



# Federal Funding for Wildfire Control and Management

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## Summary

The Forest Service (FS) and the Department of the Interior (DOI) are responsible for protecting most federal lands from wildfires. Wildfire appropriations nearly doubled in FY2001, following a severe fire season in the summer of 2000, and have remained at substantially higher levels. The acres burned annually have also increased over the past 50 years, with the six highest totals in the past decade. Many in Congress are concerned that wildfire costs are spiraling upward without a reduction in damages. With emergency supplemental funding, FY2008 wildfire funding was \$4.46 billion, more than in any previous year.

The vast majority (about 95%) of federal wildfire funds are spent to protect federal lands—for fire preparedness (for equipment, baseline personnel, and training); fire suppression operations (including emergency funding); post-fire rehabilitation (to help sites recover after the wildfire); and fuel reduction (to reduce wildfire damages by reducing fuel levels). Since FY2001, FS fire appropriations have included funds for state fire assistance, volunteer fire assistance, and forest health management (to supplement other funds for these three programs), economic action and community assistance, fire research, and fire facilities.

Four issues have dominated wildfire funding debates. One is the high cost of fire management and its effects on other agency programs. Several studies have recommended actions to try to control wildfire costs, and the agencies have taken various steps, but it is unclear whether these actions will be sufficient. Borrowing to pay wildfire suppression costs has affected other agency programs. The Federal Land Assistance, Management, and Enhancement (FLAME) Act was enacted in P.L. 111-88 to insulate other agency programs from high wildfire suppression costs by creating a separate funding structure for emergency supplemental wildfire suppression efforts.

Another issue is funding for fuel reduction. Funding and acres treated rose (roughly doubling) between FY2000 and FY2003, and have stabilized since. Currently about 3 million acres are treated annually. However, 75 million acres of federal land are at high risk, and another 156 million acres are at moderate risk, of ecological damage from catastrophic wildfire. Since many ecosystems need to be treated on a 10-35 year cycle (depending on the ecosystem), current treatment rates are insufficient to address the problem.

A third issue is the federal role in protecting nonfederal lands, communities, and private structures. In 1994, federal firefighting resources were apparently used to protect private residences at a cost to federal lands and resources in one severe fire. A federal policy review recommended increased state and local efforts to match their responsibilities, but federal programs to protect nonfederal lands have also expanded, reducing incentives for local participation in fire protection.

Finally, post-fire rehabilitation is raising concerns. Agency regulations and legislation in the 109<sup>th</sup> Congress focused on expediting such activities, but opponents expressed concerns that this would restrict environmental review of and public involvement in salvage logging decisions, leading to greater environmental damage. Legislation was introduced but not enacted in the 110<sup>th</sup> Congress to provide alternative means of addressing post-fire restoration in particular areas. The Collaborative Forest Landscape Restoration Act was enacted in P.L. 111-11 to provide a collaborative, long-term, large-scale strategy for post-fire and other restoration.

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Severe fire seasons in the past decade have prompted substantial debate and proposals related to fire protection programs and funding. President Clinton proposed a new National Fire Plan in 2000 to increase funding to protect federal, state, and private lands; Congress largely enacted this request. The severe 2002 fire season led President Bush to propose a Healthy Forests Initiative to expedite fuel reduction on federal lands. In 2003, Congress enacted the Healthy Forests Restoration Act to expedite fuel reduction on federal lands and to authorize other forest protection programs. In 2009, Congress enacted the Federal Land Assistance, Management, and Enhancement (FLAME) Act to insulate other agency programs from high wildfire suppression costs.

Wildfire funding has continued at relatively high levels since 2000, and now constitutes a substantial and growing portion of land management agency budgets. Severe fire seasons seem to have become more common since 2000. (See **Figure 1**.) Total wildfire funding for FY2008 was a record high of \$4.46 billion. The high and rising costs of firefighting continue to attract attention.

#### Fire Seasons and Fiscal Years

Wildfire data can be confusing because fire seasons and fiscal years rarely match. Fire seasons begin in spring and may run through November. Emergency funding is often enacted after the fire season is nearly complete. Thus, wildfire control funding is commonly high in the fiscal year following a severe fire season. The severe 2000 fire season, for example, led to much higher appropriations for wildfire in FY2001.

This report briefly describes the three categories of federal programs for wildfire protection. One is to protect the federal lands managed by the U.S. Department of Agriculture, Forest Service (FS), and by the U.S. Department of the Interior (DOI), whose wildfire programs traditionally were funded through the Bureau of Land Management (BLM) but are now a department-wide funding item. A second category assists state and local governments and communities in protecting nonfederal lands; these programs are used to reduce wildland fuels, to otherwise prepare for fire control, to contain and control wildfires, and to respond after severe wildfires have burned. A third category of federal programs supports fire research, fire facilities, and improvements in forest health. The last section of this report discusses issues associated with the high and rising wildfire costs, including pending legislation.

## Background

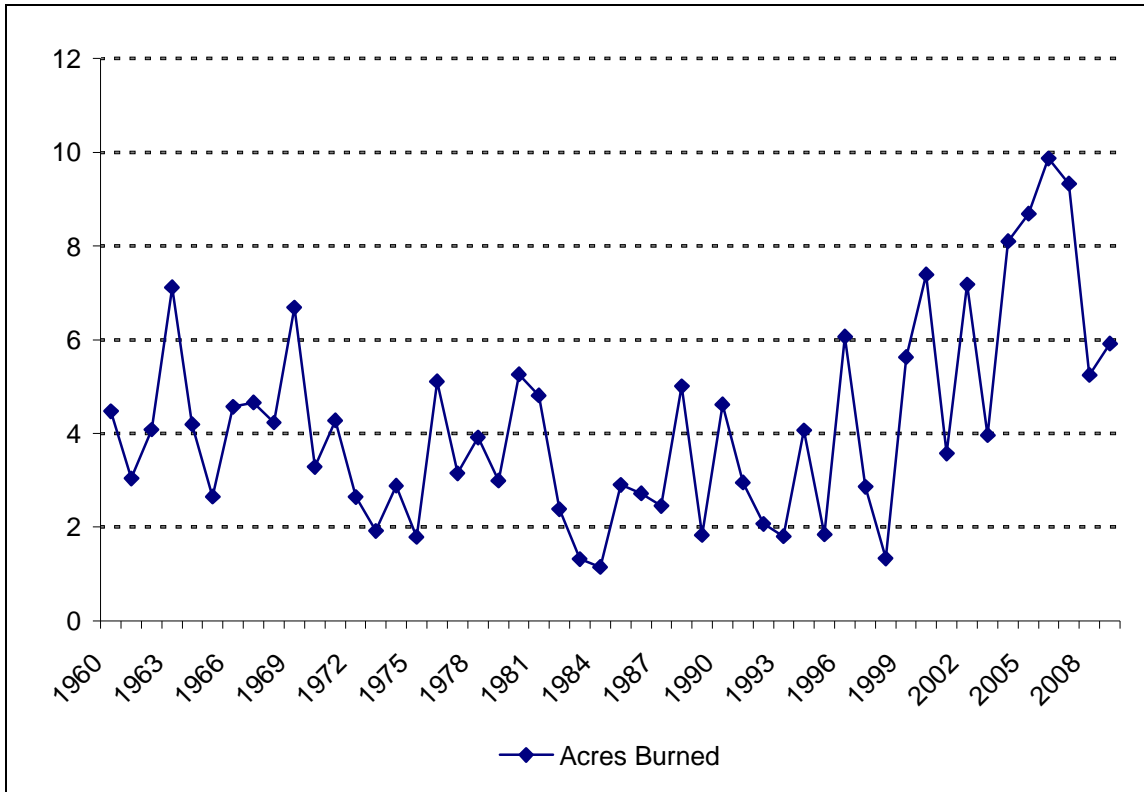
The FS was created in 1905 with the merger of the USDA Bureau of Forestry (which conducted research and provided technical assistance to states and private landowners) and the Forestry Division of the General Land Office (a predecessor of the BLM). An early focus was on halting wildfires in the national forests following several large fires that burned nearly 5 million acres in Montana and Idaho in 1910.<sup>1</sup> Efforts to control wildfires were founded on a belief that fast, aggressive control was efficient, because fires that were stopped while small would not become the large, destructive conflagrations that are so expensive to control. The goals were to protect human lives, then private property, then natural resources. In 1926, the agency developed its *10-acre policy*—that all wildfires should be controlled before they reached 10 acres in size—clearly aimed at keeping wildfires small.<sup>2</sup> Then in 1935, the FS added its *10:00 a.m. policy*—that, for

<sup>1</sup> Stephen J. Pyne, “Keynote Address,” in *The Fires Next Time: Transcript* (Boise, ID: Andrus Center for Public Policy, 2001), pp. 2-7.

<sup>2</sup> See Julie K. Gorte and Ross W. Gorte, *Application of Economic Techniques to Fire Management—A Status Review and Evaluation*, Gen. Tech. Rept. INT-53 (Ogden, UT: USDA Forest Service, June 1979).

fires exceeding 10 acres, efforts should focus on control before the next burning period began (at 10:00 a.m.). Under the 10:00 a.m. policy, the goal in suppressing large fires is to gain control during the relatively cool and calm conditions of night and early morning, rather than spending major efforts during the heat of the day.

**Figure 1. Acres Burned Annually**  
(millions of acres)



**Source:** National Interagency Fire Center, at [http://www.nifc.gov/fire\\_info/fires\\_acres.htm](http://www.nifc.gov/fire_info/fires_acres.htm). Note that data for 1983-1991 have been revised downward.

