
STUDY SUPPORTS COOPERATIVE FIRE PROTECTION IN THE WEST

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In the last quarter of the last century, the wildland fire protection agencies in the 17 Western States, by necessity, became close cooperators not only in wildland fire suppression, but also in prevention and especially public education. The necessity driving these agencies down the road to greater cooperation was an increasing number of large, damaging wildland fires that destroyed more and more structures; burned in or near wildland areas with growing populations; and motivated agency administrators to take a hard look at how they did business.

Wildland–Urban Interface Fires

It used to be just a California problem, the annual march of brushfires into subdivisions sprawling into the wildlands. The Bel Air Fire of 1961 destroyed more than 400 homes in Los Angeles County and might well have been the first true “modern-era” wildland–urban interface fire; however, it took a couple of more decades of fire disasters for the term to catch on.

By the end of the 1980s, wildland fires were commonly threatening and frequently destroying large numbers of homes in other Western States. In 1988, the Westberry Trails Fire in South Dakota burned 57 structures; in 1989, the Lowman Fire in Idaho burned 25 structures and the Black Tiger Fire in Colo-

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State agencies are cooperating more due to the increasing number of large, damaging wildland fires.

rado burned 44 structures. Also, the 1988 fires in the greater Yellowstone area repeatedly burned out of the backcountry to threaten whole communities. Increasingly, large wildland fires were threatening people’s homes and other improvements, requiring the mobilization of large numbers of fire engines for structure protection. The growing need for structure protection drove wildland fire suppression costs to new highs, frequently busting city, county, and State budgets and requiring increasingly high Federal disaster reimbursements.

During the 1990s, “wildland–urban interface” (W–UI) became widely accepted as the standard term for identifying areas where urban types of development in wildland fuels were increasing the number of wildland fires with large structure loss. In 1991, a series of more than 30 wildland fires in the vicinity of Spokane, WA, developed into a firestorm that destroyed 191 structures, creating the largest demand for mutual-aid fire protection resources in the history of the State. Also, in the fall of 1991, the Oakland Hills Fire in Oakland and Berkeley, CA, became the worst W–UI fire ever, burning a mere 1,600 acres of manmade forest but destroying 2,900 structures and taking 25 lives. Such a huge wildfire in a densely developed urban

area was not new; it had happened in the same hills in 1945 and in 1970. Now, however, towering eucalyptus and pine trees overshadowed the tightly packed, shake-roofed bungalows and mansions scattered along steep, narrow streets. The “natural” environment so valued by homeowners had grown thick and decadent; firesafe guidelines were mostly ignored and rarely enforced; and the hot, dry winds of fall turned a picture book setting into a scene of smoking devastation in just a few hours.

By 1996, the W–UI fire problem was endemic even to Alaska, where the Miller’s Reach Fire destroyed 454 structures located in dense black spruce forest. The 1990s also saw major structure loss wildfires in Arizona, Colorado, Montana, Nebraska, New Mexico, Oregon, Utah, and even Guam. The 20th century ended with a bang when, in October 1999, the wind-driven Jones Fire burned 264 structures on the outskirts of Redding, CA.

Growing Cooperation

As these types of fires became more common, greater effort was made to understand the W–UI fire problem, especially in the West, where hot, dry summers, frequent high winds, and dense forest and brushlands make wildfire an annual event. With

larger fires burning in heavier fuels and threatening greater numbers of improvements, fire agencies found it necessary to increase their cooperative efforts. During the 1980s and 1990s, the fire agencies in the West developed broad cooperative agreements and joint operating plans to ensure that the closest resources (regardless of

