and changes the attributes of wildland fire.

Table 8. Pathways to reducing firefighter deaths and injuries and associated strategic investments

Strategic Investment	Workforce emphasis	Incident management emphasis	Fire attribute emphasis
Position within Figure 14 shown by black and red:			
Standards, training, experience	X	X	
Technology, equipment	X	X	
Communications	X	X	
Health monitoring	X		
Personnel standards, screening efforts	X		
Incident learning	X	X	
Fire behavior and weather modeling	X	X	X
Wildfire prevention efforts			X
Fuels reduction			X
Forest and disease management			X

### **Cooperative Agreements and Partnerships**

Local, state, tribal and Federal agencies support one another with wildfire response, including engagement in collaborative planning and the decision-making processes that take into account all lands and recognize the interdependence and statutory responsibilities among jurisdictions.

In FY 2012 to enhance firefighting support, the Department of the Defense, Department of the Interior, and Forest Service worked to train one U. S. Army battalion from Fort Carson, Colorado, as wildland firefighters. The training cadre was comprised of seven DOI personnel (4 BLM, 1 BIA, and 2 FWS personnel) and 20 US Forest Service personnel. This training added approximately 23 more Type 2 crews to support of wildland fire actions.

### **Military Assistance**

On June 23, a Request for Assistance for four military C-130 MAFFS aircraft was approved, and the first MAFFS began flying fire missions in Colorado on June 25. All available MAFFS aircraft (from California, North Carolina, Wyoming and Colorado) were activated at various times during the fire season. By September 13, MAFFS had flown 922 sorties across the western U.S., dropping 2,449,679 gallons of retardant. This is the highest number of gallons dropped by MAFFS since 1994. The last two MAFFS aircraft were released September 14 from Sacramento, CA.

### **International Assistance**

Through the National Interagency Coordination Center, Canada provided five air tankers and three aerial supervision modules (“Bird Dogs”) from British Columbia, Alberta, and Saskatchewan, as well as two liaison officers. The first aircraft were mobilized between June 6 and June 12 from British Columbia and Saskatchewan. Another air tanker and Bird Dog arrived July 9 from Alberta. These aircraft flew missions in many western states. The last aircraft were released back to Canada July 12 due to increasing fire activity in that country.

### **Spatial Fire Management Plan**

In an ongoing effort to improve planning efficiency, deliver more effective planning products, and promote interagency planning efforts, bureaus are looking at ways to update the planning process in ways that place greater reliance on geospatial and graphic products.

Because the concept resonated with fire managers across all bureaus, pilot projects have been implemented by all. To date, the majority of pilot efforts have included interagency partner participation during unit level workshops. This continues to accelerate knowledge sharing, development of process guidance and formulation of lessons learned that continues to strengthen the spatial fire management planning concept.

The pilot efforts differ between Departments as described below:

### **DOI Pilot Efforts:**

- Efforts are focused on developing fire management plan information - inclusive of wildfire and fuels management.
- Planning products meet agency planning and environmental compliance standards.
- Support wildfire management decisions.
- The Wildland Fire Decision Support System (WFDSS) project has accommodated the spatial planning efforts by adding updates to the software.
- The FWS successfully initiated and completed the first DOI pilot Spatial Fire Management Plan (SFMP). It includes:
  - all FWS units in the state of New Mexico (8),
  - an Environmental Assessment covering all 8 units in one document and is spatially oriented to the extent possible, and
  - a signed Finding of No Significant Impact (FONSI).
  - All other DOI land management agencies initiated pilot projects which are currently in progress. To-date there are at least 10 efforts that are in various stages of completion.

### **US Forest Service Pilot Effort:**

- Implemented a separate, but similar pilot project for the Payette National Forest which is housed within WFDSS.
- Focuses on producing a variety of geospatial products to support wildfire response decisions.
- The products are derived directly from Forest Plan direction, and are applied in WFDSS to provide guidance when responding to wildfire ignitions.

### ***A Project to Evaluate Costs and Benefits on DOI Fires***

In coordination with the DOI Office of Wildland Fire (OWF), the DOI Office of Policy Analysis (PPA), and the Wildland Fire Management Research Development and Application (WFM RD&A) has been working to evaluate the costs and benefits associated with a select number of wildland fires that have occurred on areas managed by the DOI. A random sample of fires from

the BLM, BIA, NPS, and FWS ranging from greater than 0.1 acre to greater than 5,000 acres were modeled in Near-Term Fire Behavior (NTFB) in WFDSS and the Fire Spread Probability model (FSPro) modeling systems to assess the value at risk and fire size that could have resulted if a fire had not been suppressed. The Stratified Cost Index (SCI) is also being used to evaluate actual versus historical costs compared to the final fire size. This project is ongoing and will continue throughout FY13.

### ***Effective Utilization of Suppression Resources***

The wildfire economics team continues to explore how suppression resources are utilized to bring wildfires to containment. The team's research suggests that developed containment line progresses at a slower rate than estimated by the summation of the estimated productivity of individual suppression resources. Ongoing research is exploring how geography, fire weather, values at risk and team composition affect the efficiency of incident management teams and implications to firefighter exposure and safety. A focus area of this line of research is on the use and effectiveness of large air tankers in initial attack and large fire support. Improved understanding of the conditions under which suppression is most effective could lead to more efficient less costly wildfire suppression while reducing the exposure of firefighters to the hazards inherent to wildland firefighting.

### ***FY 2012 Investigation of Human Factors in Fire Management***

The Human Factors and Risk Management (HFRM) RD&A leads the Federal fire effort to understand and improve individual and organizational performance. The focus centers on understanding and building skills that promote safe, effective, and reliable wildland fire operations; designing this knowledge into decision-support tools and training; and partnering with field units to refine, deliver, and assess effectiveness. The FY 2012 efforts funded in full or in part through the National Fire Decision Support Center (NFDSC) include building a solid, science-based understanding of current decision-making at all levels of incident management, identifying strengths and gaps in critical leadership and group skills necessary to promote high performance, and providing expertise to the interagency wildland fire community.

## Veterans and Youth

The Department of the Interior (DOI) is committed to increasing the employment of Veterans and youth within the Department's workforce. As such, the Wildland Fire Program within the DOI began work in 2011/2012 on efforts to increase the employment in Wildland Fire Management as directed by the Interior Fire Executive Council (IFEC). This direction included the following tasks.

- Hiring of veterans in Wildland Fire Management
- Development of a Wildland Fire Career Road Map
- Coordination with Conservation and Youth Corps

### Hiring Veterans

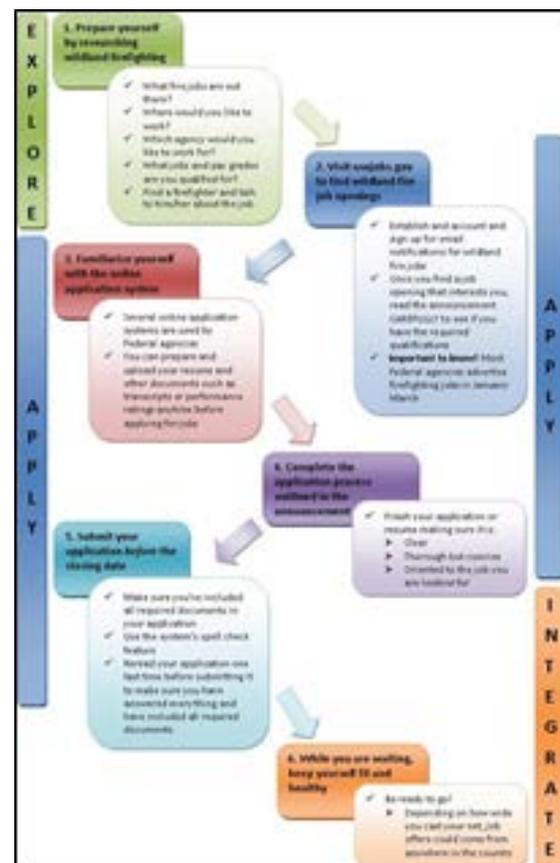


2012 BLM Veterans Green Corp crew

The Bureau of Land Management (BLM) has worked with the Wounded Warrior Volunteer Program to host veterans who have been injured while performing military duties and who are beginning a transition back into civilian life by working in the Fire Program. In 2012, BLM hosted three veteran crews who worked on hazardous fuels reduction and suppression activities out of the Klamath Falls, Oregon; Sacramento, California; and Las Vegas, Nevada areas. This effort has been successful in engaging veterans and assisting these individuals in a transition to meaningful work in wildland fire operations and hazardous fuels reduction and is being applied again in 2013. This experience has provided a foundation to veterans for future employment opportunities.

