

The National Wildfire Mitigation Programs Database: State, County, and Local Efforts to Reduce Wildfire Risk¹

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Abstract

States, counties and local governments in the United States have dramatically increased their wildfire mitigation efforts in recent years. Policymakers and fire officials are employing a wide range of regulatory and voluntary wildfire risk reduction programs to protect residents, communities, and natural resources. We researched these sub-federal wildfire hazard mitigation efforts and established the website, www.wildfireprograms.usda.gov, as a clearinghouse of information to assist fire officials, public officials, planners, and land managers in the development and expansion of effective programs. The website currently describes over 184 programs in 27 states, and includes information about the purpose, features, and accomplishments of wildfire hazard mitigation programs; as well as links to pertinent websites and program managers' contact information. The types of programs that fire officials are using in their wildfire risk reduction efforts include public outreach and education, assessment of wildfire risk and designation of high-risk areas, homeowner assistance, community recognition, and regulatory programs. These classifications are identified in the website search option, along with options to select programs by administrative jurisdiction and by specific states. By using the website, community officials can find successful programs currently at work in other communities, and get ideas of how to structure their program for greatest effectiveness.

Introduction

A century of wildfire suppression coupled with the rapid expansion of human developments into fire-prone wildlands has greatly increased wildfire risk to people and their communities. Wildfires in 2000, and 2002, were particularly devastating, with a total of more than 15 million acres burned and nearly 1700 homes destroyed (National Interagency Fire Center 2004). Furthermore, California suffered its worst wildfire season in modern times in 2003 with more than 739,000 acres burned and 3,600 homes lost (U.S. Department of Agriculture 2004). The escalating losses and wildfire risk exposure in the wildland urban interface has prompted policy makers and fire managers at all governmental levels to take action. Federal efforts focus primarily on the treatment of fuels on federal lands adjacent to high-fire risk communities; while states, counties, and local governments face a more complex

¹ An abbreviated version of this paper was presented at the second international symposium on fire economics, policy, and planning: a global view, 19–22 April, 2004, Córdoba, Spain.

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challenge—creating effective wildfire mitigation strategies to protect lives, property, and resources within developed communities and private holdings in wildland intermix areas.

State, county, and local governments are implementing a wide-range of approaches to achieve their wildfire risk management objectives. Programs vary in complexity and scope, from programs that focus on a single purpose, such as educational campaigns to multi-faceted wildfire risk management plans. Complex programs may include a mix of public outreach and educational programs, wildfire hazard assessments, homeowner assistance, and regulatory policies. Federal funding provided through National Fire Plan grants has enabled states and communities to undertake many wildfire mitigation efforts. Funding is usually in the form of cost-share grants that are often used to purchase equipment, undertake studies to identify areas of highest risk, and to support operations that remove hazardous fuels around homes.

Procedures

Several approaches were used to identify and obtain information about state, county, and local wildfire risk management programs. Initially, a list of contacts was developed that included state fire protection officials (identified from state's forestry and fire protection agency websites), wildfire protection managers of county and local programs (identified by the national Firewise organization), and National Fire Plan grant recipients (provided by USDA Forest Service National Fire Plan regional coordinators). The most successful approach for obtaining information was through personal communication with these contacts and referrals from the initial contacts to fire managers in other localities. Fire protection officials included copies of grant proposals and accomplishments reports; wildfire hazard assessment reports; regulations and guidelines; educational materials including publications, Powerpoint presentations and videos used in workshops; and personal assessments of programs successes and obstacles encountered.

In addition to identifying pertinent laws and regulations through the state and local fire protection officials, we conducted legal searches of state statutes and county codes of three states—Florida, California, and Colorado. With the exception of the California Fire Marshal's Office website, which offers a database specific to the State's fire laws, there is no single source of fire-related laws and regulations.

Results

In our analysis of sub-federal wildfire risk management efforts, we identified a number of common program components. We organized common elements under the broad categories of education, demonstration projects, wildfire hazard assessment and mapping, homeowner services and public/private mitigation projects, and regulatory programs. We constructed a matrix using all responses to determine the frequency of these components.

Education

We found that a component for education was universal in the 121 localities. The most common focus of education was public outreach. Managers use a number of methods to educate the public about the dangers of living in wildfire-prone areas, and the importance of creating defensible space around their homes. Publications that promote hazard reduction, fire protection and safety, as well as landscaping and defensible space guidelines specific to the geographic area have been developed and distributed through mailings, public events, and on websites. Lists of recommended fire-resistant plant species have been developed to a lesser extent but are valuable, particularly in new developments. Publicity in newspapers, on radio, television and through video rentals which discuss wildfire protection, hazard reduction planning, and thinning projects are another way residents are being informed.

Classroom resources and teacher education are part of the overall education component in about 35 percent of the jurisdictions with wildfire risk mitigation programs. In several states, a fire science component has been added to the science curriculum. Software and media firms have been contracted to create the curricula for educating students about wildfire ecology, safety and protection. The curricula often include the use of interactive cd-roms and videos.