**Note:** Data are shown in the **Appendix**.

In the 1970s, these aggressive FS fire control policies began to be questioned. Research had documented that, in some situations, wildfires brought ecological benefits to the burned areas—aiding regeneration of native flora, improving the habitat of native fauna, and reducing infestations of pests and of exotic and invasive species. The Office of Management and Budget challenged as excessive proposed budget increases based on FS policies and a subsequent study suggested that the fire control policies would increase expenditures beyond efficient levels.<sup>3</sup>

Following the 1988 fires in Yellowstone, concerns were raised about unnaturally high fuel loads leading to catastrophic fires and spiraling suppression costs. Congress established the National Commission on Wildfire Disasters, whose 1994 report described a situation of dangerously high

<sup>3</sup> Stephen J. Pyne, *Fire In America: A Cultural History of Wildland and Rural Fire* (Princeton NJ: Princeton University Press, 1982), pp. 293-294.

fuel accumulations.<sup>4</sup> The summer of 1994 was another severe fire season, leading to more calls for action to prevent future severe fire seasons. In addition to the concerns about fuel loads, concerns were voiced that federal firefighting resources on a fire in Washington in 1994 had been diverted from protecting federal lands and resources to protecting nearby private residences and communities.<sup>5</sup> The Clinton Administration directed a review of federal fire policy, and the agencies released the new *Federal Wildland Fire Management Policy & Program Review: Final Report* in December 1995. The report recommended altering federal fire policy from priority for private property to equal priority for private property and federal resources, based on values at risk. (Protecting human life is the first priority in firefighting.) The recommended change became effective after the report was accepted by the Secretaries of Agriculture and the Interior.

Concerns about wildfire threats persist. In 1999, the General Accounting Office (GAO) issued two reports recommending a cohesive wildfire protection strategy for the FS and a combined strategy for the FS and BLM to address certain firefighting weaknesses.<sup>6</sup> GAO reiterated the need for a cohesive strategy in 2009.<sup>7</sup> To address the severe 2000 fire season, the Clinton Administration developed the National Fire Plan and a supplemental budget request. Congress enacted this additional funding in the FY2001 Interior appropriations act, and has since largely maintained the higher funding. (See **Figure 2** and **Table A-2**.) During the severe 2002 fire season, the Bush Administration developed the Healthy Forests Initiative to expedite fuel reduction projects in priority areas through administrative and legislative changes. Some elements of the initiative have been addressed through regulatory changes; others were addressed in the Healthy Forests Restoration Act of 2003 (P.L. 108-148). (For information on regulatory and legislative developments on wildfire protection, see CRS Report R40237, *Federal Lands Managed by the Bureau of Land Management (BLM) and the Forest Service (FS): Issues for the 111<sup>th</sup> Congress*, coordinated by Ross W. Gorte and Carol Hardy Vincent.)

## Funding Levels

Wildfire management appropriations have been rising over the past 15 years, as shown in **Figure 2**. The tables below present data on funding for the three categories of federal fire programs—protection of federal lands (**Table 1** and **Table 2**); assistance for protection of nonfederal lands (**Table 3** and **Table 4**); and other fire-related expenditures (**Table 3** and **Table 4**). The FS and DOI use three fire appropriation accounts—preparedness, suppression operations, and other operations—to fund most federal fire programs. However, the agencies include different activities in the accounts (e.g., the BLM historically included fire research and fire facility funding in the preparedness account), and the accounts change over time (e.g., the agencies split operations

<sup>4</sup> R. Neil Sampson, chair, *Report of the National Commission on Wildfire Disasters* (Washington, DC: 1994).

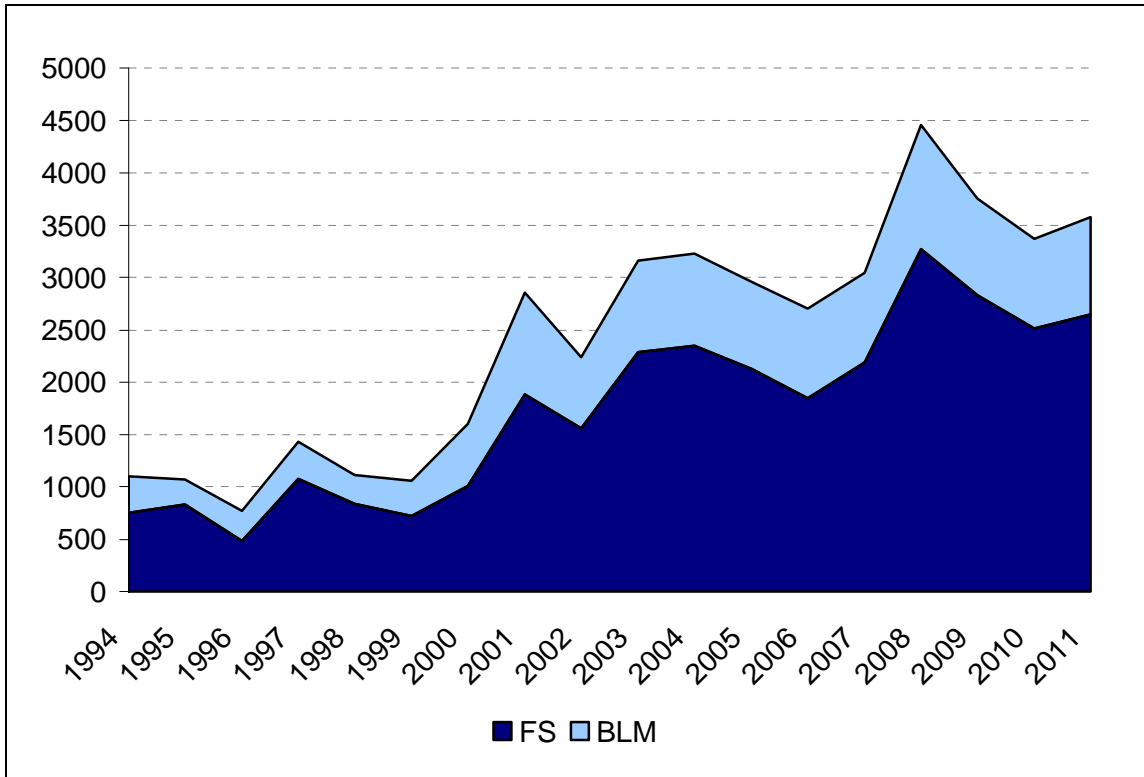
<sup>5</sup> Bob Armstrong, Assistant Secretary for Lands and Minerals Management, U.S. Dept. of the Interior, “Statement,” *Fire Policy and Related Forest Health Issues*, joint oversight hearing, House Committees on Resources and on Agriculture, October 4, 1994 (Washington, DC: U.S. GPO, 1995), p. 9. Serials No. 103-119 (Committee on Resources) and 103-82 (Committee on Agriculture).

<sup>6</sup> U.S. General Accounting Office (now the Government Accountability Office), *Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threats*, GAO/RCED-99-65 (Washington, DC: April 1999); and *Federal Wildfire Activities: Current Strategy and Issues Needing Attention*, GAO/RCED-99-233 (Washington, DC: August 1999). Hereafter cited as GAO, *Cohesive Strategy Needed*.

<sup>7</sup> U.S. Government Accountability Office, *Wildland Fire Management: Federal Agencies Have Taken Important Steps Forward, but Additional, Strategic Action is Needed to Capitalize on Those Steps*, GAO-09-877, September 9, 2009, <http://www.gao.gov/new.items/d09877.pdf>.

funding into suppression and other operations in 2001). Thus, the data, taken from the agency budget justifications for the National Fire Plan, have been rearranged for the tables in this report to present consistent data and trends on the three categories of federal wildfire programs since 1999.

**Figure 2. Wildland Fire Management Appropriations, 1994-2011**  
(millions of dollars)



**Source:** FS, DOI, and BLM annual budget justifications.

**Note:** Data are shown in the **Appendix**.

## Federal Lands

Many wildfire management funds are used to protect federal lands. **Table 1** shows historic wildfire management appropriations for FY1999-FY2007; more recent data are shown in **Table 2**. The data in these tables exclude funding for the other two categories of federal wildfire funding—assistance to state and local governments, communities, and private landowners; and other fire-related activities (research, fire facility maintenance, forest health improvement, etc.). The BLM included funds for fire research and fire facilities under its preparedness budget line item through FY2004; these funds have been excluded from **Table 1**. The tables show appropriations by fiscal year, with emergency funding identified for the year in which it was provided, rather than in the year it was spent. The agencies traditionally were authorized to borrow from other accounts for fire suppression, and emergency funds generally repay these borrowings. The tables show that total federal land fire management appropriations rose substantially in FY2001 and have since remained relatively high, with fluctuations generally depending on the severity of the fire season in the preceding calendar year.