BLM also hosted three Veterans Green Corps crews. The Veterans Green Corps supply the equipment,

Figure 20. Veterans to Wildland Fire Career Roadmap was developed to assist Veterans in understanding and learning more about the types of jobs and career opportunities in wildland fire.



vehicles, training, and supervision and the veterans are provided work opportunities on public lands.

FWS sponsored a veteran's conservation corps crew that worked at Charles M Russell NWR. This has been an on-going effort in support of veterans in the wildland fire program.

The BIA partnered with the Intertribal Timber Council to increase veterans hiring and worked with the Southwest Conservation Corps in a program at Acoma Pueblo in New Mexico.

The NPS worked to incorporate veterans into fire and aviation operations through the Wildland Fire Apprentice Program and development of a DOI Wildland Fire Veteran Recruitment YouTube video which is available at: <http://youtu.be/AIu94XtjoFg>

To support the DOI's commitment to increasing the employment of Veterans the Office of Wildland lead an effort with bureau representatives to develop a web page with information on jobs in the Wildland Fire

Program with a road map divided into three sections of a series of questions and answers to assist veterans or anyone interested in working as a wildland firefighter or in wildland fire management to obtain employment. The three sections are namely the “Exploratory, Application, and Integration” phases which were designed to increase understanding of the types of jobs and opportunities in wildland fire that could lead to finding a job or career in wildland fire management.

The roadmap, completed in 2013, provides a view of jobs and career progression opportunities with short job descriptions that will hopefully provide information and career transition advice in the recruitment, employment, training, and development of veterans in fire management. The career road map is located at: [http://www.doi.gov/pmb/owf/VETERANS to WILDLAND AND FIRE employment.cfm](http://www.doi.gov/pmb/owf/VETERANS%20to%20WILDLAND%20AND%20FIRE%20employment.cfm)



Illustrative image of a Veteran transitioning to a career in Wildland Fire Management

### ***Veterans Fire Corps***



Veterans Fire Corps (VFC), a collaborative initiative of Veteran Green Jobs (VGJ) and existing conservation corps, empowers Veterans to transition to civilian life by leveraging their leadership experience to meet pressing conservation needs on public lands. Since 2009, more than 600 veterans have participated,

supported primarily with funding from the Forest Service and the BLM. The majority of program graduates who were interested in natural resource/wildland fire employment found jobs post-program with Federal and state agencies, including 54 veterans in 2012.

Veterans serve on hazardous fuels or other conservation or energy crews for three to six months with other Veterans. Conservation Corps (e.g. California Conservation Corps, Southwest Conservation Corps, Student Conservation Association and others) operate the programs (employ Veterans, hire crew leaders, mobilize crews, cover all logistics, transportation, tools, gear, etc.). VGJ provides supportive services. Federal and state land management agencies oversee projects. VFC crews complete work on fuels mitigation, fire break construction, fire monitoring, prescribe burn assignments and some direct fire response. The Corporation for National and Community Service (CNCS) provides AmeriCorps awards and (at times) funding. Benefits to Veterans include paid training, cohort experience with other veterans, and pathway to jobs and careers.

The program currently operates in Arizona, California, Colorado, Montana, Nevada, New Mexico, South Dakota and Wyoming.

Six hundred and thirty (630) Veterans participated between 2009-2012 and the majority of alumni who were interested in natural resource/wildland fire employment found jobs post-program with Federal and state agencies. Forest Service, BLM and NPS in AZ, CA, CO, IL, SD and UT hired program alumni. In 2012, 54 Veterans Fire Corps members obtained fire or natural resource jobs immediately after completion of the program or even prior to the end of the program. Also in 2012, the three Forest Service-funded VFC programs thinned 2,698 acres, reduced hazard fuels on 3,590 acres, built 21 miles of fire break, and worked 1,636 hours on prescribed burns.

The Forest Service allocated over \$7 million to support the program. BLM has provided \$1 million. CNCS provides AmeriCorps awards and some funding. Other funding comes from state and local sources. The program costs approximately \$100,000 for a 12-week crew of six Veterans and two crew leaders.

## Individual Success Stories

Four individual success stories, outlined below, provide a sampling of the 600+ veterans who have participated in the program.

### Gabe Ortiz, Marine Corps



Gabe Ortiz was a senior in high school on September 11, 2001 and he joined the Marine Corps as soon as he graduated. He served in both Iraq and Afghanistan.

However, he had a harder time finding a meaningful job when he returned to the states until he found the Veterans Fire Corps (VFC) program operated by the California Conservation Corps (CCC). In the VFC Gabe received paid training, got promoted to Acting Crew Leader, and got hired by the Forest Service with Big Bear Engine 16.

### Brian Hirtzer, Navy

Brian Hirtzer joined the SCA VFC program after serving in the Navy, three years as an Aviation Maintenance Administrator and two years in the squadron HSM-41 out of Coronado Airbase in San Diego. He also spent nine months at KAIA in Kabul, Afghanistan providing postal services for all branches of the military. Brian, who is a college student, joined VFC because he was interested in gaining experience with wildland firefighting and fire ecology.

### Trevor Peterson, Army



Trevor Peterson, who had served in Iraq while in the Army, was interested in pursuing a career in wildland fire and joined Southwest Conservation Corps' VFC program

because he wanted a job with the USFS. In early 2012, this aspiration became a reality when he was hired on a hand crew with the San Juan National Forest. With training received during the VFC program and his background in the Army, Trevor quickly became an important asset to the crew. Due to his clear strengths,

he was able to spend a month detailing with the San Juan Interagency Hotshots, with whom he is hoping to get a job next year.

### Edgar Alfaro, US Army Reserves

Edgar Alfaro, a member of the Army Reserves since 2008, joined the CCC VFC program in 2011 after having spent a year in Afghanistan as a Combat Medic/Military Policy. The CCC VFC program introduced him to a career that he was unaware of and provided him with job training and connections that helped him gain employment and a lasting career. This past May the USFS hired Edgar on an Engine Crew with the Cleveland NF. Like many veterans Edgar has a strong sense of service to his country. Now, he has a job that pays the bills, is (mostly) out of harm's way, and can support him and his family. Edgar sums up what many VFC alumni feel, "My favorite part about my job is giving back to my community."

## Success Stories: Response to Wildfire

### Video *“The Fire Rights—Managing Risk on the Whitewater-Baldy Complex: How Did They Do It?”*



The Whitewater-Baldy Complex was started by lightning on May 16, 2012, and burned nearly 298,000 acres to become the largest wildfire in New Mexico. The video shared through the link below shares the lessons and effective practices demonstrated during the management of the wildfire. Agency Administrators and Incident Management Team commanders provide insights into how risk management strategy and tactics were collaboratively implemented.

Watch the video at: <http://youtu.be/Usn7zvmix2U>

### Lakeview Veterans' Crew a Natural Fit with Fire (BLM)

When long-time BLM firefighter Mike McGirr took on the job of supervising a crew consisting of mostly military veterans, he says he knew what he was getting in to.

He figured it would be a crew used to working hard, working as a team, people eager for a job that makes a difference, and that understanding leadership and Wildland Fire Management FY 2012 Accountability Report

chain-of-command wouldn't be a problem. It seemed a natural fit to him, linking veterans to fire.

Three months into the western fire season, it turns out McGirr was right. It has been a good fit. The Lakeview initial attack crew has been performing at or above his lofty expectations.

“It's been a good thing,” McGirr says. “They've meshed as a crew and they're getting better every day.”

Not only is the fire organization benefitting from the crew's work, but the veterans themselves are learning new skills that should help their marketability. McGirr salted his crew with five experienced firefighters to help show the ropes to the military veterans, none of whom had wildland fire experience. The vets are learning about fire from the ground up and all that goes with it – from cutting line to understanding fire behavior and beyond.

