

# PROTECTING COMMUNITIES THROUGH THE NATIONAL FIRE PLAN



Michael T. Rains and Jim Hubbard

In August 2000, the Administration directed the Secretaries of Agriculture and the Interior to prepare a report that would recommend how best to respond to the year's severe wildland fires, reduce the impacts of fires on rural communities, and ensure sufficient firefighting resources in the future. The Secretaries were also asked to list actions that Federal agencies, in cooperation with States and local communities, could take to reduce immediate hazards to communities in the wildland-urban interface and to ensure that fire management planning and firefighter personnel and resources are prepared for extreme fire conditions in the future.

## National Fire Plan

The report, titled *Managing the Impacts of Wildfire on Communities and the Environment: A Report to the President In Response to the Wildfires of 2000*, came to be known as the National Fire Plan (NFP).<sup>\*</sup> It was approved in September 2000. Congress supported the NFP through its fiscal year 2001 (FY01) appropriation action, providing detailed guidance to the U.S. Departments of Agriculture and the Interior on implementing the plan. Today, the two departments are working closely together to put the plan into action.

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<sup>\*</sup> For the executive summary of the National Fire Plan, see *Fire Management Today* 61(2): 9-11.

Strong local partnerships are essential for an adequate level of fire protection in the wildland-urban interface.

The NFP called for actions in five key areas:

1. **Firefighting.** Continue to fight fires safely and maintain a cost-effective level of preparedness in firefighting and prevention.
2. **Rehabilitation and restoration.** Rehabilitate fire-damaged wildlands and restore high-risk ecosystems.
3. **Hazardous fuel reduction.** Invest in projects to reduce fire risk.
4. **Community assistance.** Work directly with communities to reduce the risks of catastrophic fire.
5. **Accountability.** Maintain a high level of accountability, including oversight reviews, progress tracking, and performance monitoring.

Table 1 shows NFP funding for the USDA Forest Service, for FY01 through FY03 (proposed in the President's budget). The final FY02 funding level for the NFP reached about \$2.3 billion. Table 2 shows the amounts needed, proposed, and enacted for the Forest Service.

## Wildland-Urban Interface

The wildland-urban interface (WUI) can be defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland. WUI protection is important to the Federal Government because federally managed



*Fire whirl on the Valley Complex Fire near Darby, MT. Extreme fire behavior was typical on many large fires in 2000, helping to build a consensus behind the National Fire Plan. USDA Forest Service, 2000.*

## NATIONAL FIRE PLAN LONG-TERM GOALS

- Reduce the threat of severe, destructive wildland fires.
- Create safer living conditions in rural areas and the wildland/urban interface.
- Conserve high-priority watersheds, species, and biodiversity.
- Restore fire-adapted ecosystems.
- Improve the health, resilience, and sustainability of forests and grasslands.
- Reduce overall wildland fire management costs.

lands are adjacent to or intermingled with State, county, and municipal lands. Within the W–UI, a critical responsibility for Federal land managers is the management of fuels to minimize risk to people, property, and natural resources. However, the Federal agencies cannot solve this problem alone. Cooperation among all levels of government and strong local partnerships are essential if an adequate level of fire protection is to be achieved.

News footage and media reports during the summer of 2000 provided the Nation with a more emotional definition of the W–UI, showing homes and communities threatened by wildland fire. Many people, their homes, and their dreams for the future are situated

in a landscape thick with vegetation ready to burn. There are many management challenges in the Nation’s public and private forests, woodlands, and rangelands; however, none is more critical than reducing the risk to lives, property, and resources in the W–UI.

The 2000 fire season demonstrated the seriousness of the problem, showing that the W–UI is not an isolated regional problem. Throughout the United States, a rapidly growing population of retirees, young professionals, and others is moving from the cities into the wildlands in search of a better quality of life. The 2000 census shows that out of the top 10 fastest growing States, 7 are in the West.