**Table I. Historic Wildfire Funding to Protect Federal Lands, FY1999-FY2007**  
(\$ in millions)

	<b>FY1999</b>	<b>FY2000</b>	<b>FY2001</b>	<b>FY2002</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY2005</b>	<b>FY2006</b>	<b>FY2007</b>
<b>Forest Service</b>	<b>722.4</b>	<b>1,008.0</b>	<b>1,702.4</b>	<b>1,415.6</b>	<b>2,162.7</b>	<b>2,233.2</b>	<b>2,026.2</b>	<b>1,737.2</b>	<b>2,074.3</b>
<i>Preparedness</i>	374.8	408.8	611.1	622.6	612.0	671.6	676.5	660.7	655.4
<i>Suppression</i>	180.6	139.2	319.3	255.3	418.0	597.1	648.9	690.2	741.5
<i>Emergency Funds<sup>a</sup></i>	102.0	390.0	425.1	266.0	889.0	699.2	395.5	100.0	370.0
<i>Site Rehabilitation</i>	0.0	0.0	141.7	62.7	7.1	6.9	12.8	6.2	6.2
<i>Fuel Reduction</i>	65.0	70.0	205.2	209.0	236.6	258.3	292.5	280.1	301.3
<b>BLM</b>	<b>327.9</b>	<b>577.7</b>	<b>929.1</b>	<b>640.6</b>	<b>845.0</b>	<b>853.6</b>	<b>801.3</b>	<b>831.8</b>	<b>841.6</b>
<i>Preparedness<sup>b</sup></i>	147.9	152.6	276.7	253.0	255.2	254.2	258.9	268.8	274.8
<i>Suppression</i>	96.2	158.1	153.1	127.4	159.3	192.9	218.4	230.7	249.2
<i>Emergency Funds<sup>a</sup></i>	50.0	200.0	199.6	54.0	225.0	198.4	98.6	100.0	95.0
<i>Site Rehabilitation</i>	0.0 <sup>c</sup>	20.0	104.8	20.0	19.9	24.2	23.9	24.1	22.8
<i>Fuel Reduction</i>	33.8 <sup>d</sup>	47.0	195.0	186.2	185.6	183.9	201.4	208.1	199.8
<b>Total</b>	<b>1,050.3</b>	<b>1,585.6</b>	<b>2,631.5</b>	<b>2,056.3</b>	<b>3,007.6</b>	<b>3,086.8</b>	<b>2,827.5</b>	<b>2,569.0</b>	<b>2,915.9</b>
<i>Preparedness</i>	522.7	561.3	887.9	875.7	867.2	925.8	935.4	929.5	930.2
<i>Suppression</i>	276.8	297.3	472.4	382.7	577.3	790.0	867.3	920.9	990.7
<i>Emergency Funds<sup>a</sup></i>	152.0	590.0	624.6	320.0	1,114.0	897.6	494.1	200.0	465.0
<i>Site Rehabilitation</i>	0.0	20.0	246.6	82.7	26.9	31.1	36.8	30.3	29.0
<i>Fuel Reduction</i>	98.8	117.0	400.1	395.2	422.3	442.2	493.9	488.2	501.0

**Source:** Annual agency budget justifications.

- Excludes emergency funds provided for other specified activities, such as site rehabilitation, fuel reduction, or state assistance.
- Excludes joint fire science research and facilities funding enacted within the BLM preparedness account through FY2004
- Unidentified amount included in suppression funding.
- Calculated at 26% of wildfire operations (see page IV-36 of the FY2001 BLM budget justification).

**Table 2. Recent Wildfire Funding to Protect Federal Lands, FY2008-Present**  
(\$ in millions)

	<b>FY2008 Actual</b>	<b>FY2009 Omnibus<sup>a</sup></b>	<b>ARRA<sup>b</sup></b>	<b>FY2009 Total</b>	<b>FY2010 Enacted</b>	<b>FY2011 Request</b>
<b>Forest Service</b>	<b>3,003.4</b>	<b>2,203.5</b>	<b>250.0</b>	<b>2,453.5</b>	<b>2,367.4<sup>c</sup></b>	<b>2,509.7</b>
Preparedness	690.8	675.0		675.0	675.0	1,008.2
Suppression	845.6	993.9		993.9	997.5	595.0
Emergency Funds <sup>a</sup>	932.0	0.0		200.0	413.0	573.0
Site Rehabilitation	110.8	11.5		11.5	11.6	9.0
Fuel Reduction <sup>d</sup>	410.1	334.6	250.0 <sup>f</sup>	584.6	345.3	324.4
<b>DOI</b>	<b>1,174.1</b>	<b>890.3</b>	<b>15.0</b>	<b>905.3</b>	<b>836.8<sup>c</sup></b>	<b>921.8</b>
Preparedness	276.5	281.8		281.8	290.5	282.7
Suppression	289.8	335.2		335.2	383.8	288.0
Emergency Funds <sup>a</sup>	343.0	50.0		50.0	61.0	171.0
Site Rehabilitation	55.2	20.3		20.3	20.3	18.1
Fuel Reduction	209.6	203.1	15.0	218.1	206.2	162.1
<b>Total</b>	<b>4,177.5</b>	<b>3,093.8</b>	<b>265.0</b>	<b>3,358.8</b>	<b>3,442.6</b>	<b>3,431.5</b>
Preparedness	967.3	956.8		956.8	965.5	1,290.9
Suppression	1,135.4	1,329.1		1,329.1	1,381.3	883.0
Emergency Funds <sup>a</sup>	1,275.0	250.0		250.0	494.0	744.0
Site Rehabilitation	166.0	31.8		31.8	31.9	27.1
Fuel Reduction	619.7	526.1	265.0	791.1	551.5	486.5

**Source:** Annual agency budget justifications and conference agreements on P.L. 110-116, P.L. 110-161, P.L. 110-329, P.L. 111-5, P.L. 111-8, and P.L. 111-88.

- a. Includes funding in P.L. 111-32 as well as in P.L. 111-8.
- b. The American Recovery and Reinvestment Act of 2009, P.L. 111-5.
- c. Reflects savings of \$75.0 million from FS use of prior-year funds and \$125.0 million from BLM use of prior-year funds.
- d. Excludes funds used for biomass grants (\$5.0 million annually, FY2009-FY2011), Community Wood Energy Program (\$5.0 million in FY2011), and Forest Biomass for Energy Program (\$15.0 million in FY2011). These funds could be used for energy from federal land biomass, but could also be used for energy from nonfederal land biomass. Thus, the funds are listed below under assistance programs.
- e. Excludes emergency funds provided for other specified activities, such as site rehabilitation, fuel reduction, or state assistance.
- f. Excludes \$250.0 million in funds for state assistance; funds may also be used for site rehabilitation and for forest health protection.

## Preparedness

Fire preparedness appropriations provide funding for fire prevention and detection as well as for equipment, training, and baseline personnel. Preparedness funding rose substantially (58%) in FY2001 from the prior year, with DOI funding rising more (81%) than FS funding (49%). In FY2004, preparedness funding rose by a lesser amount (7%), with the rise entirely in FS

preparedness. (DOI preparedness funding declined slightly.) Funding was relatively stable for FY2004 through FY2010. However, for FY2011, the budget request proposed a substantial (\$333.2 million, 49%) increase in FS preparedness, and a modest (\$7.8 million, 3%) decline in DOI preparedness. The budget overview notes that the increase in FS preparedness (and roughly comparable decline in suppression funding) was a realignment of various preparedness costs that had been shifted to the suppression account over the previous six fiscal years.

## **Suppression and Emergency Funds**

Funds for fighting wildfires—appropriations for fire suppression and supplemental, contingency, or emergency funds—have fluctuated widely over the past decade, from less than \$430 million in FY1999 to \$2.41 billion in FY2008. Some of the variation results from differences in the severity of the fire season in the preceding year, particularly for supplemental and emergency funding. Such fluctuations have long been part of the agencies' funding, with total appropriations in FY1997 double the FY1996 levels owing to a severe season in the summer of 1996. Appropriations for fire suppression rose steadily and sharply for both agencies from FY2002 through FY2008, then stabilized through FY2010. The FY2011 budget request proposed substantial reduction in suppression appropriations—down \$402.5 million (40%) for FS fire suppression and \$95.8 million (25%) for DOI fire suppression. However, this was offset by proposed increases in supplemental, contingency, and emergency funds.

Title V of the FY2010 Interior, Environment, and Related Agencies Appropriations Act (P.L. 111-88) was the Federal Land Assistance, Management, and Enhancement (FLAME) Act. This title established FLAME Wildfire Suppression Reserve Accounts for the FS and DOI, to be funded from annual appropriations. The FLAME funds can be used if the Secretary declares that (1) an individual wildfire covers at least 300 acres or threatens lives, property, or resources, or (2) cumulative wildfire suppression and emergency response costs will exceed, within 30 days, appropriations for wildfire suppression and emergency responses. The FY2010 act also included \$413.0 million for the FS FLAME fund and \$61 million for the DOI FLAME fund. For FY2011, the budget request included \$291.0 million for the FS FLAME fund and \$96.0 million for the DOI FLAME fund. In addition, the FY2011 budget request proposed new Presidential Wildland Fire Contingency Reserve Funds for the FS and DOI. These contingency accounts would be available in long and/or severe fire seasons that depleted the suppression appropriations and FLAME accounts. The budget requested \$282.0 million for the new FS account and \$75.0 million for the new DOI account.

The sum total of these three accounts for wildfire suppression for FY2011 was less than the total funds available for wildfire suppression in FY2010. For the FS, the request totaled \$1.17 billion (\$595.0 million in the suppression account, \$291.0 million in the FLAME fund, and \$282.0 million in the contingency reserve); this is \$242.5 million (17%) less than the FY2010 funding total of \$1.41 billion. For DOI, the request totaled \$459.0 million (\$288.0 million in the suppression account, \$96.0 million in the FLAME fund, and \$75.0 million in the contingency reserve); this is \$14.2 million (3%) more than the FY2010 funding total of \$444.8 million.

## **Post-Fire Rehabilitation**

Wildfire appropriations for rehabilitating burned areas have been relatively stable, except in a few fiscal years. Most wildfire site rehabilitation funds have been to the BLM for treating burned DOI lands. Except for the fivefold increase for FY2001 and the doubling in FY2008, DOI site

rehabilitation funds generally have ranged between \$20.0 and \$25.0 million annually since FY2000. The FS generally receives few wildfire funds for site rehabilitation (none prior to FY2001), and instead uses funds appropriated to other accounts, such as watershed improvement and vegetation management. However, the FS was appropriated \$141.7 million of wildfire funds for site rehabilitation in FY2001, \$62.7 million in FY2002, and \$110.8 million in FY2008 (including \$100.0 million in emergency supplemental funding). These three years account for 89% of FS wildfire appropriations for site rehabilitation in the past decade. For FY2011, proposed FS site rehabilitation funding was \$9.0 million, down \$2.6 million (22%) from FY2010; proposed DOI site rehabilitation funding was \$18.1 million, down \$2.2 million (11%) from FY2010.