“They're learning every kind of fire skill there is,” says McGirr, who is in his 21st season working as a firefighter. “They're learning something new every day.”

And that's part of the overall veteran crew's program objectives, says Dave Mueller, a BLM fuels specialist at the National Interagency Fire Center in Boise, who has been a strong proponent of establishing the vets' program. He says that while fireline and fuels reduction work is the primary aim of the program, BLM also wants to give the veterans wide experience in natural resource work to better prepare them for a competitive job market.

“We're cross-training the crews in all disciplines as time and availability allow,” Mueller says. “We want to give them experience in archaeological clearances, rangeland monitoring and improvements, and many other areas so that they can be more marketable in the future.”

Time and availability have been at a premium for the Lakeview initial attack crew. The crew received its first assignment in Arizona in June. As of late August, the crew has worked on 15 fires and accepted six two-week assignments during a busy western fire season. If the season has worn them down, McGirr says they're not showing it.



“They’re chugging along. But these are people who are used to working hard and being away from home for a long time,” he says.

One characteristic of the veterans that has particularly impressed McGirr is their leadership – both knowing how to follow, and at the right time, how to lead.

“They know how to work with others, they know how to take on an assignment,” he says. “There will be a lot of good future leaders coming out of this program.”

The Lakeview crew is one of three composed primarily of military veterans for BLM in Oregon and Washington. The others work out of Medford, Oregon, and Spokane, Washington.

McGirr is already looking toward next season. He pays the veterans the ultimate compliment when he says he wouldn’t hesitate to bring back most or all of them next year.

The pride in his voice is evident when he talks about his crew. Maybe most of them are rookies, but they’re not acting like it.

“I’d put them up against any crew anywhere,” McGirr says.

### **Arsonist ordered to pay feds for wildfire (BIA)**

A Nespalem arsonist convicted in August of purposely lighting wildfires on the Colville Indian Reservation

two years ago was ordered Monday to pay the \$715,490 it cost to fight them.

Elam Sunny Rae Baker, 35, is serving 10 years in prison for igniting three fires in September 2009, including one that forced the evacuation of 50 residents from a convalescent center in Nespalem.

He was charged in Okanogan County Superior Court with 10 counts of arson, including nine that were set the same day along a 37-mile stretch of Highway 155 between Omak and Nespalem. Some of those charges were dropped in the plea agreement because they did not add to the time he would have served.

Baker used matches taped to a burning cigarette to light the fires, enabling him to leave the scene before the matches ignited and started a wildfire. The Washington State Patrol Crime Lab matched DNA left on two of the devices.

He had worked at various times as a private contract firefighters, but officials did not know if he was hoping to get a job from the wildfires he lit.

Prosecutor Karl Sloan said Baker may be required to begin making payments to the Bureau of Indian Affairs while incarcerated, if he is employed in prison, but that will determined by the Department of Corrections.

## Section VI: Science, Studies, and Decision Support

### Department of the Interior Review of Potential Duplication in the Department's Wildland Fire Management Program

The Department has been urged by the House Appropriations Committee to examine potential duplication in the Wildland Fire Management Program, which is currently operated by four bureaus: Bureau of Land Management; Fish and Wildlife Service; National Park Service; and Bureau of Indian Affairs. [Department of the Interior, Environment, and Related Agencies Appropriation Bill, 2012]

The Department of the Interior conducted the "2012 Interior Fire Program Assessment" project to identify areas of potential inefficiency and corresponding recommendations in wildland fire program management. Reviews did not find major issues, but did outline a series of steps that could be undertaken to improve coordination, as time and funding allowed. Two broad management issues common to many individual steps relate to

- **Leadership and Coordination** - It will be important for DOI to define and communicate leadership roles and the approach to coordination of implementation activities, including who will select projects to implement. The Department should consider establishing new oversight bodies and processes, based on the efforts selected, to guide the activities and implementation efforts of the project teams.
- **Project Selection and Staging** - DOI leadership should select projects based on level of importance, relationships among these efforts and other activities, and available resources.

The Office of Wildland Fire has addressed or is actively addressing these issues.

As a result of the Assessment, the Department also formed a Study Team to complete a report focused on long-term solutions to acquisition challenges related to

wildland fire, aviation, and emergency services activities. The Study Team worked with a management steering group to define DOI's current emergency acquisition environment.

The Study Team further worked with DOI and bureau program, acquisition, and finance staff to identify compliance, acquisition process, system, and organizational issues related to short-notice acquisition. The team documented these issues, including their impacts, root causes, priority levels for DOI, objectives, and potential issue resolutions.

The Study Team developed several long-term improvement approaches to assist DOI in addressing its short-notice acquisition challenges. The team also analyzed the extent to which a given improvement approach supports DOI in meeting its acquisition objectives and maturing its processes as measured by the Federal Acquisition Maturity Model (FAMM). The FAMM is an industry standard tool for helping organizations, such as DOI, benchmark their performance against other entities in terms of process maturity.

#### *Next Steps*

The Study Team's analysis indicates the Department stands to gain sustainable improvements to the short-notice acquisition cycle by pursuing changes that preserve or improve the timeliness with which DOI meets fire, aviation, and emergency service mission objectives, while enhancing its ability to meet compliance requirements. A balanced approach would require the Department to pursue legislative and policy changes, as well as procedural improvements. These changes will help DOI better satisfy Federal and Departmental acquisition requirements. Further, such an approach could allow DOI to mature its acquisition organization and improve the balance between its competing operational needs and compliance requirements.

### A National Cohesive Wildland Fire Management 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 Federal Land Assistance, Management, and Enhancement (FLAME) Act of 2009 required the Secretaries of the Interior and Agriculture to develop a “cohesive wildfire management strategy.” Since then, the Department, the USDA Forest Service, and several non-federal partners have been collaboratively engaged in risk analysis and planning.

The Cohesive Strategy adopted a process with three phases. In Phase I, the national framework and goals were defined in, [A National Cohesive Wildland Fire Management Strategy](#). In addition, the seven elements discussed in the FLAME Act were addressed in [The Federal Land Assistance, Management and Enhancement Act of 2009 – Report to Congress](#).

Together, these documents provide the foundation of the National Cohesive Wildland Fire Management Strategy, articulating the shared vision and national goals developed and agreed to by dozens of partners for the future of fire management:

1. **Restore and Maintain Landscapes** – Landscapes across all jurisdictions are resilient to fire related disturbances in accordance with management objectives.
2. **Fire-Adapted Communities** – Human populations and infrastructure can survive a wildland fire. Communities can assess the level of wildfire risk to their communities and share responsibility for mitigating both the threat and the consequences.
3. **Response to Fire** – All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildland fire management decisions.

In Phase II, regional assessments were completed to address and scale the national goals to the needs and challenges found at regional and local levels. Regional Strategy Committees representing three regions of the country – the West, Southeast, and Northeast, examined the processes by which wildland fire or the absence thereof, threatens ecological, social and economic values that Americans find important, including wildlife habitats, watershed quality and local economies. The regional reports formed the basis of [A National Cohesive Wildland Fire Management Strategy, Phase II National Report](#), released jointly by

the Department of the Interior and the Department of Agriculture in June 2012.

Thus far, the [Regional Risk Reports](#) have been completed in Phase III, Regions analyzed information, science, and available fire management assets to address the increasing complexities of fire management. Each region provided workable solutions on how to weave Federal, tribal, state, local, and private capabilities together to achieve landscape-scale results. Regions have completed Regional Action Plans detailing the goals, objectives, performance measures, and implementation tasks to more effectively fulfill the Cohesive Strategy’s goals.

The National Cohesive Wildland Fire Management Strategy and Risk Analysis is scheduled to be released in Spring 2014. The report examines the benefits and potential consequences of options aimed at achieving the three goals of the Cohesive Strategy. Data and tools developed will be used to explore trade-offs associated with varying management approaches. The National Science Team’s work will be detailed in a Risk Analysis report, subject to peer review, and will discuss the data and methodologies used in developing the trade-offs associated with the range of policy choices.

The National Action Plan, informed by the National Strategy, will include inherently national issues, issues that were identified by more than one region and an accountability section to measure progress in achieving the national goals to mitigate the wildfire risk including: creating more resilient landscapes; increasing the number of fire adapted communities; decreasing the number of human caused ignitions; reducing the risk of wildfires damaging communities; and uneven response capacity.