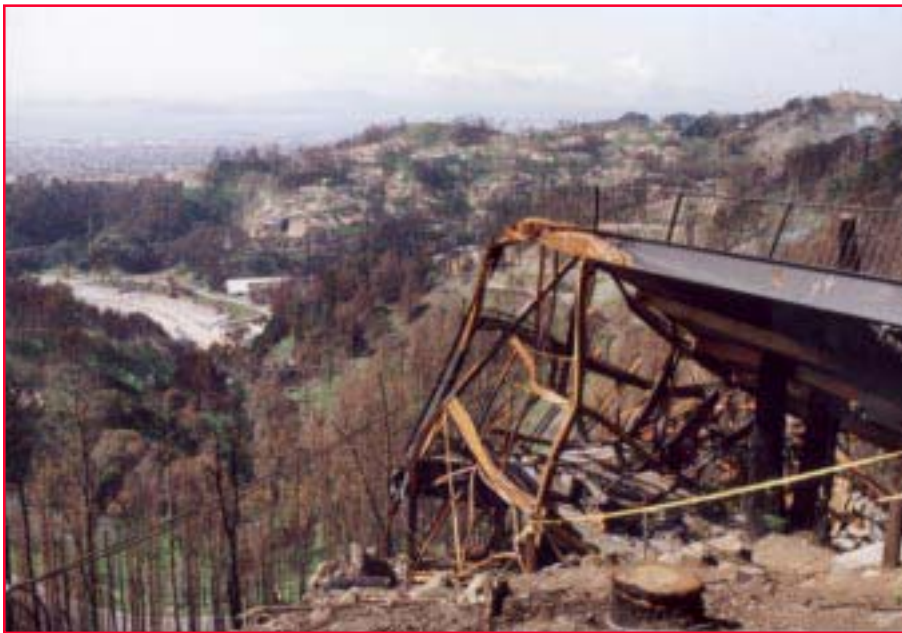
what color the engine might be) made the initial attack on new fires (at least in critical areas). Federal, State, and local government agencies greatly expanded their mutual-aid agreements and operating systems to ensure rapid deployment of fire resources in the numbers needed to protect hundreds of homes from wildland fire. State fire

managers were meeting with and sharing information and physical resources with their Federal and local counterparts.

The Western State fire managers, at their annual workshops, began to devote more time and effort to jointly studying the spreading W–UI fire problem. The terminology was refined to recognize four different types of W–UI scenarios (see sidebar on page 11). Greater effort was made to identify areas where the threat was the greatest, learn what measures would be most effective in mitigating the problem, and devise ways to increase public awareness and the efficacy of fire prevention efforts in targeted high-fire-hazard areas.

Since 1998, the Western State fire managers have produced an annual report, *Fire in the West*, which compiles fire statistics for the 17 Western States and shares information about the organization and activities of the various State wildland fire agencies. *Fire in the West* has evolved from an activity report by the State fire managers to the Council of Western State Foresters into a comprehensive annual report for sharing information with a broad variety of stakeholders, from Governors and legislators to local fire agencies and community-based Fire Safe Councils.

As the disastrous 1999 fire season came to a close, the Western State fire managers decided to begin a comprehensive evaluation of the W–UI fire problem. Using a grant from State fire assistance funds, they commissioned a study to identify the extent of the problem and recommend appropriate strategies and tactics that could be adopted by the individual Western



Neighborhood devastated by the 1991 Oakland Hills Fire, about 6 months after the event. Buckling of a steel platform (above), once part of a hillside home, indicates the intensity of the firestorm, which destroyed some 2,900 structures and took 25 lives in residential parts of Oakland and Berkeley, CA. Logs and snags frame the chimney of a surviving home (below), remnants of the thick intermix vegetation that fueled the flames. Photos: Hutch Brown, USDA Forest Service, Washington, DC, 1992.



States to begin coping with the problem. The study was to be published as a special edition of *Fire in the West*.

State-Funded Study

Wildland fire expert, author, and publisher William C. Teie (retired Deputy Director, California Department of Forestry and Fire Protection [CDF]) and fire protection consultant Brian F. Weatherford (retired Unit Chief, CDF) conducted the study during the spring and summer of 2000. Together, they brought more than 70 years of wildland fire experience in the West to bear on the issue.

The study began with a comprehensive survey questionnaire that went to the State fire managers of the 17 Western States and the Pacific Island Territories asking them to describe the extent of the W–UI fire problem in their jurisdictions and the level of effort directed toward solving the problem. Fire managers provided information about their authority, budgets, and priorities for everything from fire codes and regulations, to prevention programs, to fuelbreaks, to prescribed fire, to assistance to local fire agencies. Data, comments, and recommendations from the fire

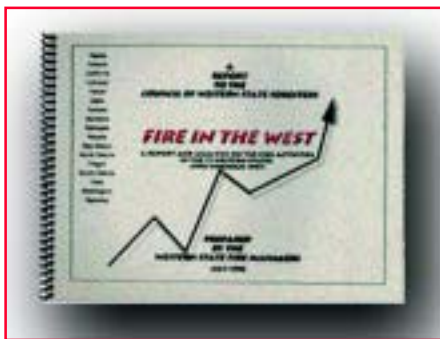
managers became the meat of the report.