### **Fuel Reduction<sup>8</sup>**

Fuel reduction funding is intended to protect lands and resources from wildfire damages by lowering the fuel loads on federal lands, and thus making the fires less intense and more controllable. Total fuel reduction funding more than tripled in FY2001. Fuel reduction funding rose slowly from FY2001 through FY2007. Funding rose substantially (24%) in FY2008 and again in FY2009 (another 28%), owing to funding in the economic stimulus, P.L. 111-5 (the American Recovery and Reinvestment Act of 2009). For FY2010, the appropriations declined substantially, but were still 11% above FY2007 appropriations. Further declines were proposed for FY2011—3% for the FS and 21% for DOI. Thus, the FY2011 fuel reduction funding was proposed to decline to slightly below the FY2005-FY2007 appropriations.

Some FS fuel reduction funds have been used and proposed for wood energy programs. For FY2009-FY2011, \$5.0 million annually was used for biomass grants. In FY2010, \$10.0 million was used for the Collaborative Forest Landscape Restoration Fund, to be used in large part to restore national forest landscapes through fuel reduction, and thus included in the fuel reduction funding in **Table 1**. (The FY2011 budget request proposed \$40.0 million for this program within the National Forest System.) For FY2011, the budget proposed \$5.0 million for the Community Wood Energy Program and \$15.0 million for the Forest Biomass to Energy Program; these two programs were established in the 2008 farm bill (P.L. 110-246). These programs can contribute to fuel reduction for the national forests, since they provide markets for the fuels to be removed. However, they are not limited to woody biomass from national forests, and no allocation of funding between fuels from national forests and biomass from nonfederal lands is specified. Thus, these programs are included below, under assistance for nonfederal lands.

### **Assistance for Nonfederal Lands**

States are responsible for fire protection of nonfederal lands, except for lands protected by the federal agencies under cooperative agreements. The federal government, primarily through the FS, has a group of wildfire programs to provide assistance to states, local governments, and communities to protect nonfederal (both government and private) lands from wildfire damages.

Most FS fire assistance programs are funded under the agency's State and Private Forestry (S&PF) branch.<sup>9</sup> State fire assistance includes financial and technical help for fire prevention, fire

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<sup>8</sup> See CRS Report R40811, *Wildfire Fuels and Fuel Reduction*, by Ross W. Gorte.

<sup>9</sup> For more details on these programs, see CRS Report RL31065, *Forestry Assistance Programs*, by Ross W. Gorte.

control, and prescribed fire use by state foresters, and through them, to other agencies and organizations. In cooperation with the General Services Administration (GSA), the FS is encouraged to transfer “excess personal property” (equipment) from federal agencies to state and local firefighting forces. The FS also provides assistance directly to volunteer fire departments. Since FY2001, fire assistance funding also has come through wildfire appropriations. The economic stimulus legislation, P.L. 111-5, contained wildfire funds for state and private forestry activities, including fuel reduction, forest health improvement activities (discussed under “Other Fire Funding,” below), and wood energy grants. In addition, the 2002 farm bill (P.L. 107-171) created a new community fire protection program, authorizing the FS to assist communities in protecting themselves from wildfires and to act on nonfederal lands (with the consent of landowners) to assist in protecting structures and communities from wildfires. The 2008 farm bill (P.L. 110-246) created two biomass energy grant programs—the Community Wood Energy Program and the Forest Biomass for Energy Program. These subsidies may stimulate markets for fuel removed from nonfederal lands for wildfire protection.

Wildfire funds have also been provided for economic assistance. For three years (FY2001-FY2003), FS wildfire appropriations were added to the S&PF Economic Action Program (EAP) for training and for loans to existing or new ventures to help local economies. In addition, in FY2001, the FS received fire funds to directly aid communities recovering from the severe fires in 2000. The BLM has received funding to assist rural areas affected by wildfires.

Total assistance funds for protecting nonfederal lands increased substantially in FY2001, from \$27.2 million (all FS S&PF funds) to \$148.5 million. Funding dropped about 20% in FY2002 (to \$117.5 million) and fluctuated widely (as much as 35% annually) through FY2007. Funding nearly tripled in FY2008, and jumped again (up another 42%) in FY2009. In FY2010, funding fell substantially (63%), to below the FY2001 level. Proposed FY2011 funding was reduced further, by \$9.0 million (7%). Funding for assistance programs is shown in **Table 3** and **Table 4**.

Wildfire funds for assistance programs were enacted initially in FY2001, and have been maintained for FS state and volunteer assistance programs. For FY2008, some of the emergency funds provided for FS fuel reduction (in P.L. 110-116 and in P.L. 110-329) were directed to fuel reduction on nonfederal lands; these funds have been included in state fire assistance in **Table 4**, and excluded from **Table 2**. FS funding for state fire assistance more than quadrupled in FY2008, and rose another 50% in FY2009, with funding in the economic stimulus. Funding declined substantially (74%) in FY2010 and was proposed to decline further (29%) in FY2011, but was still above the FY2007 funding.

FS community assistance to aid communities affected by fires in the summer of 2000 was a one-time appropriation, and FS EAP funds from wildfire appropriations were enacted for only three years. Appropriations for BLM rural assistance were provided annually since FY2001, except for FY2007. However, the Administration proposed terminating this funding for FY2011.

In contrast, funding for FS biomass energy programs has grown. Funding was \$5.0 million in FY2009 and FY2010, and proposed to rise to \$25.0 million in FY2011. The growth in funding reflects interest in fuel reduction, particularly on federal lands for wildfire protection, combined with the desire to produce renewable energy and transportation fuels. While some renewable and bioenergy programs allow biomass fuels from federal lands, others restrict such use.<sup>10</sup>

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<sup>10</sup> See CRS Report R40529, *Biomass: Comparison of Definitions in Legislation*, by Kelsi Bracmort and Ross W. Gorte.

**Table 3. Historic Federal Funding to Assist in Protecting Nonfederal Lands and for Other Purposes, FY1999-FY2007**

(\$ in millions; includes emergency appropriations)

	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
FS, Wildfire Mgt.	0.0	0.0	108.5	77.1	79.4	59.2	48.1	53.6	54.0
<i>State Fire Assistance</i>	0.0	0.0	52.9	56.4	66.3	51.1	40.2	45.8	46.2
<i>Volunteer Fire Asst.</i>	0.0	0.0	8.3	8.3	8.2	8.1	7.9	7.8	7.8
<i>Economic Action</i>	0.0	0.0	12.5	12.5	5.0	0.0	0.0	0.0	0.0
<i>Community Asst.</i>	0.0	0.0	34.9	0.0	0.0	0.0	0.0	0.0	0.0
BLM Rural Assistance	0.0	0.0	10.0	10.0	9.9	9.9	9.9	9.9	0.0
<b>Total Wildfire Funds</b>	<b>0.0</b>	<b>0.0</b>	<b>118.5</b>	<b>87.1</b>	<b>89.3</b>	<b>69.1</b>	<b>58.9</b>	<b>63.4</b>	<b>54.0</b>
Forest Service, S&PF	22.9	27.2	29.9	30.4	30.5	63.3	38.8	38.8	38.8
<i>State Fire Assistance</i>	20.9	23.9	24.9	25.3	25.5	58.2	32.9	32.9	32.9
<i>Volunteer Fire Asst.</i>	2.0	3.2	5.0	5.1	5.0	5.0	5.9	5.9	5.9
<b>Total Assistance for Nonfederal Lands</b>	<b>22.9</b>	<b>27.2</b>	<b>148.5</b>	<b>117.5</b>	<b>119.8</b>	<b>132.4</b>	<b>97.8</b>	<b>102.2</b>	<b>92.8</b>
FS, Wildfire Mgt.	0.0	0.0	71.8	67.6	47.9	54.6	54.3	55.3	55.3
<i>Joint Fire Science</i>	0.0	0.0	0.0	8.0	7.9	7.9	7.9	7.9	7.9
<i>Fire research</i>	0.0	0.0	16.0	27.3	21.3	22.0	21.7	22.8	22.8
<i>Fire facilities</i>	0.0	0.0	43.9	20.4	1.8	0.0	0.0	0.0	0.0
<i>Forest health</i>	0.0	0.0	12.0	12.0	16.8	24.7	24.7	24.6	24.6
BLM	9.0	13.3	38.0	27.8	20.2	20.1	20.1	13.6	11.7
<i>Joint Fire Science</i>	4.0	4.0	8.0	8.0	7.9	7.9	7.9	5.9	4.0
<i>Fire facilities</i>	5.0	9.3	30.0	19.8	12.3	12.2	12.2	7.7	7.7
<b>Total Wildfire Funds for Other Purposes</b>	<b>9.0</b>	<b>13.3</b>	<b>109.8</b>	<b>95.4</b>	<b>68.1</b>	<b>74.7</b>	<b>74.4</b>	<b>68.9</b>	<b>67.0</b>

Source: Annual agency budget justifications.