By embracing a collaborative approach, the efforts of the Cohesive Strategy have built on existing relationships and created new collaborative alliances for the future, with an ‘all-hands, all-lands’ approach to meet today’s wildland fire challenges.

For more information:  
[www.forestsandrangelands.gov](http://www.forestsandrangelands.gov)

## Northern Arizona University— Ecological Restoration Institute study on “The Efficacy of Hazardous Fuels Treatments”

At DOI’s request, the Ecological Restoration Institute (ERI) at Northern Arizona University is coordinating a study of the Efficacy of Hazardous Fuel Reduction Treatments. In June 2012, ERI assembled a team of conservation and natural resource economists to conduct a rapid evidence-based assessment, as well as to design a timely and efficient way to answer emerging questions. Formal reporting of the results of the rapid assessment is expected by May 1, 2013, although the delivery date has been delayed several times.

The Report recommends that the following subsequent research be conducted using methods grounded in practical applications of sound economic theory and results will be published in scholarly journals:

- Continue to research methods to assess the relative marginal value of fire management with the Risk and Cost Analysis Tools Package (R-CAT) developed by the USFS in combination with other tools, to evaluate the overall efficacy of proposed treatments, ecosystem benefits and management costs, cost-avoided estimates, and metrics of return on investment.
- Identify solutions to address the increase in unnaturally large and severe (mega) fire. In particular, implement and test treatments designed to modify extreme fire behavior outside the WUI.
- Implement a common or universal fire identifier framework to be used by all units of government in order to improve the ability of researchers to analyze data and answer research questions. [The Federal agencies have adopted a common system, which is available for state and local use; however, Federal agencies have no authority to mandate the use of any system.]
- There are many studies that demonstrated fuels treatment effectiveness on protecting watershed services, recreation and cultural

values (e.g., reflected in real estate values), and commodity values. Researchers could not find any studies that systematically compared the changes in these values with and without fuels treatments after a wildfire. This represents an urgent future research need.

- Conduct additional research to identify the relationship between suppression costs and fire behavior in order to assess the overall effectiveness of restoration and fuels treatments on suppression costs.

### *Next Steps*

The Joint Fire Science Program (JFSP) has addressed a substantial portion of these research needs, as well as a wide array of other items related to the efficacy of hazardous fuels treatments; hazardous fuels reduction (HFR) remains a core line of business item of the JFSP. The OWF is evaluating the most practicable means of meeting direction from the OMB to provide science-based decision support for HFR investments, including current and future JFSP research, as well as research syntheses from JFSP and NAU-ERI.

### **Wildland Fire Information and Technology**

In February 2011, the DOI Deputy Assistant Secretary for Public Safety, Resource Protection, and Emergency Services and the Forest Service Deputy Chief for State and Private Forestry issued a memorandum directing their agencies to chart a course for implementation of the National Wildland Fire Enterprise Architecture (NWFEA) Blueprint. In response, Implementing the National Wildland Fire Enterprise Architecture Blueprint was completed and approved in August 2011.

The Senior Advisors for the Deputy Chief (Forest Service) and Deputy Assistant Secretary (DOI) were tasked to:

- develop a single, executive level governance body and structure for wildland fire information and technology investments and activities; and
- develop a common wildland fire information and technology vision and strategy for use in evaluating current and new investments.

The Senior Advisors provided a report that was accepted by the Deputy Assistant Secretary and the Deputy Chief on March 23, 2012.

In April 2012, the Federal Fire Policy Council reviewed the report and concurred with moving forward with implementation. The governance and management structure for Wildland Fire Information and Technology (WFIT) is based on an integrated, cohesive approach for information and technology while maintaining the integrity of the reporting relationships of personnel within the Forest Service and the DOI wildland fire management program.

This structure provides a clear, single interface point between the wildland fire “line of business” and the investment decision-making structures of the two organizations. It provides a single, unified capability to identify requirements and priorities, to efficiently make investment decisions and manage all of those investments as a single portfolio.

### **WFIT Governance**

The WFIT Governance is made up of several chartered Boards—the Executive Board, Management Advisory Board, and the Program Board.

The Executive Board (EB) is chartered to lead and oversee the wildland fire information and technology program and suite of investments. The EB provides information and recommendations to the Forest Service and Interior investment review boards regarding strategies, policies, and investments for interagency wildland fire investments. The Executive board represents and advocates for the interests, requirements, and priorities of WFIT, including infrastructure and services necessary to conduct wildland fire business. Within parameters established by the investment review boards, the executive board may approve strategies, policies, and investments for interagency wildland fire investments.

The Management Advisory Board (MAB) exists to provide a forum for senior wildland fire program managers to provide the WFIT Executive Board with information and recommendations regarding requirements, priorities, strategies, policies, and investments for the interagency wildland fire investments. The MAB represents and advocates for the interests, requirements, and priorities of the

wildland fire program. The MAB is not authorized to make decisions to approve investments, to direct or manage the development or operation and maintenance of WFIT investments, or to engage in any other program management activities with respect to WFIT. These authorities and responsibilities are reserved for the Executive Board.

The Program Board (PB) is chartered by the Executive Board to provide coordinated implementation of the wildland fire information and technology program to achieve the wildland fire information and technology mission: Provide information and technology services in a timely, consistent, reliable, integrated, innovative, and cohesive manner to meet the business requirements and priorities of the wildland fire community.

### ***Desired Outcome***

The desired outcome for WFIT is to use information and technology in support of the business mission of the interagency wildland fire program; to provide information and technology services and functions independent of an agency or location of the user in a manner that provides flexibility and adaptability for the people who use it in the field.

### **Wildland Fire Decision Support Tools**

#### ***LANDFIRE***

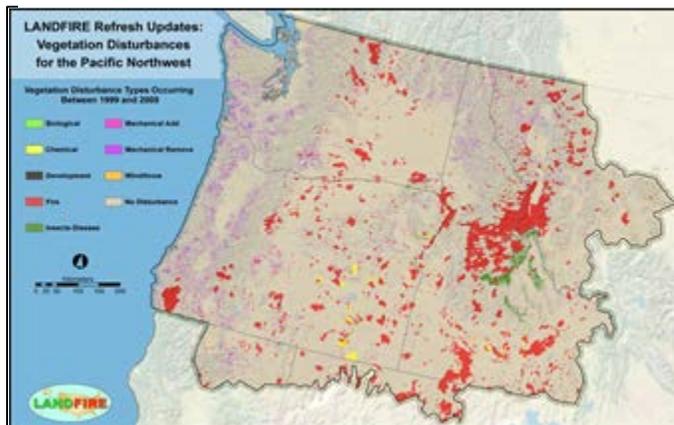


LANDFIRE is a collaborative source of geospatial landscape-scale maps and data layers across the United States. These data cover all jurisdictional land boundaries and provide the public free data products of major ecosystems, wildlife habitat, vegetation and canopy characteristics, landscape features, and wildland fire behavior, effects, and regimes for numerous applications, including wildland fire management and natural resource conservation. LANDFIRE (also known as Landscape Fire and Resource Management Planning Tools) is a shared

effort between the U.S. Department of Agriculture Forest Service and the U.S. Department of the Interior.

Originally chartered by the Wildland Fire Leadership Council (WFLC) in 2004, LANDFIRE has a history of delivering. Using the 2001 data, the first 30 meter map of 26 geospatial products for all 50 states was delivered in 2009. Since then, LANDFIRE has completed a refresh update using 2008 data focusing on disturbances (wildland fires, mechanical treatments, weather events, etc.) to vegetation and fuels. In 2013, they will deliver the latest update using the 2010 data following the same plan of updating the geospatial layers due to disturbances. In 2013, the program will begin work on another update using 2012 data and planning for a wall to wall re-map. The quality of delivered products has been within acceptable industry standard levels for the geospatial products developed at the scale of LANDFIRE.