**Table 1**—Forest Service funding for the National Fire Plan, by fiscal year (FY).<sup>a</sup>

<i>Programs</i>	<i>FY01 (enacted)</i>	<i>FY02 (enacted)</i>	<i>FY03 (proposed)</i>	<i>Estimated needs<sup>b</sup></i>
Fire preparedness	\$611,143,000	\$622,618,000	\$626,528,000	\$781,466,000
Emergency fire contingency	425,063,000	266,000,000	0	86,300,000
Fire plain easements	0	0	19,947,000	0
Fire suppression	319,325,000	255,321,000	443,361,000	357,000,000
Hazardous fuel reduction	205,158,000	209,010,000	234,673,000	492,000,000
State fire assistance	75,328,000	81,693,000	72,101,000	98,500,000
Volunteer fire assistance	13,251,000	13,315,000	13,286,000	15,531,000
Invasive species	11,974,000	11,974,000	12,107,000	12,100,000
Economic action programs	12,472,000	12,472,000	0	20,000,000
Community assistance	34,923,000	0	0	25,000,000
Rehabilitation and restoration	141,688,000	62,668,000	4,644,000	120,000,000
Facilities	43,903,000	20,376,000	0	78,440,000
New technology development <sup>c</sup>	15,965,000	35,265,000	29,761,000	36,800,000
<b>Total</b>	<b>\$1,910,193,000</b>	<b>\$1,590,712,000</b>	<b>\$1,456,408,000</b>	<b>\$2,123,137,000</b>

a. Does not include \$1,035,125,000 in enacted funding for FY00.

b. Needed to fully implement the National Fire Plan, as described in “Technical Support Document for the Long-Term Strategy,” March 19, 2001, revision 6.1.

c. Includes \$8 million for the Joint Fire Science Program (JFSP) in FY02, FY03, and estimated needs. For FY01, funding for the JFSP is included in fire preparedness.

Many western forests and rangelands provide a backdrop for this population movement. Prior to European settlement, these areas frequently experienced low, slow-burning fires that thinned trees and cleared away accumulated grasses,

shrubs, and debris—materials that might otherwise allow a wildland fire to climb into the forest canopy and become an explosive crown fire. The migration of people and introduction of structures into these forests, and the concomitant

suppression of fire for their protection, heighten the fire risk in W–UI areas, creating dangerous places to live and play. The point is as simple as it is powerful: Increasing human populations in the West create more extensive areas of W–UI, making firefighting more difficult, complex, and expensive.



*Sikorsky S-64 helicopter silhouetted in a smoky sky near Hamilton, MT. Photo: USDA Forest Service, 2000.*

Decades of aggressive fire suppression, combined with rural residential development, have drastically changed the look of western forests and rangelands and the way fires behave. Also, trees are invading grasslands, and cheat grass and other invasive species have increased the land’s flammability. Where lower elevation stands of ponderosa pine once held 30 to 60 trees per acre (75–150 trees/ha), they now contain 300, 500, or even 1,000 trees per acre (750–2,500 trees/ha). The recent warming trend in the Interior West, coupled with single-digit humidity and persistent

**Table 2**—Forest Service funding for the National Fire Plan, FY01 and FY02.

<i>Programs</i>	<i>FY01</i>	<i>FY02</i>		
		<i>Needed<sup>a</sup></i>	<i>Proposed</i>	<i>Enacted</i>
Fire preparedness	\$611,143,000	\$639,500,000	\$622,618,000	\$622,618,000
Emergency fire contingency	425,063,000	150,000,000	0	266,000,000
Fire suppression	319,325,000	320,000,000	325,321,000	263,321,000
Hazardous fuel reduction	205,158,000	255,000,000	209,010,000	209,010,000
State fire assistance	75,328,000	84,441,000	75,693,000	81,693,000
Volunteer fire assistance	13,251,000	15,351,000	13,315,000	13,315,000
Invasive species	11,974,000	18,336,000	11,974,000	11,974,000
Economic action programs	12,472,000	28,086,000	12,472,000	12,472,000
Community assistance	34,923,000	35,623,000	0	0
Rehabilitation and restoration	141,688,000	146,375,000	3,668,000	62,668,000
Facilities	43,903,000	44,833,000	20,376,000	20,376,000
New technology development <sup>b</sup>	15,965,000	23,884,000	16,265,000	35,265,000
<b>Total</b>	<b>\$1,910,193,000</b>	<b>\$1,761,429,000</b>	<b>\$1,310,712,000</b>	<b>\$1,590,712,000</b>

a. Based on planning estimates in “Technical Support Document: for the Long-Term Strategy,” March 19, 2001.

b. Includes \$8 million for the Joint Fire Science Program (JFSP) in FY02. For FY01, funding for the JFSP is included in fire preparedness.