**Table 4. Recent Federal Funding to Assist in Protecting Nonfederal Lands and for Other Purposes, FY2008-Present**

(\$ in millions)

	<b>FY2008 Actual</b>	<b>FY2009 Omnibus</b>	<b>ARRA<sup>a</sup></b>	<b>FY2009 Total</b>	<b>FY2010 Enacted</b>	<b>FY2011 Request</b>
FS, Wildfire Mgt.	210.8	64.0	250.0	314.0	80.3	82.1
State Fire Assistance	203.0	55.0	200.0	305.0	71.3	50.1
Volunteer Fire Asst.	7.9	9.0	0.0	9.0	9.0	7.0
Biomass Energy Programs	0.0	5.0	50.0	5.0	5.0	25.0
BLM Rural Assistance	5.9	7.0	0.0	7.0	7.0	0.0
<b>Total Wildfire Funds</b>	<b>216.7</b>	<b>71.0</b>	<b>250.0</b>	<b>321.0</b>	<b>87.3</b>	<b>82.1</b>
Forest Service, S&PF	38.5	41.0	0.0	41.0	46.1	42.3
State Fire Assistance	32.6	35.0	0.0	35.0	39.1	35.3
Volunteer Fire Asst.	5.9	6.0	0.0	6.0	7.0	7.0
<b>Total Assistance for Nonfederal Lands</b>	<b>255.3</b>	<b>112.0</b>	<b>250.0</b>	<b>362.1</b>	<b>133.4</b>	<b>124.4</b>
FS, Wildfire Mgt.	69.3	59.1	0.0	59.1	63.9	53.5
Joint Fire Science	7.9	8.0	0.0	8.0	8.0	8.0
Fire research	23.5	23.9	0.0	23.9	23.9	24.1
Fire facilities	14.0	0.0	0.0	0.0	0.0	0.0
Forest health	23.9	27.2	0.0	27.2	32.2	21.5
BLM	12.0	12.1	0.0	12.1	12.1	12.1
Joint Fire Science	5.9	6.0	0.0	6.0	6.0	6.0
Fire facilities	6.1	6.1	0.0	6.1	6.1	6.1
<b>Total Wildfire Funds for Other Purposes</b>	<b>81.3</b>	<b>71.2</b>	<b>0.0</b>	<b>71.2</b>	<b>76.0</b>	<b>65.7</b>

**Source:** Annual agency budget justifications and conference agreements on P.L. 110-116, P.L. 110-161, P.L. 110-329, P.L. 111-5, P.L. 111-8, and P.L. 111-88.

a. The American Recovery and Reinvestment Act of 2009, P.L. 111-5.

## Other Fire Funding

Wildfire appropriations are also provided for several other activities, including wildfire research, construction and maintenance of fire facilities, and forest health management, as shown in **Table 3** and **Table 4**. Wildfire funds for fire research have been enacted for both DOI and the FS for the Joint Fire Science program. For FY2011, the request matched the FY2009 and FY2010 appropriations—\$8.0 million for the FS and \$6.0 million for DOI. The FS also has been appropriated wildfire funds for fire plan research and development, beginning in FY2001 and averaging about \$22 million annually; for FY2011, the request included \$24.1 million, \$143,000 (0.6%) above FY2010 funding. These funds supplement monies for wildfire research in the FS research account.

Both DOI and the FS have received funds to improve deteriorating fire facilities. The BLM long used a portion of its fire preparedness funds for “deferred maintenance and capital improvements” (i.e., for fire facilities), but the level fluctuated. The FY2011 request matched the FY2009 and FY2010 appropriations of \$6.1 million. FS wildfire funds for fire facilities declined after the initial \$43.9 million in FY2001 and ended in FY2004, except for \$14.0 million of emergency funds in FY2009. The FS also builds and maintains fire facilities with its capital construction and maintenance account, but the portion used for fire facilities is unknown.

Finally, the FS has received wildfire funds for forest health management. This S&PF program focuses on assessing and controlling insect and disease infestations on federal and cooperative (i.e., nonfederal) lands, but includes efforts to control invasive species. In FY2001 and FY2002, the FS received nearly \$12 million annually in wildfire funds for forest health management. Appropriations rose to nearly \$25 million in FY2004, and have remained near that level. For FY2010, appropriations rose to \$32.2 million of wildfire funding for forest health management, \$5.0 million (18%) above the FY2009 level and \$8.3 million (35%) above the FY2008 level. (The S&PF funding for forest health management increased slightly.) For FY2011, the budget request proposed less funding—a decline of \$10.7 million (33%).

## **Fire Funding Issues**

Four issues related to wildfire funding have arisen in the last few years. The one receiving the most congressional attention is the high cost of wildfire management and its effect on other aspects of federal land management. Another issue is the level of fire protection funding to reduce fuel loads on federal lands. A third, related issue is the federal role in fire protection of nonfederal lands and structures, and the funding of the relevant federal activities. During the 109th Congress, a fourth issue was raised, about post-fire rehabilitation.

## **Wildfire Management Costs**

Federal costs for wildfire management are substantially higher than they were in the 1990s, as shown in Figure 2. Federal wildfire appropriations averaged \$1.1 billion for FY1994-FY1999, and ranged from \$772 million to \$1.4 billion. For FY2004-FY2009, federal wildfire appropriations averaged \$3.4 billion—more than three times above the FY1994-FY1999 average—and ranged from \$2.7 billion to \$4.5 billion. (The data are not adjusted for inflation.) Furthermore, the higher costs seem to be continuing, since FY2008 and FY2009 had the highest wildfire funding in history, followed by the FY2010 appropriations to date (most of the 2010 fire season is still ahead) and the FY2011 request.

Management costs have risen in response to increasingly severe wildfire seasons, as shown in Figure 1. The average acreage burned was 3.32 million acres annually for 1990-1999 and 6.93 million acres annually for 2000-2009.<sup>11</sup> The four biggest fire seasons of the past 50 years—2004, 2005, 2006, and 2007—have occurred in the past six years. The threat of severe wildfires and the costs of fire protection have grown because many forests have unnaturally high amounts of

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<sup>11</sup> Acreage burned is a common measure to assess fire season severity, but larger fires are not necessarily “worse” if they burn less intensely, because their damages may be lower. However, fire intensity and damages are not measured consistently, and thus cannot be used to gauge the severity of a fire season. It is unknown whether acreage burned might provide a reasonable approximation of fire season severity.



biomass to fuel the fires (discussed further below). Increased costs have also been attributed to the increasing numbers of homes and people in and near forests—the wildland-urban interface.<sup>12</sup> As more people and valuable homes are exposed to wildfire threats, the costs to suppress wildfires to protect those people and houses rises substantially.

Wildfire management has also become relatively more important for the agencies. In addition to the absolute rise in wildfire management costs, a greater share of discretionary appropriations have been spent on wildfire management in recent years. For FY1993-FY2000, wildfire management appropriations were 25% of discretionary appropriations for the FS, ranging from 16% in FY1993 to 30% in FY1997.<sup>13</sup> However, since FY2003, wildfire management funding has averaged 47% of discretionary FS appropriations, ranging from 42% in FY2006 to 56% in FY2008. Concerns have focused on the continued high costs of wildfire management, especially of fire suppression expenditures, and on the indirect effects of those high costs on other agency management programs.

## **Continued High Costs**

Numerous organizations have examined wildfire suppression costs and made recommendations to the agencies for how to contain those costs.<sup>14</sup> These reports present three general conclusions: (1) a fair share of wildfire suppression be paid by state and/or local governments; (2) more, better, and better-focused fuel reduction efforts (discussed below); and (3) better accountability for cost control.

Several reports have noted that wildfire suppression cost-share agreements are inconsistent and inequitable, and that cost apportionment and responsibilities among the various levels of government are unclear. This has led to increasing reliance by homeowners and local governments on federal fire protection, despite the relatively clear direction in the 1995 federal fire policy review to increase local responsibility for wildfire protection and suppression for nonfederal lands and structures.<sup>15</sup> The reports note that significant local cost responsibility is necessary to give incentives to homeowners and local governments to take actions to protect themselves, and that without such incentives, federal costs will continue to escalate.

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<sup>12</sup> See CRS Report RS21880, *Wildfire Protection in the Wildland-Urban Interface*, by Ross W. Gorte.

<sup>13</sup> CRS calculations from data in the annual FS budget justifications.

<sup>14</sup> The organizations' reports include U.S. General Accounting Office (now Government Accountability Office), *Western National Forests: A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threats*, GAO/RCED-99-65 (Washington, DC: April 1999), 60 p.; U.S. GAO, *Wildland Fire Management: Lack of a Cohesive Strategy Hinders Agencies' Cost-Containment Efforts*, GAO-07-427T (Washington, DC: January 30, 2007), 13 p.; and more than a dozen other GAO reports; National Academy on Public Administration, *Wildfire Suppression: Strategies for Containing Costs* (Washington, DC: September 2002), 2 volumes; Strategic Issues Panel on Fire Suppression Cost, *Large Fire Suppression Costs: Strategies for Cost Management, A Report to the Wildland Fire Leadership Council* (August 26, 2004), available at <http://www.forestsandrangelands.gov/reports/documents/2004/costmanagement.pdf>; and U.S. Dept. of Agriculture, Office of Inspector General, Western Region, *Audit Report: Forest Service Large Fire Suppression Costs*, Rept. No. 08601-44-SF (November 2006), 47 p.

<sup>15</sup> U.S. Dept. of the Interior and Dept. of Agriculture, *Federal Wildland Fire Management Policy & Program Review: Final Report* (Washington, DC: December 18, 1995).

The reports also discussed the need for better cost control and accountability. Most have noted the inconsistent cost tracking and the weak measures of the benefits of fire suppression efforts. GAO noted:<sup>16</sup>

the agencies need to establish clear goals, strategies, and performance measures to help contain wildland fire costs. Although the agencies have taken certain steps to help contain wildland fire costs, the effectiveness of these steps may be limited because agencies have not established clear cost containment goals for the wildland fire program, including how containing costs should be considered in relation to other wildland fire program goals such as protecting lives, resources, and property; strategies to achieve these goals; or effective performance measures to track their progress.