Figure 21. LANDFIRE 2008 Refresh of vegetation disturbances in the Pacific Northwest



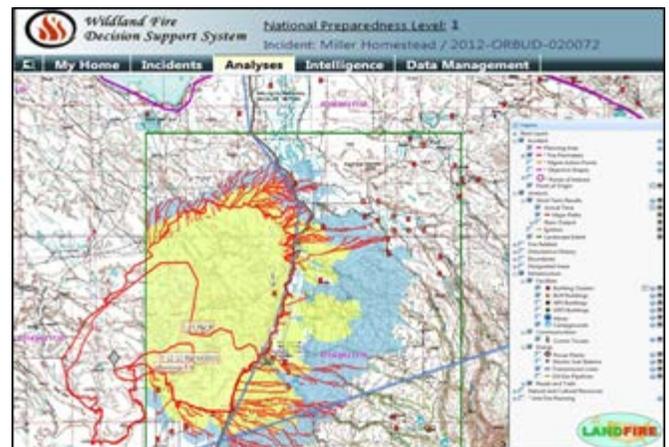
Business leadership from both DOI and Forest Service guide, direct, and participate in communicating the LANDFIRE program to increase awareness for the importance of acquiring data for use within LANDFIRE and how the data products can be applied. Program leadership is also working to increase partnerships with other Federal, state/local programs to integrate data and improve data product quality. Having a scientific foundation, the comprehensive and consistent spatial data are used to support analyses in a host of decision support systems such as the Hazardous Fuels Prioritization and Allocation System (HFPAS), Wildland Fire Decision Support System (WFDSS), and National Wildland Fire Cohesive Strategy.

An example of how successful LANDFIRE data have been in strategic and tactical planning of fire operations is within WFDSS and is highlighted on the map that follows of the 2012 Miller Homestead Fire.

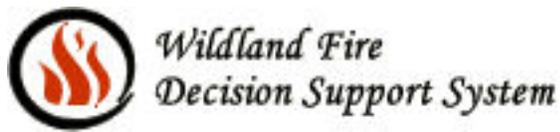
LANDFIRE data were used in the WFDSS Short-Term Fire Behavior (STFB) model (which is a two-dimensional fire growth model). STFB calculates spread rates and maximum spread directions holding all environmental conditions (wind and fuel moistures) constant for the duration of the simulation and calculates fire growth and behavior by searching for the set of pathways with minimum fire spread times from an ignition (point) source. These data analyses are important to incident management in determining suppression responses to protect values at risk.

In future years, the Department of the Interior will evaluate the alignment of funding LANDFIRE with other Wildland Fire Management (WFM) funding sources particularly from Preparedness funding as evidenced in its use in the WFDSS. Evaluations will also be conducted with natural resource program end-users and science areas to attempt to leverage resources with a focus on improving the efficiency in the collection, development, production, retention, archiving, and dissemination of data.

Figure 22. LANDFIRE data used in the WFDSS Short-Term Fire Behavior (STFB) model (a two-dimensional fire growth model of the 2012 Miller Homestead Fire on the Burns District of the BLM) supported incident management in determining suppression responses to protect values at risk.



## Wildland Fire Decision Support System



The Wildland Fire Decision Support System (WFDSS) tools are an integral part of the management of wildfires on public lands for both the Forest Service and DOI. These tools combine economic principles with fire behavior models, emerging technologies, and the local knowledge base, to help managers better evaluate fire situations, assess risks and apply comprehensive information to risk-informed decisions.

Enhancement of WFDSS tools continued in FY 2012, featuring validation of fire spread models, better integration with mobile devices, and tools to better integrate land management plans with operational fire decision-making. WFDSS provided real time statistical information to upper management regarding the current fire activity, number of fires, acres burned, and values at risk. The system was used by managers to support wildland fire decisions on 14,759 fires in 2012, an increase of 1,000 fires over 2011, and helped to ensure the safety of firefighters and the public, protect structures and natural resources, and efficiently use firefighting resources. The efficiencies that resulted from the use of WFDSS reduced costs and potential losses on complex wildfires. The system was particularly valuable in the management of large fires in Colorado, the Northern Rocky Mountains, and the southwestern United States in 2012.

### Continuing Improvements to Decision Support System

The adoption of mobile technologies makes it easier to make rapid, well-informed decisions on wildland fires when managers are away from their office. Spatial fire management planning enhancements have provided land managers more rapid access to spatial Land and Resource Management Plan information that have bearing on wildland fire decisions. Ongoing analysis of fire modeling efforts compared to actual fire spread on the landscape is being used to validate and update model inputs and improve capability. We have worked with geographic area editors to build capacity in the field for continued support of line officers (increased

skill level of field employees in understanding and using risk based decision process).

### Real-Time Fire Management Support

The Wildland Fire Management (WFM) Research, Development, and Application (RD&A) provided virtual and on-scene support to 113 incidents in nine GA's. The type of support varied depending on the needs of the incident. The tools and products most frequently supported by WFM RD&A analysts include Near Term Fire Behavior analyses, Fire Spread Probability (FSPro) analyses, Short Term analysis, and Decision Documentation support. Other requested products and support include Analyst Narratives, Team Assignments, Basic Fire Behavior, FARSITE, FlamMap, Parcel Data support, and ArcMap support.

The WFM RD&A support all agencies, fire types, and GA's. The majority of the incidents supported in FY 2012 were Forest Service fires (63 percent), with BLM making up the next highest majority at 21 percent. Non-federal fires were supported for the states of Montana, Wyoming, Idaho, Washington, and Colorado. FEMA incidents were also supported. Most requests in FY 2012 were to support Type 3 incidents for a total of 52 fires or 44 percent. Type 1 and 2 fires were the next most frequently supported at 24 or 21 percent and 23 or 20 percent, respectively. Most of the incidents the WFM RD&A supported were in the Eastern Great Basin Geographic Area (35 incidents). Other 'hot spots' included the Northern Rockies (26 incidents), the Southwest (18 incidents), the Rocky Mountain (17 incidents), and the Western Great Basin Geographic Area with 13 incidents.

### Tech Transfer

The RD&A provides 24/7 support to users in wildland fire decision-making. In addition, a mentoring program has been developed to increase capacity in the field to assist agency administrators in making risk-based decisions on wildland fires. The mentees develop skills in modeling fire behavior and the decision-making process. Fifty-seven field personnel were mentored during the 2012 fire season. The RD&A manages a suite of fuels planning tools which are used by the field for analyzing fuels treatment needs. Online training, webinars, and YouTube videos are used to transfer fuels analysis as well as other wildland fire technology to field users.

## **Integrated Reporting of Wildland-Fire Information**

The Integrated Reporting of Wildland-Fire Information project (IRWIN) is tasked with providing data exchange capabilities between the existing applications used to manage data related to wildland fire incidents. IRWIN is focused on the goals of reducing redundant data entry, identifying authoritative data sources, and improving the consistency, accuracy, and availability of operational data.

### ***Project Plan***

There were 22 applications identified for data exchange in the 2009 project plan. These applications range from Computer Aided Dispatch (CAD) to the final fire reporting systems. Data exchange capabilities are planned for five to six applications per year for four years. IRWIN provides funding to each application for the cost of modifications required for data exchange. All IRWIN documentation of business workflows and data mapping will be contributed to an enterprise-wide data management program to facilitate effective, efficient investment decisions.

IRWIN can be thought of as a central hub that orchestrates data between the various applications. Users will continue to utilize the existing applications but some or all of the data needed to create an incident, for example, will be pre-populated. In the case of FireCode, if an incident is created in WildCAD, the dispatcher can request and receive a FireCode without logging into FireCode. The data in FireCode, like latitude/longitude, is updated as more current data is available, something that doesn't always happen today. IRWIN conducts conflict detection and resolution on all new or updated incidents to ensure each incident has a unique record. All systems accessing that incident data are provided an IRWIN ID which they store. This allows records in all partner applications to be cross matched with confidence.

IRWIN has teamed with the new FS Enterprise Geospatial Portal (EGP) as the presentation tool for IRWIN data. EGP provides a geospatial view of the data and is scalable from the incident level to a national view. A more complete picture of geographic or national fire activity becomes possible, because IRWIN will gather data from multiple CADs, including non-federal sources. This partnership also allows

IRWIN to focus on orchestrating consistent, timely data and EGP to focus on the presentation.