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drought, has further increased the vulnerability of wildlands in the region to lightning strikes or careless human actions.

The National Fire Protection Association estimates that wildland fires destroyed more than 9,000 homes between 1985 and 1995. Officials further believe that wildland fires in the 1990s damaged six times more homes than during the previous decade. In 2000 alone, more than 1,000 homes were destroyed.

Homeowners in the W–UI accept a risk by choosing to build where they do. In addition, they often increase the risk by making poor landscaping and building-material choices. Shake shingle roofs, natural wood siding, thick grasses and shrubs, overhanging tree limbs, and nearby woodpiles contribute to the feel of a secluded sanctuary, but they also make it much easier for wildland fire to engulf a home and much more difficult for a firefighter to safely protect it. Land managers and firefighting personnel need to work with both landowners and communities to help them understand the positive, preventative steps they can take to protect themselves from fire. After all, household possessions treasured for the memories they hold cannot be replaced by an insurance check.

The W–UI is not limited to the West. The East, especially in the Southeastern States, is experiencing the same type of development that engenders high fire risk. Adequate protection in the W–UI is truly a national issue; that is the fundamental premise of the NFP.

## Protection Capabilities

The presence of burnable vegetation around homes is only one of several

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Many people, their homes, and their dreams for the future are situated in a landscape thick with vegetation ready to burn.

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complicated challenges firefighters face when combating a wildland fire in the W–UI. Safe and effective protection in these areas demands close coordination between local, State, and Federal firefighting resources. In the 2001 Federal Fire Policy, Federal agencies acknowledge that the primary burden for W–UI fire protection falls to property owners and State and local governments. Rural and volunteer fire departments provide the front line of defense (initial attack) on up to 90 percent of the high-risk and costly fires in the W–UI. Although they have a good record of rapidly suppressing traditional wildland fires, local resources often struggle to effectively address the complex demands of fighting fire in the W–UI.

Local fire departments generally arrive at the scene of a fire trained and equipped to provide either structural or wildland fire protection, but not both. They often lack common communications equipment or a predetermined plan outlining protection responsibilities and where to go for backup. Placing people in a wildfire situation that is beyond their personal or resource capabilities seriously compromises firefighter safety.

County, State, and Federal agencies provide immediate backup to local fire departments when a W–UI fire moves beyond initial response capabilities. Extended attack often requires recruitment and coordination of people and equipment from a variety of sources. The acquisition of fast, accurate air support is often critical. Clear communication and

interagency coordination are paramount.

Agreement over roles and responsibilities, the proper order of action and response, and methods of prioritizing deployment of resources further complicates joint structural and wildland fire activities. When lives and homes are at stake, fire suppression resources are often diverted to residential protection, leaving wildland portions of the fire to burn unchecked—a serious problem, given dry summer conditions. The keys to full and effective fire protection in the W–UI are:

- Safe home landscaping;
- Well-trained and -equipped fire departments; and
- A rapid local, county, and State response supported by, and in cooperation with, Federal agencies.

## Reducing Risks

The problem of fires in the W–UI is multifaceted and will not be solved overnight. Nevertheless, there are a number of short-term actions that the Federal Government, in cooperation with State, tribal, and local governments, can take to reduce the future risk to communities and resources. Partnerships are key. Landowners and local, State, and Federal agency personnel need to understand each other's roles and responsibilities.

A top priority is to reduce fuels in forests and rangelands adjacent to and within communities. Particular emphasis should be placed on fuel

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treatment projects that extend to adjoining State, private, or other non-Federal land to help protect them from catastrophic fires that develop on Federal lands. This can be accomplished through incentives and technical assistance for communities and private landowners to encourage the reduction of hazardous fuels around homes. Individual actions by homeowners will not only provide greater personal protection, but also increase the safety and effectiveness of firefighters. Large-scale fuel reductions around individual homes can protect an entire landscape or watershed.