Additionally, the consultants made field trips to various parts of the West to learn about significant fires (such as the 1989 Black Tiger Fire; the 1991 Spokane Firestorm; and the 2000 Cerro Grande Fire in Los Alamos, NM). They also met with officials from agencies involved in W–UI fire prevention and mitigation projects, such as FireWise (in Alaska and Colorado), FireFree Bend (in Oregon), and FireSafe Spokane (in Washington). They sat down with key players in a comprehensive, high-tech wildland fire hazard classification study in Boulder County, CO. They visited the Forest Products Lab of the University of California, where a

major project with CDF is developing comprehensive mitigation guides for the W–UI fire problem (*Fire Hazard Zoning Field Guide*, *Property Inspection Guide*, and *Structural Fire Prevention Field Guide*). They drew on the experience and expertise of numerous State and local fire officials who are actively doing something about the problem in their jurisdictions.

Study Findings

Fire in the West: The Wildland/Urban Interface Fire Problem, published in October 2000, contains the first comprehensive evaluation of the W–UI fire problem in the West. The report includes a synopsis of State and local W–UI fire prevention and mitigation projects and a strategy and recommended



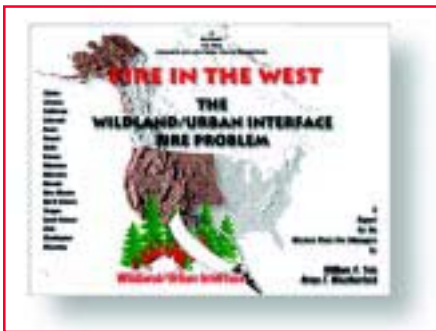
Cover from *Fire in the West*, an annual report by fire managers in 17 Western States. The report compiles fire statistics and shares information about the organization and activities of the various State wildland fire agencies.



Publications from agencies in the West involved in wildland–urban interface fire prevention and mitigation, including *Fire Safe* (in California) and *FireWise* (in Alaska and Colorado).

actions for dealing with the problem.

The report found that, despite a potential for large losses of structures to wildland fires in each of the Western States, most State forestry departments are not adequately empowered (legally or fiscally) to effectively address the problem. Many States have not begun the process of mapping and assessing W–UI areas, and some that have are not yet sharing the information with other fire agencies, planners, and developers. Although ignition-resistant construction and defensible space have been identified as the two most important factors in the survival of structures during wildland fires, most Western States still do not have comprehensive codes, regulations, and building standards for firesafe development. Several successful community-based programs are reaching the target audience (homeowners, legislators, planners, and developers) with messages on the potential for disaster in the W–UI. However, a major cooperative effort will be required to change public perceptions and attitudes and to generate a concern for fire safety that will overcome existing public apathy and political inertia.



Cover from *Fire in the West: The Wildland/Urban Interface Fire Problem*. Published in October 2000, the State-funded report contains the first comprehensive evaluation of the wildland–urban interface fire problem in the West.

TYPES OF WILDLAND–URBAN INTERFACE*

The wildland–urban interface (W–UI) is where humans and their developments meet or are intermixed with wildland fuels. There are four different W–UI conditions:

1. **Interface condition:** Structures abut wildland fuels. There is a clear line of demarcation between structures and wildland fuels along roads or back fences. Wildland fuels do not continue into the developed area.
2. **Intermix condition:** Structures are scattered throughout the wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area.
3. **Occluded condition:** Structures abut an island of wildland fuels, normally within a city, such as a park or other open space. There is a clear line of demarcation between structures and wildland fuels along roads or fences.
4. **Rural condition:** Scattered small clusters of structures (such as ranches, farms, and resorts) are exposed to wildland fuels. There might be miles between clusters of development.

*These definitions are used by State agencies in the West. They have not been adopted nationally.