Another part of cost control and accountability is integrating wildfire management in land and resource planning and in budgeting. One aspect of this integration is maintaining local capacity for initial attack on new wildfires. Most of the reports assert that, without that local capacity, new fires could grow into additional conflagrations if resources are too focused on suppressing current large fires. However, the very high cost of implementing this vision (essentially the 10-acre policy of the 1920s) and lack of evidence of the benefits led the agencies to abandon this approach for wildfire planning in the 1970s.

This leads to questions about the effectiveness of fire suppression. The Strategic Issues Panel noted that the high cost of large fires was the result of the “unwillingness to take greater risks, unwillingness to recognize that suppression techniques are sometimes futile, the ‘free’ nature of wildland fire suppression funding, and public and political expectations.”<sup>17</sup> FS policy results in fire managers generally not being held accountable for “excess” spending on fire control or for fire damages if they clearly put forth valiant efforts to control the conflagration. However, they are blamed for fire damages if the fire control efforts are seen as insufficient—too few people, too little equipment, not enough air tanker drops, or similar problems. The Strategic Issues Panel recommended better fire cost data and “a benefit cost measure as the core measure of suppression cost effectiveness.”<sup>18</sup>

### **Indirect Effects on Agency Programs**

Wildfire suppression appropriations—including emergency supplemental funding—exceeded \$1 billion for the first time in FY2001, and have remained above \$1 billion annually since FY2003, exceeding \$2.4 billion in FY2008. Furthermore, wildfire suppression expenditures have exceeded agency appropriations annually for more than a decade. How can an agency spend more than its appropriations? In most situations, it can’t. However, provisions in the annual Interior appropriations acts authorized DOI and the FS to borrow unobligated funds from other accounts for emergency firefighting. This, in effect, was an open-ended reprogramming authority.

Historically, the authority to borrow funds from other accounts was not a significant problem. The FS has several mandatory spending accounts, funded primarily from timber receipts; prior to 1990, several of these accounts had substantial running balances. One, the Knutson-Vandenberg (K-V) Fund, was particularly useful, since it had a running balance of about \$500 million (about

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<sup>16</sup> Senate ENR, *Hearing on Wildfire Suppression Costs*, p. 15.

<sup>17</sup> *Large Fire Suppression Costs: Strategies for Cost Management*, p. 6.

<sup>18</sup> *Large Fire Suppression Costs: Strategies for Cost Management*, p. 33.

three years of spending).<sup>19</sup> Firefighting funds could be borrowed from the K-V Fund (or other accounts), and repaid later with regular or supplemental appropriations, without a significant effect on agency activities, such as reforestation. The decline in timber sales since 1990 has led to a comparable decline in K-V (and other mandatory spending account) balances, and thus the FS has had to turn to other accounts to borrow funds to pay for firefighting.

Another reason why the borrowing authority was not a problem historically is that, prior to FY2000, there were more discretionary funds to borrow. As noted above, FY1993-FY2000 wildfire management appropriations averaged 25% of discretionary FS appropriations for the FS, leaving significant funds in other accounts to borrow from. (This is less of an issue for DOI, since it can borrow from any DOI accounts.) However, since FY2001, fire management expenditures have averaged 47% of discretionary FS appropriations, and totaled 56% of FS discretionary appropriations in FY2008. Thus, there are relatively fewer funds available to borrow, and borrowing to pay for firefighting is having a relatively greater effect on those other accounts. Various interests have increasingly expressed concerns about the effects of firefighting borrowing on the agencies' abilities to implement other programs.

Legislation has been introduced to address the situation.<sup>20</sup> Freestanding bills in the 110<sup>th</sup> and 111<sup>th</sup> Congresses sought to establish a separate fund for major wildfire suppression efforts. One, the Federal Land Assistance, Management and Enhancement (FLAME) Act, was enacted in Title V of P.L. 111-88. It established separate FLAME Wildfire Suppression Reserve Funds for the FS and DOI, to be funded from annual appropriations. The FLAME funds can be used if the Secretary declares that (1) an individual wildfire covers at least 300 acres or threatens lives, property, or resources, or (2) cumulative wildfire suppression and emergency response costs will exceed, within 30 days, appropriations for wildfire suppression and emergency responses. It also directs the Secretaries to report annually on use of the funds, and to report on estimated suppression costs periodically through the year. The funds terminate if there have been no appropriations to or withdrawals from the accounts for three consecutive fiscal years. In addition, the FLAME Act requires the agencies to prepare a "cohesive wildland fire management strategy" as recommended by the GAO, and to revise the cohesive strategy at least every five years.<sup>21</sup>

The FLAME funds effectively insulate federal land and resource management programs from the financial impacts of borrowing to pay for wildfire suppression efforts. However, they do not reduce the effects of lost resource management time when agency personnel are assigned to wildfire suppression efforts. In addition, this approach offers no incentives to fire managers to reduce or constrain the costs of fire-fighting efforts, and thus is unlikely to reduce wildfire suppression costs.

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<sup>19</sup> The Act of June 9, 1930 (16 U.S.C. §§576-576b) authorizes the FS to require deposits from timber purchasers to cover the cost of reforestation, timber stand improvement, and other resource mitigation and enhancement of timber sale areas. See CRS Report RL30335, *Federal Land Management Agencies' Permanently Appropriated Accounts*, by Ross W. Gorte, Carol Hardy Vincent, and M. Lynne Corn.

<sup>20</sup> For the status of pending legislation, see CRS Report R40237, *Federal Lands Managed by the Bureau of Land Management (BLM) and the Forest Service (FS): Issues for the 111<sup>th</sup> Congress*, coordinated by Ross W. Gorte and Carol Hardy Vincent.

<sup>21</sup> As enacted in P.L. 111-88, the FLAME Act did not include two provisions of H.R. 1404 and S. 561: (1) to report on each wildfire costing more than \$10 million, and (2) to authorize grants and cost-sharing agreements for "fire-ready communities" that have taken identified steps to reduce their risk from wildfires.

## Fuel Reduction Funding<sup>22</sup>

Since 1990, recognition of unnaturally high fuel loads of dead trees, dense understories of trees and other vegetation, and non-native species has spurred interest in fuel management activities. This substantial fuel accumulation has been attributed to various causes: past land management practices (through grazing and logging that altered the vegetation); successful historic fire suppression (by reducing surface fires that burned small-diameter fuels); decreased logging (by reducing removals of burnable materials); climate change (by exacerbating drought and insect and disease infestations and raising ambient air temperatures); and other factors that affect the ecological health of forests.<sup>23</sup> **Table 5** shows the acreage, by ownership class, of lands at low, moderate, and high risk of significant ecological damage from wildfire due to high fuel loads.

**Table 5. Lands At Risk of Ecological Damage from Wildfire Due to Excessive Fuel Levels**  
(millions of acres)

Landowner	Total Acreage	Low Risk	Moderate Risk	High Risk
Forest Service	196.52	64.95	80.45	51.12
Dept. of the Interior	227.72	128.42	75.83	23.47
Other federal, state, & private lands	825.01	404.60	313.54	107.18
<b>Total</b>	<b>1,249.25</b>	<b>597.97</b>	<b>469.82</b>	<b>181.77</b>

**Source:** Kirsten M. Schmidt et al., *Development of Coarse-Scale Spatial Data for Wildland Fire and Fuel Management*, Gen. Tech. Rept. RMRS-87 (Fort Collins, CO: USDA Forest Service, April 2002), pp. 13-15.

## Fuel Reduction Efforts

Fuel reduction efforts, as discussed above, are commonly proposed as a means of reducing wildfire suppression costs. Fuel management is a collection of activities—primarily prescribed burning and thinning—intended to reduce the threat of significant damages by wildfires. Fuel treatment acreage has increased since the mid-1990s. (Earlier data are not reported comparably.) **Table 6** shows that the acreage treated from FY1995 to FY2004 increased by 400%. However, treatment acreage fell in FY2005 and again in FY2006, and has not been proposed to return to the FY2004 level. Data on treatments since FY2007 are not included in **Table 6**, because the FS and BLM have revised their reporting systems to include acreage of *wildland fire use* (natural wildfires that are allowed to burn within the prescriptions of fire plans) as fuel treatments; previous data did not include wildland fire use acreage.

**Table 6. Total Acreage of Fuel Treatment, FY1995-FY2008**  
(thousands of acres)

	FY1995	FY1996	FY1997	FY1998	FY1999	FY2000	FY2001
FS	541.3	599.5	1,097.7	1,489.3	1,280.0	772.0	1,361.7
BLM	57.0	298.0	474.0	632.0	827.8	1,020.0	728.1
<b>Total</b>	<b>598.3</b>	<b>897.5</b>	<b>1,571.6</b>	<b>2,121.3</b>	<b>2,107.8</b>	<b>1,792.0</b>	<b>2,089.8</b>

<sup>22</sup> See CRS Report R40811, *Wildfire Fuels and Fuel Reduction*, by Ross W. Gorte.

<sup>23</sup> See CRS Report RL30755, *Forest Fire/Wildfire Protection*, by Ross W. Gorte.

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007 Planned	FY2008 Proposed
FS	1,257.9	1,453.3	1,803.8	1,663.9	1,454.7	1,750.0	1,800.0
BLM	1,059.0	1,258.8	1,205.9	1,269.4	1,106.1	1,055.0	1,061.0
<b>Total</b>	<b>2,316.9</b>	<b>2,712.2</b>	<b>3,064.7</b>	<b>2,933.3</b>	<b>2,560.8</b>	<b>2,805.0</b>	<b>2,861.0</b>

**Source:** Annual agency budget justifications. The agencies no longer report fuel treatment on the same basis, and thus actual treatments since FY2007 cannot be shown.