### ***Current Status***

*Year One Applications:* WildCAD, FireCode, ICS209, WFDSS, and EGP were analyzed and prototyped in FY2012. All applications (except WildCAD) have been provided FY2013 funding and have issued task orders to contractors for necessary modifications. Data exchange in the development environment will begin in August through November as applications complete their modifications. In the November to January time period, stakeholders will be conducting scenario tests to ensure the application modifications and data exchange occur as expected. IRWIN is targeting March 2014 as the "go live" date.

*Year Two Applications:* e-ISuite, Resource Ordering Status System (ROSS) 3.0, Integrated Fire Management (IFM), Unified Incident Command Decision Support (UICDS). Tentative: NWCG Unit IDs, Alturas CAD. IFM is the CAD system used by the State of AK and Alaska Fire Service, they are well positioned to exchange data with IRWIN. Alturas CAD is used by the State of CA and initial contact is scheduled for late July. Unified Incident Command and Decision Support (UICDS) is a free-ware solution developed by the Department of Homeland Security to provide data exchange services to non-federal governments and agencies. This will allow IRWIN to access basic wildland fire incident information from sources not readily available today. These applications are in the discovery and prototyping phase.

"Go Live" Target: Spring 2015

*Year Three Applications (planned):* Wildland Fire Management Information (WFMI) Fire Reporting (BLM, BIA, NPS, BOR), Fire Management Information System (FMIS) (FWS Fire Reporting), FireStat (FS Fire Reporting), FAMWEB Data Warehouse (NASF Fire Reporting).

"Go Live" Target: Spring 2016

*Year Four Applications (planned):* Automated Flight Following (AFF), Weather Information Management System (WIMS), National Fire Plan Operations and Reporting Systems (NFPORS)/FACTS – Hazardous Fuels/Rehab Reporting, Incident Qualifications and

Certification System (IQCS)/Incident Qualifications System (IQS) – Incident Qualification Applications.

“Go Live” Target: Spring 2016

### ***Budget***

The IRWIN project team is sensitive to the current budget situation and has actively sought to find savings and to ensure their efforts support the greater community needs. As an example, hosting for the development and testing site was initially budgeted at \$150K/year. The team located cloud hosting services through DOI that actually cost \$36K/year. This type of cost management allows them to continue to meet their objectives despite a \$2M/year reduction from the budget levels projected in FY2009. Partnering with EGP saves the expense of creating and maintaining a user interface while ensuring the wildland fire community and stakeholders have access to the most current, consistent and complete data possible. Coordinating with NWCG and Wildland Fire Information and Technology (WFIT) efforts ensures IRWIN funded work can be re-used in other projects, both today and in the future.

### **Fire Program Analysis**



In March 2012, the Fire Program Analysis (FPA) Team delivered the analysis of all Fire Planning Units (FPUs) including the 50 United States and insular islands, to the Interagency Analysis Team (IAT) for their analysis. The IAT validated the FPA analysis outputs and found that suppression cost and acres burned outputs of the FPA application are in line with the ten year average.

A major component in the success is the work of the Support Working Team (SWT) which was comprised of field level fire planning experts from the Forest Service and the Department of the Interior bureaus. The work of the SWT was instrumental in testing and implementing the model calibration methods, application functionality, and validating model outputs across agency boundaries. The FPA Integrated Project Team (IPT) worked on the application, data, and model improvements throughout the fiscal year. Improvements included a partial LANDFIRE update of the fire behavior fuel models, improved cost calculations, and execution of fire simulation runs.

The FPA investment began transition into the operations and maintenance (O&M) stage of its lifecycle. The FPA IPT continues to enhance the application so it is stable and produces acceptable and repeatable results to support senior decision makers in their deliberations.

### ***FPA Governance***

As the FPA application transitions into full O&M and with the initiation of the interagency wildland fire information and technology (WFIT) FPA will transition from being governed by a single investment focused oversight group to being governed as part of the interagency architecture and will be governed through the WFIT governance structure.

### ***Investment Oversight and Management***

Funding for the FPA investment is provided by the Forest Service and the Department of the Interior on an equal cost share basis. The Forest Service is the managing partner and owner of the FPA application for the purpose of the OMB business case submission and agency Information Technology standards and security compliance.

## Section VII: International Fire and Emergency Management

International cooperation in suppression and support of wildland fire incidents has been a decade's long program. It is the result of long standing, codified international agreements/arrangements and accompanying operating plans as well as the willingness of nations to assist each other for the common good and develop strong trusting relationships. It precipitated the development of common expectations and qualifications of personnel as well as the sharing of wildland fire management techniques, advancements in science based research, and the acceptance of a common operating picture.

The International agreements/arrangements currently in place include:

1. **The Arrangement in the Form of an Exchange of Notes between the Government of Canada and the Government of the United States of America.** This allows for the suppression of fire occurring within the border region of both countries (defined as 10 miles on each side of the border) as well as a process for requesting and ordering resources for support of fires outside the border region.
2. **The Wildfire Protection Agreement Between the Department of Agriculture and the Department of the Interior and the Secretariat of Environment, Natural Resources, and Fisheries of the United Mexican States for the Common Border.** This allows for the suppression of fire occurring within the border region of both countries (defined as 10 miles on each side of the border). Support for fires outside this border area must be submitted through the auspices of the Office of Foreign Disaster Assistance (OFDA).
3. **The Wildfire Arrangement Between the Department of the Interior and the Department of Agriculture of the United States of America and the Australian Participating States.** This allows for the

exchange of personnel on a case by case basis as the need may arise and forces are depleted in the ordering nation.

4. **The Wildfire Arrangement Between the Department of the Interior and the Department of Agriculture of the United States of America and the new Zealand Participation Agencies.** This allows for the exchange of personnel on a case by case basis as the need may arise and forces are depleted in the ordering nation.
5. **Several Regional/Local unit agreements and Operating Plans exist along both borders.** These documents define the actual process for resource exchange and support and are tiered from the National Operating Plan.

### ***FY 12 International Assistance and interaction***

Through the National Interagency Coordination Center, Canada provided five air tankers and three aerial supervision modules ("Bird Dogs") from British Columbia, Alberta and Saskatchewan (including two liaison officers). The first aircraft were mobilized between June 6 and June 12 from British Columbia and Saskatchewan. Another air tanker and Bird Dog were mobilized July 9 from Alberta. These aircraft flew missions in many western states. The last aircraft were released back to Canada July 12 due to increasing fire activity in that country.

National Operating Plans associated with International Agreement/Arrangements were reviewed, updated, and approved prior to the FY 2012 fire season.

An effort to revise the existing US / Mexico national agreement is ongoing and is in the final draft process of completion.

### ***North American Forest Commission – Fire Management Working Group meeting***

During the week of November 26, 2012 the US Forest Service hosted the 50<sup>th</sup> anniversary meeting of the North American Forest Commission – Fire Management Working Group at the Angeles National Forest Supervisor's headquarters in Arcadia, California. The meeting was attended by representatives of the Mexico National Forestry Commission (CONAFOR), Mexico National Protected

Areas Commission (CONANP), and the Mexican Nature Conservation Fund (FMCN); the Canadian Forest Service (CFS), Canadian Interagency Forest Fire Centre (CIFFC) and the Nova Scotia Department of Natural Resources; South Australia Department of Environment and Natural Resources; the US Department of Interior Office of Wildland Fire and the National Association of State Foresters (Florida Forest Service and Texas Forest Service).

Key topics of discussion were the 2009 Station Fire on the Angeles National Forest, the San Dimas Technology and Develop Center fire program, the 2011 Texas wildfires and updating the bilateral wildfire arrangements.

The next meeting of the North American Forest Commission – Fire Management Working Group will be hosted by Mexico in 2013.

### **Wildland Fire support to the National Response Framework**



The Forest Service hosted the 50th anniversary meeting of the North American Forest Commission--Fire Management Working Group at the Angeles National Forest Supervisor's headquarters in Arcadia, California. These meetings result in relationships being formed which lay the foundation for current bi-lateral arrangements.

### ***Emergency Support Function #4, Firefighting***

Hurricane Sandy was the largest Atlantic Ocean hurricane on record with a peak strength of 110 mph

winds (Category 2) and a diameter over 1,000 miles. A total of 24 U.S. states were in some way affected by Hurricane Sandy. The hurricane caused billions of dollars in damage in the United States, destroyed thousands of homes, left millions without electric service, and killed over a hundred and twenty people.