Study Recommendations

Major recommendations in the report include:

- Implementing the FireWise public education model throughout the West;
- Developing a cooperative plan to apply for and effectively use Federal, State, and local funds that may be available for public education;
- Fuels treatment;
- Improved initial-attack capability;
- Improved mobilization of local fire forces; and
- More efficient use of mutual-aid forces during extended attack and major fire situations.

The report recommends that the States first map and assess the extent of the W–UI problem and share this information with the fire community, developers, and legislators. It calls for a comprehensive mapping effort, with common, interactive data bases to define and

delineate the W–UI areas and provide maps that can be used in the field by planners, developers, and fire officials.

The report also recommends that fire managers collaborate with key players in various “forest health” initiatives and projects to help ensure that fuel reduction and hazard mitigation projects are included in forest improvement plans. The report calls for the adoption of the new Urban–Wildland Interface Code as the basis for a comprehensive fire law enforcement. It also urges all States to become parties to the Interstate Civil Defense and Disaster Compact authorizing interstate use of fire protection resources.

Another recommendation is that each State develop its own major incident management teams, using Federal, State, and local fire and disaster management experts. Finally, the report calls upon the States to assume a leadership role

in improving the safety and effectiveness of local government forces on wildland fires, especially in the W–UI.

Comprehensive Analysis

Fire in the West: The Wildland/Urban Interface Fire Problem provides the first comprehensive analysis, strategy, and description of mitigation measures that State forestry agencies can use to reposition themselves to acquire needed

authority and funding, improve cooperation with Federal and local agencies, and begin to effectively address the widespread and increasingly dangerous W–UI fire problem in the West. The report demonstrates that cooperative efforts between Federal, State, and local fire agencies can effectively mitigate problems. It holds out hope for increasing Federal and State participation in what for a long time has been considered a “local problem.” For a copy of *Fire in the*

West: The Wildland/Urban Interface Fire Problem, contact Deer Valley Press, 5125 Deer Valley Road, Rescue, CA 95672; call 1-800-445-1950 toll-free; or visit the Deer Valley Press Website at <<http://www.deervalleypress.com>>.* ■

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WEBSITES ON FIRE*

Thirtymile Fire Investigation

On July 10, 2001, four firefighters perished in a burnover on the Thirtymile Fire, Okanogan National Forest, WA. This site features reports and information related to the accident investigation and prevention plan.

Found at <http://www.fs.fed.us/fire/fire_new/safety/investigations/30mile/index.html>

Joint Fire Science Program

A partnership among six Federal land management agencies might seem an unwieldy beast, but the Joint Fire Science Program

* Occasionally, *Fire Management Today* briefly describes Websites brought to our attention by the wildland fire community. Readers should not construe the description of these sites as in any way exhaustive or as an official endorsement by the USDA Forest Service. To have a Website described, contact the managing editor, Hutch Brown, at USDA Forest Service, 2CEN Yates, Mail Stop 1111, 1400 Independence Avenue, SW, Washington, DC 20250-1111, 202-205-1028 (tel.), 202-205-0885 (fax), hutchbrown@fs.fed.us (e-mail).

(JFSP), established in 1998, proves that such an arrangement can effectively fill the gaps in knowledge about wildland fires and fuels. The USDA Forest Service and USDI Bureau of Indian Affairs, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, and U.S. Geological Survey are collaborating to provide wildland fire and fuels information and tools to specialists and managers who make wildland fuels management decisions.

The information and tools generated from JFSP-funded research help agencies to develop scientifically based land use and activity plans. The JFSP solicits proposals for science projects designed to answer questions or resolve problems related to wildland fuels issues. Research projects in 2001 focused on demonstrating and evaluating various fuels treatment practices, and their environmental effects and cost effectiveness.

A 10-person governing board, which meets several times a year, manages JFSP. Additionally, a stakeholder advisory group advises and assists the governing board on setting priorities and strategies for completing wildland fire and fuels research.

The JFSP Website includes commonly asked questions and answers, current and past research projects, instructions for submitting proposals, and contact information for members of the governing board and the advisory group. An online brochure provides a colorful, concise source of information about JFSP. The Website includes two pages of links to JFSP projects and deliverables, partnering-agency research facilities, relevant conferences, and other related sites.

Found at <http://www.nifc.gov/joint_fire_sci/jointfiresci.html>