Another priority is to ensure that State and local resources for initial and extended attack are trained, equipped, and prepared to address W–UI fires as effectively and safely as possible. The Forest Service’s State and volunteer fire assistance programs provide technical and financial assistance to local firefighting resources to help promote an effective and coordinated interagency fire management response. In addition, local firefighters must be backed up by Federal agencies that are fully

prepared to provide an array of incident management skills and leadership.

### Optimal Firefighting Efficiency

The Forest Service uses models to help predict funding levels for overall firefighting efficiency. The National Fire Management Analysis System (NFMAS) is a tool to help determine the most efficient level (MEL) for the fire management program. The MEL captures the tradeoffs between dollars spent on fire preparedness and fire suppression, plus the change in value of natural resources before and after a fire—the Net Value Change (NVC). The NFMAS model optimizes the appropriated dollars spent on fire preparedness versus the costs of fire suppression plus NVC. The number of acres burned is also displayed at each appropriated funding level.

Appropriated funds for the fire management program are typically referred to as a percent of MEL. In FY99, for example, the Forest Service was funded at 75 percent of MEL, whereas in FY00 it was about 74 percent of MEL. The NFP set an

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FY01 funding target of 100 percent of MEL, the same level proposed for FY02.

However, the NFMAS process applies only to lands for which the Forest Service has direct fire protection responsibilities. Costs associated with protecting non-Federal lands, including the cost of protecting the W–UI from fires originating on national forest land, are not incorporated into the NFMAS model. Such costs can be significant in some areas.

This has profound implications for preparedness levels. If the Forest Service is expected to manage fires on non-Federal lands, including in the W–UI, then funding levels need to be planned accordingly. Funding at 100 percent of MEL, which does not include fire protection in the W–UI, almost guarantees that resources will be inadequate. Inefficiencies will result, ultimately leading to excessive costs.

Improved State fire assistance, including assistance to volunteer fire departments, is an effective way to reduce the overall involvement of the Federal Government in the W–UI adjacent to national forest lands. The Cooperative Fire Protection program within the Forest Service’s State and Private Forestry mission area provides for a Federal role to help State and local governments become better trained and equipped to fight fires and meet their State responsibilities. The NFP begins to address the expanded Federal role that is needed. A higher level of funding for initial and extended attack on national forest lands, coupled with an expanded Federal role in State assistance—including more support for rural volunteer fire departments—would begin to effectively address the urgent need

*Firefighters moving upslope to battle the Valley Complex Fire during the 2000 fire season. The National Fire Plan has helped bring preparedness levels for the Forest Service’s wildland fire organization up to the most efficient level for the first time in recent memory. Photo: USDA Forest Service, 2000.*



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to deal with wildland fire in America's W–UI.

Predictive modeling that includes effective fire protection for the W–UI is a must. Basically, an optimal level of firefighting efficiency is not possible on the Federal side without an optimal level of efficiency on the State and local side. A cohesive, long-term budget strategy that includes preparedness, emergency suppression, fuel management, and State fire assistance in order to implement an effective, cost-efficient fire management program is critical to ensuring adequate community protection in America. The NFP begins to address the need. However, more work is required to establish an adequate Federal role in community protection. The Office of Management and Budget has called for an update of efficiency prediction models.

## Prevention Through Education

Fire education programs geared toward homeowners and communities should be implemented in recently burned areas as well as in high-risk W–UI areas. Programs should focus on the role that planning, zoning, landscaping, and requirements for firesafe building materials can play in reducing the loss of lives and property—as well as tremendous government expense—in the W–UI.

One very successful fire education program is Firewise, promoted by America's wildland fire agencies and the National Fire Protection Association since 1986. The Firewise program was developed to inform and encourage the rural homeowners to take prescribed precautions to make their homes more fire resistant and more easily defensible by local fire departments. The

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program is carried out through Firewise Workshops, which bring together the many partners who have a stake in preserving homes and making other improvements in the W–UI.\*

Firewise specifically helps people recognize W–UI fire hazards, design Firewise homes and landscapes, learn about fire, and incorporate Firewise planning into existing and developing areas of communities. Firewise is an important fire prevention tool and is supported, along with other high-priority fire prevention education programs, in the NFP.