Fuel reduction may have increased in FY2008 and FY2009, as funding (including under the economic stimulus legislation) continued to rise. (See **Table 1** and **Table 2**.) However, the annual fuel treatment acreage appears to have stabilized at less than 3 million acres annually. At this average treatment level, it would take nearly 25 years to treat the FS and DOI lands at high risk of ecological damage from wildfire, and another 52 years to treat the lands at moderate risk. Furthermore, the FY2010 appropriations for fuel reduction were below the FY2008 and FY2009 levels, and the FY2011 budget request is lower than any funding level since FY2004.

Funding might not be the only limiting factor for fuel treatment. Increasing fuel reduction activities was one of the primary rationales for enacting the Healthy Forests Restoration Act of 2000 (HFRA; P.L. 108-148). Many observers described the need for expeditious action to reduce fuel loads and fuel ladders,<sup>24</sup> and the difficulties in achieving expeditious action because of the environmental documentation and public participation required by the National Environmental Policy Act of 1969 (NEPA; P.L. 91-190, 42 U.S.C. §§4321-4347). HFRA established an expedited process for environmental review and public involvement in fuel reduction activities. In addition, the FS and BLM established *categorical exclusions* from NEPA for hazardous fuel reduction activities. (These authorities are discussed further under “Post-Fire Rehabilitation” below.) It is unclear how much fuel reduction has occurred under either of these authorities. Some oppose expedited actions with limited public oversight, fearing the potential for commercial harvests of large trees (which might provide little or no wildfire protection) and the associated road construction disguised as fuel reduction.

Others have suggested focusing fuel treatment in the wildland-urban interface (WUI). The proportion of fuel treatments in the WUI has increased since FY2001 (the first year for which such data are available), from 37% (45% for the FS, 22% for DOI) to about 60% from FY2003 to FY2006 (73% for the FS, 42% for DOI), and 70% in FY2008 (83% for the FS, 47% for DOI). Nonetheless, GAO testified that the agencies still needed to:<sup>25</sup>

[d]evelop a cohesive strategy that identifies the options and associated funding to reduce fuels and address wildland fire problems.... In 2005 and 2006, because the agencies had not yet developed one, GAO reiterated the need for such a strategy but broadened its focus to better address the interrelated nature of fuel reduction efforts and wildland fire response.

The presumption behind fuel treatment is that lower fuel loads and a lack of fuel ladders will reduce the extent of wildfires, the damages they cause, and the cost of controlling them. Numerous on-the-ground anecdotes support this belief. However, little empirical research has

<sup>24</sup> A *fuel ladder* is a stand structure with continuous fuels, in the form of tall grasses and forbs, shrubs, and low branches, between the ground and the tree crowns that allow surface fires to spread upward.

<sup>25</sup> U.S. Congress, Senate Energy and Natural Resources, *Cost of Wildfire Suppression*, 110<sup>th</sup> Cong., 1<sup>st</sup> sess., January 30, 2007, S.Hrg. 110-11 (Washington: GPO, 2007), pp. 16-17.

documented this presumption. As noted in one research study, “scant information exists on fuel treatment efficacy for reducing wild-fire severity.”<sup>26</sup> This study also found that “fuel treatments moderate extreme fire behavior within treated areas, at least in” frequent fire ecosystems. Others have found different results elsewhere; one study reported “no evidence that prescribed burning in these [southern California] brushlands provides any resource benefit ... in this crown-fire ecosystem.”<sup>27</sup> A recent summary of wildfire research reported that, although prescribed burning generally reduced fire severity, mechanical fuel reduction did not consistently reduce fire severity, and that limited research had examined the potential impacts of mechanical fuel reduction with prescribed burning or of commercial logging.<sup>28</sup> Thus, it is unclear whether, or to what extent, increasing fuel treatment funding and efforts will protect communities and ecosystems from damaging wildfires.

## **Biomass Fuels for Energy**

Some have suggested combining the need to reduce potentially hazardous biomass fuels from the forest with the desire to produce renewable energy. Biomass can be used to produce liquid transportation fuels (e.g., ethanol) or to produce heat and electricity (most commonly through co-generation, also known as combined-heat-and-power). In either case, virtually any biomass can be used to supplant fossil fuels for energy production, and could provide a beneficial use for the fuels that need to be removed from forests.

Some FS fuel reduction funds have been used for wood energy programs. For FY2009-FY2011, \$5.0 million annually was used for biomass grants, authorized in Title II of the Healthy Forests Restoration Act (P.L. 108-148). For FY2011, the Administration proposed \$5.0 million for the Community Wood Energy Program and \$15.0 million for the Forest Biomass to Energy Program, two programs established in the 2008 farm bill (P.L. 110-246). These programs can contribute to fuel reduction for federal forests, since they provide markets for the fuels to be removed, but they are not limited to woody biomass from federal lands, and are also likely to be used to remove woody biomass from nonfederal lands. Furthermore, this relatively limited funding provides very modest markets for the substantial volumes of biomass to be removed from federal lands.

Other federal programs exist to provide incentives for renewable energy production, including from biomass.<sup>29</sup> However, some prohibit the use of biomass from federal lands for the renewable energy targets and incentives.<sup>30</sup> This is due at least partly to concerns about diverting federal woody biomass from traditional markets—lumber, plywood, and pulp and paper—to renewable energy markets. The validity of such concerns is illustrated by the initial payments under USDA’s Biomass Crop Assistance Program (BCAP). While the goal was, in part, to stimulate removal of

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<sup>26</sup> Philip N. Omi and Erik J. Martinson, *Effects of Fuels Treatment on Wildfire Severity: Final Report*, submitted to the Joint Fire Science Program Governing Board (Fort Collins, CO: Colorado State University, Western Forest Fire Research Center, March 25, 2002).

<sup>27</sup> Jon E. Keeley, “Fire Management of California Shrubland Landscapes,” *Environmental Management*, vol. 29, no. 3 (2002), pp. 395-408.

<sup>28</sup> Henry Carey and Martha Schumann, *Modifying WildFire Behavior—The Effectiveness of Fuel Treatments: The Status of Out Knowledge*, Southwest Region Working Paper 2 (Santa Fe, NM: National Community Forestry Center, April 2003).

<sup>29</sup> See CRS Report RL34130, *Renewable Energy Programs in the 2008 Farm Bill*, by Megan Stubbs; and CRS Report R41106, *Meeting the Renewable Fuel Standard (RFS) Mandate for Cellulosic Biofuels: Questions and Answers*, by Kelsi Bracmort.

<sup>30</sup> See CRS Report R40529, *Biomass: Comparison of Definitions in Legislation*, by Kelsi Bracmort and Ross W. Gorte.

woody biomass waste from the forest, much of the initial funding was spent on transporting wood waste from existing wood production facilities (e.g., sawmills) to energy production facilities; previously such wood waste was sold to pulp mills, particleboard plants, and other such users who were unable to compete against the BCAP subsidies for wood-waste-to-energy.<sup>31</sup> The principal difficulty in using woody biomass from forests is that, while the fuel loads might be very high by historical standards in some ecosystems, they are widely scattered and highly diverse in size and structure, making collection and transport very expensive.

## **Federal Role in Protecting Nonfederal Lands**

The states are responsible for protecting nonfederal lands from wildfires, but FS cooperative fire assistance to states has been authorized since the Clarke-McNary Act of 1924. Cooperative fire assistance was questioned during the Reagan, George H.W. Bush, and Clinton Administrations, with budget proposals to substantially reduce funding (generally to less than 30% of enacted appropriations) from FY1984 through FY1995.

The debate over the federal role in assisting states shifted following the severe fire season in summer of 1994. The *Federal Wildland Fire Management Policy & Program Review: Final Report*, released in December 1995, altered federal fire policy from priority for private property to equal priority for private property and federal resources, based on values at risk. (Protecting human life remains the first priority in firefighting.) The increased emphasis on state and local responsibility for protecting nonfederal lands also led to a recognition of the importance of federal assistance to state and local agencies. (Sharing fire suppression costs with state and local governments is discussed above, under “Wildfire Management Costs.”)

In contrast to White House efforts to cut fire assistance funding in the 1980s and early 1990s, federal funding for state and volunteer fire assistance more than tripled in 2001, rising from \$27.2 million to \$91.1 million, pulled along by the broad rise in federal wildfire funding under the National Fire Plan. (See **Table 3.**) State and volunteer fire assistance funding continued to rise for a few years, peaking at \$314.0 million in FY2009, including the funding in the economic stimulus legislation.

The 2002 farm bill (P.L. 107-171, the Farm Security and Rural Investment Act of 2002) authorized a new fire assistance program, the Community Fire Protection Program. The program authorizes the FS, working with and through state forestry agencies, to assist local fire protection planning, education, and activities. The program was authorized at \$35 million annually for FY2002-FY2007, and “such sums as are necessary” thereafter; to date, no explicit budget line items have been enacted for this program.

Questions persist about the appropriate role of federal firefighters and funds in protecting structures, communities, and privately owned resources.<sup>32</sup> States bear the responsibility for fire protection on all nonfederal lands. The FS and others also support the FIREWISE program to educate landowners and communities about how to protect their properties and structures from

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<sup>31</sup> See USDA Commodity Credit Corporation, “Biomass Crop Assistance Program: Proposed Rule,” *Federal Register*, v. 75, no. 25 (February 8, 2010), [http://www.fsa.usda.gov/Internet/FSA\\_Federal\\_Notices/bcap\\_prm\\_2\\_8\\_2010.pdf](http://www.fsa.usda.gov/Internet/FSA_Federal_Notices/bcap_prm_2_8_2010.pdf).