At the peak of the incident, over 8 million people were without power. More than 50,000 remained without power two weeks after the storm. Many of the power outages were due to downed power lines caused by falling trees.

More than 1200 wildland firefighting personnel were mobilized, including:

- 43 twenty-person fire crews from 17 states
- 10 Incident Management Teams (IMTs)
- 30 liaisons with the Federal Emergency Management Agency (under the National Response Framework)

Although our firefighters are most well known for their wildland firefighting, fire crews have skills applicable to all types of emergencies and have significant experience with hurricane response. A key mission was clearing roads to provide first responder access for search and rescue and other emergency response missions. Providing access is also the essential element in allowing power companies to restore electricity and for the delivery of life-sustaining commodities and supplies to occur.

Additionally, our IMTs operated mobilization centers, managed staging areas, coordinated emergency response, and supported local and state Emergency Operations Centers.

## Section VIII: Performance Measures

### Forest Service

Table 8. Forest Service Strategic Plan

Numeric Designation (if appropriate)	Measure	2012 Actual <sup>7</sup> (Nearest thousand)	2012 Target (if applicable)
1.1a	Number and percentage of acres treated to restore fire-adapted ecosystems that are (1) moved toward desired conditions and (2) maintained in desired conditions.	<b>493.0; 31 percent</b> <b>784.0; 39 percent</b>	<b>640.0; 40 percent</b> <b>800.0; 50 percent</b>
1.1b	Number of acres brought into stewardship contracts	<b>134.0</b>	<b>300.0</b>
1.2	Percentage of fires not contained on initial attack that exceed the stratified cost index	<b>24 percent</b>	<b>14 percent</b>
1.3	Percentage of acres treated in the WUI that have been identified in community wildfire protection plans (CWPPs) or equivalent plans.	<b>93 percent</b>	<b>75 percent</b>

Table 9. USDA Strategic Plan

Numeric Designation (If appropriate)	Measure	2012 Actual	2012 Target (if applicable)
2.1.1	Annual acres of public and private forest lands restored or enhanced <sup>8</sup>	<b>4,425.0</b>	<b>3,992.0</b>
2.4.1	Number of communities with reduced risk from catastrophic wildfire	<b>4.0</b>	<b>13.0</b>
2.4.2	Cumulative number of acres in the National Forest System that are in desired condition relative to fire regime	<b>59,468.0</b>	<b>60,089.0</b>
2.4.3	Percentage of acres treated in the WUI that have been identified in CWPPs or equivalent plans	<b>93 percent</b>	<b>75 percent</b>

<sup>7</sup> Figures throughout are rounded to the nearest thousand

<sup>8</sup> Fire and Aviation Management contributes to this response

Table 10. Program Assessment

Numeric designation (if appropriate)	Measure	2012 Actual	2012 Target (if applicable)
	Percentage of total National Forest System land base for which fire risk is reduced through movement to a better condition class.	<b>3.06 percent</b>	<b>n/a</b>
	Percent of fires not contained in initial attack that exceed Stratified Cost Index.	<b>24 percent</b>	<b>14 percent</b>
	Number of acres maintained and improved by treatment category (prescribed fire, mechanical, and wildland fire use <sup>9</sup> ) and of those improved the percent that change condition class.	<b>1,277.0</b> <b>31.1 percent</b>	<b>n/a</b>
	Percent change from the 10-year average for (1) number of wildfires controlled during initial attack and (2) number of human caused wildfires.	<b>-1.2 percent</b> <b>-21.5 percent</b>	<b>0.5 percent</b> <b>-2.0 percent</b>
	Total acres treated in the Wildland Urban Interface (WUI) and non-WUI and also acres treated for other vegetation management activities that achieved fire objectives as a secondary benefit.	<b>2,618.0</b>	<b>1,600.0</b>
	Number of acres restored and maintained per million dollars gross investment.	<b>4.0</b>	<b>3.0</b>
	Acres moved to a better condition class per mission dollars gross investment.	<b>1.0</b>	<b>1.0</b>

<sup>9</sup> With the change in the implementation of the Federal Wildland Fire Management Policy, the agencies no longer use the term “wildland fire use.” There are now two kinds of fire only—planned and unplanned. Accomplishments from those unplanned ignitions where assessments have shown hazardous fuel reduction and fire effects are in alignment with Land and Resource Management Plans (LMRP) Desired Conditions are now recorded where the agency previously recorded “wildland fire use.”

Table 11. 10-Year Comprehensive Strategy Implementation Plan (Updated December 2006)

Measure	2012 Actual	2012 Target (if applicable)
Percent change from 10-year average for (a) percent of wildfires controlled during initial attack and (b) number of unwanted human-caused wildfires.	<b>-1.2 percent</b>	<b>0.5 percent</b>
	<b>-21.5 percent</b>	<b>-2.0 percent</b>
Percent of fires not contained in initial attack that exceed the Stratified Cost Index (SCI).	<b>24 percent</b>	<b>14 percent</b>
Number of acres treated per million dollars gross investment in WUI and non-WUI areas.	<b>4.0</b>	<b>n/a</b>
Percent of collaboratively identified high priority acres treated where fire management objectives are achieved as identified in applicable management plans or strategies.	<b>59.5 percent</b>	<b>n/a</b>
Number and percent of acres treated, through collaboration consistent with this Implementation Plan, identified by treatment category (i.e., prescribed fire, mechanical, and wildland fire use <sup>8</sup> ).	<b>Rx Fire: 1,230.6</b> <b>Mechanical:</b> <b>662.5</b> <b>Fire Use: 141.3</b>	<b>n/a</b>
Number and percent of acres treated to restore fire-adapted ecosystems which are: (1) moved toward desired conditions and (2) maintained in desired conditions.	<b>493.0;</b>	<b>640.0;</b>
	<b>31 percent</b>	<b>40 percent</b>
	<b>783.6;</b>	<b>800.0;</b>
	<b>39 percent</b>	<b>50 percent</b>
Number of burned acres identified in approved post-wildfire recovery plans as needing treatments that actually receive treatments	<b>131.0</b>	<b>n/a</b>
Percent of burned acres treated for post-wildfire recovery that are trending toward desired conditions	<b>95 percent</b>	<b>n/a</b>
Number and percent of communities-at-risk covered by a CWPP or equivalent that are reducing their risk from wildland fire. A community is at reduced risk if it has satisfied at least one of the following requirements: (1) recognized as a Firewise community or equivalent; (2) enacted a mitigation/fire prevention ordinance; or (3) high priority hazardous fuels identified in CWPP or equivalent are reduced or appropriate fuel levels on such lands are maintained in accordance with a plan.	<b>4.0</b>	<b>n/a</b>
	<b>5.5 percent</b>	
Percent of at risk communities who report increased load suppression capacity as evidenced by (1) the increasing number of trained and/or certified firefighters and crews; (2) upgraded or new fire suppression equipment obtained; or (3) formation of a new department involved in wildland firefighting.	<b>17.3 percent</b>	<b>n/a</b>

Table 12. 10-Year Comprehensive Strategy Implementation Plan (updated December 2006)

Numeric Designation (if appropriate)	Measure	2012 Actual	2012 Target (if applicable)
	Number of green tons and/or volume of woody biomass from hazardous fuel reduction and restoration treatments on federal land that are made available for utilization through permits, contracts, grants, agreements, or equivalent.	<b>Green Tons (1,000) 2813</b>  <b>Board Feet/CCF (1,000) 932</b>	n/a
		<i>(Green tons are as reported in TIM from all FS sources, not just those identified as fuels treatment).</i>	

Table 13. Forest Service National Measures Set

Numeric designation (if appropriate)	Measure	2012 Actual	2012 Target (if applicable)
	Acres of hazardous fuels treated outside the WUI to reduce the risk of catastrophic wildland fire.	<b>751.3</b>	n/a
	Acres of WUI high-priority hazardous fuels treated to reduce the risk of catastrophic wildland fire.	<b>1,867.2</b>	<b>1,200.0</b>
	Three-year percent of fires not contained in initial attack that exceed the SCI	<b>28.2 percent</b>	<b>24 percent</b>
	Number of communities receiving firefighting capacity building State Fire Assistance (SFA)	<b>16.6</b>	<b>12.4</b>
	Number of small communities receiving firefighting capacity building Volunteer Fire Assistance (VFA)	<b>10.2</b>	<b>8.4</b>