## NFP Programs for Community Protection

A number of programs included in the NFP specifically help address the Federal role in protecting communities. Table 3 lists the programs and shows NFP funding levels.

**State Fire Assistance.** State fire assistance provides technical training, financial assistance, and equipment to States to ensure that Federal, State, and local agencies can deliver a uniform and coordinated suppression response to wildland fire. Activities include Firewise and other high-priority education programs, fuel reduction, and improved fire response in W–UI areas. Funds are allocated to States and communities using a targeted approach. Funding levels are based on amounts required to support the

Federal role in concert with State contributions. Funding is on a planned basis of evenly shared costs between Federal and non-Federal partners.

Strong readiness capability at the State and local levels goes hand-in-hand with optimal efficiency at the Federal level. Federal funding is designed to raise the efficiency level for the States and local fire departments in targeted areas to complement the MEL proposed for the Forest Service's firefighting force.

Federal funding for hazardous fuel reduction on non-Federal lands is based on needs identified in forest stewardship plans and estimates of fuel treatment acres for cost-shared work. Estimates for the first year of the NFP included 395,000 acres (160,000 ha) of fuel treatment. Funding is on a planned basis of evenly shared costs between Federal and non-Federal partners.

State fire assistance under the NFP includes cost-share funds for the States to:

- Add additional State fire management specialists;
- Develop multistate fire compacts;
- Improve the State readiness capability to match the Federal readiness capability;
- Increase fire planning in high-risk areas;
- Emphasize and expand the Firewise program;
- Promote training under the Incident Command System to complement fire protection on Federal lands;

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\* For more on Firewise, see Cynthia Bailey, "Firewise Workshops Ignite Community Action," *Fire Management Today* 62(1): 4–6.

- Provide for modern, reliable communications equipment for more efficient action on incidents; and
- Reduce hazardous fuels and improve defensible space within communities and adjacent areas.

**Volunteer Fire Assistance.** Volunteer fire assistance provides technical and financial support to volunteer fire departments that protect communities with populations of less than 10,000. These local agencies are often the first line of defense for W–UI areas threatened

by wildland fire. The value of their service is estimated to exceed \$36 billion annually. Federal assistance to volunteer fire departments helps improve the effectiveness of fire protection on public lands, especially in W–UI areas adjacent to Federal lands. The NFP provides annual funding for about 4,000 volunteer fire departments with unmet training and equipment needs. Funds are cost-shared on a one-to-one basis between Federal and non-Federal partners. Under the NFP, volunteer fire departments receive funds to pay for many

necessities, such as fire management training, protective fire clothing, and radio equipment.

**Invasive Species Management.**

Funds for invasive species management support technical and financial assistance to Federal agencies, Tribal governments, and States in carrying out a coordinated nationwide program of detecting, monitoring, evaluating, preventing, and suppressing invasive forest insects and diseases, including noxious weeds. As forest health conditions improve and mortality decreases,