<sup>32</sup> See CRS Report RL34517, *Wildfire Damages to Homes and Resources: Understanding Causes and Reducing Losses*, by Ross W. Gorte, and CRS Report RS21880, *Wildfire Protection in the Wildland-Urban Interface*, by Ross W. Gorte.

wildfire. The National Interagency Fire Center coordinates the movement of firefighting forces (federal, state, and private contractors) to areas with lots of wildfires. The federal agencies are also directed to give “excess personal property” (such as surplus firefighting equipment) to state or local fire departments. Some question whether these programs are sufficient; others suggest that perhaps federal financial assistance could be terminated. Still others question federal firefighting actions, where state or local responsibility for structure fires has been used as an excuse for inaction.<sup>33</sup> On the other hand, federal firefighters are not trained to fight structure fires, and such efforts without proper training might endanger the firefighters, it has been argued.

The appropriate federal response following wildfire damages to private lands and resources has also been questioned. Catastrophic wildfires sometimes lead to disaster declarations, and thus to recovery efforts coordinated and assisted by the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security. Wildfire damages not in declared disaster areas are sometimes, but not always, covered by private insurance (which is regulated by the states). Homeowners without fire insurance or whose fire insurance does not cover wildfires may be left without compensation for their losses. Similarly, landowners with resource losses (e.g., many trees killed by wildfire) may receive no compensation or assistance to help recover from the losses. It seems unfair to some that wildfire damages are substantially covered only when total damages are sufficient to declare the area a disaster. To address these concerns, some have suggested that the National Flood Insurance Program might provide an appropriate model for federal wildfire insurance for private landowners.<sup>34</sup> Others assert that private insurance exists and is more efficient than a government insurance program, and that the National Flood Insurance Program has not prevented building in flood zones or repetitive flood losses, despite these being part of its goals.

## **Post-Fire Rehabilitation**

Rehabilitation of burned sites following intense wildfires has been a generally accepted practice. As shown in **Table 1** and **Table 2**, the BLM has traditionally received modest appropriations for rehabilitation of DOI lands, except in FY2001; in contrast, the FS has funded burned area rehabilitation from regular appropriations for vegetation management, wildlife habitat, watershed management, and other accounts, with modest appropriations (less than \$13 million annually) for rehabilitation except in FY2001, FY2002, and FY2008.

Attention to post-fire rehabilitation has increased since 2000. The Bush Administration finalized regulations authorizing NEPA categorical exclusions for post-fire rehabilitation activities affecting up to 4,200 acres in June 2003.<sup>35</sup> These (and other) regulations were successfully challenged as violating the Forest Service Decision Making and Appeals Reform Act (§322 of P.L. 102-381; 16 U.S.C. §1612 note), and the FS suspended many proposed actions in response to the court’s order.<sup>36</sup>

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<sup>33</sup> At least two houses on the Standing Rock Indian Reservation burned down in the summer of 2006, because firefighters of the Bureau of Indian Affairs apparently were not allowed to fight fires in private dwellings, only grassland fires and government structure fires; the policy was modified in July 2006 (“Dorgan: BIA Changing Policy on Standing Rock Fires,” *Associated Press*, July 15, 2006).

<sup>34</sup> See CRS Report RS22394, *National Flood Insurance Program: Treasury Borrowing in the Aftermath of Hurricane Katrina*, by Rawle O. King.

<sup>35</sup> 68 *Fed. Reg.* 33814 (June 5, 2003)

<sup>36</sup> *Earth Island v. Pengilly*, 376 F.Supp. 2d 994 (E.D.Cal. 2005).



Legislation was introduced relating to post-fire rehabilitation in the 109<sup>th</sup> Congress. One bill that passed the House (H.R. 4200, the Forest Emergency Recovery and Research Act of 2006) would have directed the FS and BLM to establish research protocols for catastrophic events affecting forests, to provide an expedited process for recovery of forests from catastrophic events, and to authorize financial assistance to restore landscapes and communities affected by catastrophic events. The expedited process would have required catastrophic event recovery assessments, with pre-approved management practices and alternative NEPA arrangements, and foreshortened administrative and judicial reviews of related activities. The bill has not been introduced in subsequent Congresses.

More recently, other bills have proposed national or regional post-fire and other forest restoration programs with modified procedures for assessing and implementing practices. The Collaborative Forest Landscape Restoration Act was included as Title IV in the Omnibus Public Lands Management Act of 2009 (P.L. 111-11). It provides a collaborative (diverse, multi-party) process for geographically dispersed, long-term (10-year), large-scale (at least 50,000-acre) strategies to restore forests, reduce wildfire threats, and utilize the available biomass, with multi-party monitoring of and reporting on activities. The Obama Administration has requested funding for this program in a separate line item within the National Forest System appropriation account. Other bills address specific areas (e.g., S. 1470 and S. 2895) or specific restoration needs (e.g., H.R. 4398 and S. 2798).

No data or assessments have examined the adequacy of current rehabilitation activities. It is unclear how often rehabilitation activities are necessary, and what activities are involved. It is also unclear whether NEPA environmental reviews or public involvement have delayed rehabilitation activities significantly. Opponents of legislated changes to existing environmental review and public involvement processes have expressed concerns that changes could reduce review and oversight of salvage logging decisions, since salvage logging is not generally precluded as a rehabilitation activity. They note that salvage logging can cause significant environmental damage. Proponents of changes contend that timber salvage can help in site rehabilitation, both by reducing costs and by removing dead biomass that may interfere with vegetative regrowth on the site, and that expedited processes are necessary to utilize the timber before it deteriorates.

## Appendix. Acres Burned and Funding Data

**Table A-1** presents the data on acres burned annually in the United States since 1960. These data are presented graphically in **Figure 1**.

**Table A-1. Acres Burned in Wildfires Since 1960**  
(millions of acres)

Year	Acres	Year	Acres	Year	Acres
1960	4.48	1977	3.15	1994	4.07
1961	3.04	1978	3.91	1995	1.84
1962	4.08	1979	2.99	1996	6.07
1963	7.12	1980	5.26	1997	2.86
1964	4.20	1981	4.81	1998	1.33
1965	2.65	1982	2.38	1999	5.63
1966	4.57	1983	1.32	2000	7.39
1967	4.66	1984	1.15	2001	3.57
1968	4.23	1985	2.90	2002	7.18
1969	6.69	1986	2.72	2003	3.96
1970	3.28	1987	2.45	2004	8.10
1971	4.28	1988	5.01	2005	8.69
1972	2.64	1989	1.83	2006	9.87
1973	1.92	1990	4.62	2007	9.33
1974	2.88	1991	2.95	2008	5.25
1975	1.79	1992	2.07	2009	5.92
1976	5.11	1993	1.80	2010	

**Source:** National Interagency Fire Center, at [http://www.nifc.gov/fire\\_info/fires\\_acres.htm](http://www.nifc.gov/fire_info/fires_acres.htm).

**Note:** data for 1983-1991 have been revised downward.

**Table A-2** presents data on the total appropriations to the FS and DOI wildland fire management accounts. These data are presented graphically in **Figure 2**.

**Table A-2. Total Appropriations to Wildfire Accounts,  
FY1994-FY2011**

(\$ in millions)

	<b>FY1994</b>	<b>FY1995</b>	<b>FY1996</b>	<b>FY1997</b>	<b>FY1998</b>	<b>FY1999</b>	<b>FY2000</b>
<b>FS</b>	752.7	835.6	485.5	1,080.0	836.6	722.4	1,008.0
<b>DOI</b>	350.5	235.7	286.9	352.0	280.1	336.9	591.0
<b>Total</b>	1,103.2	1,071.3	772.4	1,432.1	1,116.7	1,059.3	1,598.9
	<b>FY2001</b>	<b>FY2002</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY2005</b>	<b>FY2006</b>	<b>FY2007</b>
<b>FS</b>	1,882.8	1,560.3	2,290.0	2,347.0	2,128.5	1,846.1	2,193.6
<b>DOI</b>	977.1	678.4	875.2	883.6	831.3	855.3	853.4
<b>Total</b>	2,859.9	2,238.8	3,165.1	3,230.6	2,929.8	2,701.4	3,047.0
	<b>FY2008 Enacted<sup>a</sup></b>	<b>FY2009 Omnibus<sup>b</sup></b>	<b>ARRA<sup>c</sup></b>	<b>FY2009 Total</b>	<b>FY2010 Enacted</b>	<b>FY2011 Request</b>	
<b>FS</b>	3,269.5	2,331.6	500.0	2,831.6	2,516.7 <sup>d</sup>	2,645.4	
<b>DOI</b>	1,192.1	909.5	15.0	924.5	855.9	933.9	
<b>Total</b>	4,461.5	3,241.1	515.0	3,756.1	3,447.6	3,579.3	

**Note:** Totals in this table are the sum of totals in **Table 1**, **Table 2**, **Table 3**, and **Table 4**, excluding the wildfire assistance programs funded through FS State and Private Forestry. The numbers may not add to the total due to rounding error.

- Includes emergency supplemental appropriations in P.L. 110-116 (Div. B), P.L. 110-161 (Div. F, Title V), and P.L. 110-329 (Div. B), as well as regular FY2008 appropriations in P.L. 110-161.
- Includes supplemental appropriations in H.R. 2346, as agreed to and reported in the conference report H.Rept. 111-151.
- The American Recovery and Reinvestment Act, P.L. 111-5, included funds available to be spent in FY2009 or FY2010.
- Reduced by \$75.0 million from use of prior-year funds.

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