## Department of the Interior

Table 14. Goal Performance Table / Goal #4: Manage the Impact of Wildland Fire

Supporting Performance Measures	Type	2009 Actual	2010 Actual	2011 Actual	2012 Enacted
<b>Strategy #1 Establish fire-adapted communities</b>					
Percent of acres treated which are moved toward the desired condition class (SP and BUR)	A	85 percent (1,282.1/ 1,500.9)	75 percent (961.4/ 1,279.8)	71 percent (702.7/ 992.3)	67 percent (673.2/ 1,000.5)
Percent of acres treated which are maintained in desired condition class (SP and BUR)	A	14 percent (207.4/ 1,501.0)	18 percent (236.5/ 1,279.8)	23 percent (229.4/ 992.3)	26 percent (262.6/ 1,000.5)
<b>Strategy #2: Adapt communities to wildfires.</b>					
Percent of acres treated which achieve fire management objectives as identified in applicable management plans (SP and BUR)	A	99 percent (1,489.4/ 1,500,854)	94 percent (1,197.8/ 1,279,820)	99 percent (985.0/ 992,257)	94 percent (935.8/ 1,000.5)
<b>Strategy #3: Respond to wildfires</b>					
Percent of unplanned and unwanted wildland fires on Department of the Interior land controlled during initial attack (SP)	A	99 percent (6.1/ 6.2)	98 percent (5.7/ 5.8)	97 percent (6.5/ 6.7)	97 percent (8.1/ 8.4)
<b>Other Significant Fire Program Measures</b>					
Number of high-priority acres treated in the WUI	A	758.6	696.5	705.3	734.0

Table 15. Supporting Performance Measures

Supporting Performance Measures	Type	2009 Actual	2010 Actual	2011 Actual	2012 Enacted
Number of acres in fire regimes 1, 2, or 3 moved to a better condition class (WUI and non-WUI)	A	WUI 173.9	WUI 174.3	WUI 169.0	WUI 231.8
		Non-WUI 194.9	Non-WUI 141.6	Non-WUI 65.6	Non-WUI 102.3
		Total 368.7	Total 316.0	Total 234.6	Total 334.1
Number of acres in fire regimes 1, 2, 3, moved to a better condition class per million dollars of gross investment (WUI and non-WUI)	A	WUI 1.2	WUI .734	WUI .922	WUI .571
		Non-WUI 2.6	Non-WUI .568	Non-WUI .358	Non-WUI .18
		Total 1.7	Total 1.3	Total 1.3	Total .75
Number of acres in fire regimes 1, 2, or 3 moved to a better condition class as a percent of total acres treated (WUI and non-WUI). This is also a long-term measure.	A	WUI 23%	WUI 20%	WUI 17%	WUI 23%
		Non-WUI 26%	Non-WUI 17%	Non-WUI 7%	Non-WUI 10%
		Total 25%	Total 30%	Total 24%	Total 33%
Percentage of all fires not contained in initial attack that exceed a SCI (BUR)	A	13%	18%	9%	9%
Percent change from the 10-year average in the number of acres burned by unplanned, unwanted wildland fires on Interior lands (BUR)	A	80% (2,081.3/ 2,593.1)	-41% (884.4/ 2,179.0)	-38% (861.9/ 2,285.8)	-37% (865.7/ 2,321.1)
Number of treated WUI acres that are identified in CWPPS or other applicable collaboratively developed plans (BUR)	A	525.1	594.4	660.7	725.2
Percent of treated WUI acres that are identified in CWPPS or other applicable collaboratively developed plans	A	69% (525.1/ 758.6)	85% (594.4/ 696.5)	94% (660.7/ 705.3)	99% (725.2/ 733.9)
Number of acres in the WUI treated per million dollars gross investment (BUR)	A	758.6/ \$139.64M = 5.4	696.5/ \$127M = 5.5	705.3/ \$164.98M = 4.3	733.9/ \$132.340M = 5.5
Number of treated burned acres that achieve the desired condition (BUR)	A	1,216.6	1,054.0	1,037.7	1,798.8
Percent of treated burned acres that have achieved desired condition (BUR)	A	99% (1,216.6/ 1,222.4)	95% (2,053.9/ 1,110.8)	97% (1,054.0/ 1,111.0)	88% (1,037.7/ 2,035.3)
Percent of DOI and USDA acres in good condition (defined as condition class 1)	F	UNK	UNK	UNK	TBD

**Target Codes**

SP = Strategic Plan Measure; BUR = Fire Program Specific Measure; HPG = High Performance Goal; NA = Long-term Targets Inappropriate to Determine at this time; UNK = Prior Data Not Available

**Type Codes**

C = Cumulative Measure; A = Annual Measure; and F = Future Measure

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## Section IX: Directives and Reviews

### Office of Inspector General and Government Accountability Office Reviews and Recommendations

#### Forest Service

During FY 2012, Fire and Aviation Management (FAM) was involved in a number of external audits or reviews of the wildland fire management program.

Several audits were concluded during prior fiscal years, and FAM continued working hard to implement their recommendations during FY 2012.

- OIG 08601-54-SF, “Firefighting Succession Planning Process”
- GAO-09-68, “Wildland Fire Management: Interagency Budget Tool Needs Further Development to Fully Meet Key Objectives”

Two audits concluded in FY 12, and FAM immediately began implementing the recommendations:

- GAO-12-73, “Arizona Border Region: Federal Agencies Could Better Utilize Law Enforcement Resources in Support of Wildland Fire Management Activities”
- GAO-12-155, “Station Fire: Forest Service’s Response Offers Potential Lessons for Future Wildland Fire Management”

Others were initiated during the fiscal year, and FAM employees responded to auditors’ requests for information. Begun in FY 2012 were:

- OIG 08601-0002-41, “Firefighting Cost Share Agreements”
- GAO-13-250R, “FEMA Reservists: Training Could Benefit from Examination of Practices at Other Agencies,” and
- GAO Job #361438, “Number and Type of Firefighting Aircraft.”

#### Department of the Interior

The following recommendations from report ER-EVMOA-0012-2009, “Wildland Urban Interface Community Assistance,” remain open:

- Recommendation #2: Strengthen the interagency NFPORS WUI community assistance module, including issuance of comprehensive guidelines for users, defined project activity elements, and performance monitoring and tracking tools.
  - The OWF is currently preparing a memo seeking relief from this recommendation based on the current, unresolved status of the HFR program.
- Recommendation 3: Establish consistent WUI community assistance grant policies and guidance addressing program objectives and performance measures.
  - The OWF is currently preparing a memo seeking relief from this recommendation based on the current, unresolved status of the HFR program.
- Recommendation 4: Establish a national methodology for sharing educational and outreach products developed through WUI community assistance grants.
  - The OWF is currently preparing a memo seeking relief from this recommendation based on the current, unresolved status of the HFR program.

The Department of the Interior’s Wildland Fire Management program has two Government Accountability Office (GAO) audits with open recommendations:

- GAO-09-068, “Wildland Fire Interagency Budget Tool Needs Further Department to Fully Meet Key Objectives;” and
- GAO-12-73, “Arizona Border: Federal Agencies Could Better Utilize Law Enforcement Resources in Support of Wildland Fire Management Activities.”

On GAO-09-068, three recommendations remain open. Recommendation #4, “to increase Congress’ and the agencies understanding of the strengths and limitations of FPA—including the extent to which it achieves the key objectives envisioned by the 2001 report—and to fulfill one of the original objectives established for FPA, the Secretaries of Agriculture and Interior should direct the agencies to submit the FPA model to external peer review. This review should be initiated as soon as FPA is complete enough to allow for a thorough review, but no later than November 2009, so that the results can inform decisions about how FPA may be improved and the extent to which additional funding should be provided to the project,” was completed in March 2012 after the Department of the Interior and the Forest Service contracted with Booz-Allen Hamilton to conduct an independent, external business process and technical review of FPA. Recommendations 1 through 3 remain open with the OWF re-evaluating the approach to meeting these recommendations.

All recommendations for GAO-12-73 have been completed.