**Table 3—Forest Service funding for community protection programs under the National Fire Plan, FY01 and FY02.**

<i>Programs</i>	<i>FY01</i>	<i>FY02</i>		
		<i>Needed<sup>a</sup></i>	<i>Proposed</i>	<i>Enacted</i>
<b>State fire assistance:</b>	<b>\$75,328,000</b>	<b>\$84,441,000</b>	<b>\$75,693,000</b>	<b>\$81,693,000</b>
State activities	35,638,000	51,451,000	45,203,000	51,203,000
Firewise	3,200,000	4,000,000	1,500,000	1,500,000
Hazard mitigation and prevention	28,990,000	28,990,000	28,990,000	28,990,000
Special projects (Kenai Peninsula Borough)	7,500,000	0	0	0
<b>Volunteer fire assistance</b>	<b>13,251,000</b>	<b>15,351,000</b>	<b>13,315,000</b>	<b>13,315,000</b>
<b>Invasive species management</b>	<b>11,974,000</b>	<b>18,336,000</b>	<b>11,974,000</b>	<b>11,974,000</b>
<b>Economic action programs (EAPs):</b>	<b>12,472,000</b>	<b>28,086,000</b>	<b>12,472,000</b>	<b>12,472,000</b>
Pilot projects	0	3,314,000	0	0
Market development and expansion	12,472,000	19,472,000	12,472,000	12,472,000
Improved wood utilization <sup>b</sup>	0	5,300,000	0	0
<b>Community and private land fire assistance:</b>	<b>34,923,000</b>	<b>35,623,000</b>	<b>0</b>	<b>0</b>
Fence reconstruction	8,980,000	0	0	0
Hazard mitigation	5,987,000	14,623,000	0	0
Multiresource planning	6,985,000	12,000,000	0	0
EAP pilot projects	7,982,000	0	0	0
Community protection planning	4,989,000	9,000,000	0	0
<b>Total</b>	<b>\$147,948,000</b>	<b>\$181,837,000</b>	<b>\$113,454,000</b>	<b>\$119,454,000</b>

a. Based on planning estimates in the “Technical Support Document: for the Long-Term Strategy,” March 19, 2001.

b. For a center at the Forest Service’s Forest Products Laboratory in Madison, WI.

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susceptibility to fire diminishes. Funds are used for the management and control of invasive species spread resulting from fire. Funding amounts are based on estimates of detection, evaluation, and high-priority treatments in areas most severely damaged by fires.

**Economic Action Programs (EAPs).** EAPs support long-term rural health by providing communities with technical and financial assistance in diversifying uses of forest resources. Supported enterprises utilize resources such as wood, recreation, wildlife, cultural and heritage resources, minerals, nontimber forest products, and scenic quality. Funding for technical assistance and grants to help develop businesses is partly based on needs identified for economic expansion prior to fires. EAP components include rural community assistance, forest products conservation and recycling, and market development and expansion. Funds are cost-shared on a one-to-one basis between Federal and non-Federal partners.

Funds are used to develop and expand markets for traditionally underutilized wood as an incentive for removing hazardous fuels. It is essential to maintain existing markets and create new markets for the small-diameter materials that need to be removed. Otherwise, the potential market value of the wood is lost and value-added opportunities for jobs and new businesses are forgone. Funds are targeted for:

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Rural and volunteer fire departments provide the front line of defense on up to 90 percent of the high-risk and costly fires in the wildland-urban interface.

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- Technical assistance;
- Training;
- Business plan development;
- Feasibility studies;
- Seed funds for selected capital investments;
- Marketing strategies;
- Identification of value-added, income-producing opportunities; and
- Applied research, specifically for the utilization of small-diameter materials.

Allocation of funds is based on the evaluation of projects designed specifically to create jobs, markets, and income from hazardous fuel removals. EAPs have a history of success, typically producing a benefit-to-cost ratio of more than five to one.

**Community and Private Land Fire Assistance.** Community and private land fire assistance supports the non-Federal entities most affected by fire using all existing authorities under the Forest Service's State and Private Forestry appropriation. For the first year of the NFP, funding was included for:

- Restoring fire-damaged fences;
- Hazardous fuel reduction on non-Federal lands;
- Stewardship planning to ensure effective fuel reduction, with strong consideration for all land conditions;

- EAP pilot projects; and
- Strategic development and planned growth for communities at high risk from wildland fire.

Funds in FY01 were intended to augment activities within community protection programs (see sidebar). Typically, funds are cost-shared on a one-to-one basis between Federal and non-Federal partners.

## Meeting the Challenge

Our Nation faces the tremendous challenge of reducing the growing risk to lives, property, and natural resources from uncharacteristically severe wildland fires in the W-UI. No single agency is capable of rising to the challenge alone. The only feasible solutions are through collective local, State, Tribal, and Federal action, often through private/public partnerships.

Through the NFP, we have begun to meet the challenge. The Forest Service's Cooperative Fire Protection programs provide a ready-made framework for NFP programs to assist local communities and help State and local governments become better trained and equipped to fight fires. Building on the Forest Service's cooperative traditions, we are working together to create safe, livable communities for the future.