Fire protection officials have developed their own classroom programs in many areas. These efforts have included “hands on” defensible space and fire safety programs for grade school students. Those targeting high school students have involved fuels removal around schools and field exercises, such as assessment and mapping of high fire-risk areas in the community.

In about 70 percent of the wildfire protection programs, fire officials conduct community and neighborhood meetings. In these meetings a dialogue between residents and fire officials is established and issues related to wildfire protection measures for the area are explored. Wildfire management officials are also promoting firewise workshops for volunteer and career firefighters, planners, developers, and policy makers. The workshops generally focus on developing a wildfire risk management plan for the town/community. About 25 percent of the localities we researched had provided at least one workshop as part of their education efforts.

Demonstration projects

Demonstration projects provide examples of fuels treatment for homes or small forests. They give landowners the opportunity to see the recommended fuels treatments in a landscape similar to their own, and to reduce anxiety over tree removal or recommended residential landscape design. Demonstration homes, gardens, trails, or forests which show firesafe landscape design, plantings of fire-resistant species suitable to the local climate and soils, and thinning options were a component of about 50 percent of the programs. Two notable examples of demonstration projects are the High Desert Museum in Bend, Oregon which features a nature trail showing conditions before and after thinnings, prescribed burns, and uncontrolled burns; and the Fire Safe Garden at the University of California at Berkeley, which demonstrates recommended species and planting arrangements around typical building components.

Wildfire Risk Assessments and Mapping

State-level wildfire risk assessments and mapping projects were underway, or had been completed, in most of the state programs, and in about 50 percent of the county and localities with wildfire risk management programs. Designation of high-risk areas is accomplished by studying the interaction of individual risk factors such as fuel loading, topography, fire history, climate, housing density, and infrastructure for fire fighting. These factors are ranked and mapped individually, and then overlaid to find areas where factors combine to define areas of highest risk. Assessments at the regional, state and county level are used to target high-risk areas for intervention based on GIS data using remote sensing and fire behavior models. This information is then supplemented at the county, municipal, and subdivision levels through inspections by trained personnel using a wildfire hazard severity rating system to determine risk for individual homes and subdivisions. Hazard severity rating systems used are often based on a model developed by the National Fire Protection Association. The model assigns a rating for individual components of wildfire risk related to vegetation, home construction materials, road design and access, water availability, signage, and other factors. From these ratings, a composite hazard severity score is assigned (NFPA 1997).

Homeowner Assistance

Direct assistance to homeowners was provided in about 65 percent of the areas researched. Homeowner assistance includes the evaluation of the individual home's wildfire risk, prescriptions for fuels reduction, free or cost-share treatment of fuels, chipping of debris, and slash disposal. Despite the high cost of land treatment for homeowners, 75% of all jurisdictions providing assistance to homeowners offered either free or cost-sharing treatment. More than 60% of those offering assistance offered either chipping of slash or debris disposal, with many instituting regular curbside pickup or establishing community disposal sites. Public/private partnerships to create fuelbreaks around wildland urban interface communities were a common program element; most often, managers of government-owned lands treated fuels beyond the boundaries of public holdings, such as thinning adjacent private property to reduce the fire threat to homes and communities.

Regulatory Programs

Six of the 27 states and about 40 percent of county and municipal governments have adopted laws, ordinances, or regulations pertaining to wildfire planning, fuels treatment, and other wildfire mitigation practices. To date, only the State of California has adopted and enforces defensible space regulations for all structures in high wildfire risk areas; however, direct regulation by the State does not apply to incorporated towns.

Most regulations exist at the county level, and address risk reduction for new construction or substantial remodeling of existing structures. Falling under the police powers to protect public health, safety and welfare, regulations are often incorporated in a jurisdiction's Zoning Ordinance, Subdivision Regulations, or Building and Fire

Codes. Jurisdictions that have completed mapping projects usually designate high hazard areas on an overlay map, and restrictions apply only to those areas. In many locations, developers are required to submit detailed development plans prepared by a professional forester and create a plan to mitigate wildfire risk before either subdivision approval or a building permit is issued. Regulations requiring existing homes to comply with standards to create and maintain defensible space are less common. Many administrators have been relying on education efforts or other aspects of their mitigation programs to motivate homeowners to reduce fuels around homes, but expressed a hope that regulations for existing homes might be passed in the future.

Wildfire hazard mitigation programs' database

As officials develop wildfire mitigation strategies, a knowledge base of existing programs, and what has been successful in similar communities, can greatly enhance planning efforts, while reducing time and cost in implementing new wildfire mitigation strategies. To date, only limited information has been compiled about the programs, policies and tools being used across the country to mitigate wildfire risk in the wildland-urban interface. Some agencies and organizations have websites with information about successful mitigation efforts on a limited scale (California Fire Alliance 2004, National Wildfire Coordinating Group 2004, and Wildland Fire Leadership Council 2004). Particularly lacking is information about regulatory programs.

To facilitate the broader dissemination of ideas among fire protection officials, community leaders, policy makers, planners, educators, and homeowners we have developed a central clearinghouse describing the wildfire mitigation programs that sub-federal governments across the country have implemented -- the website www.wildfireprograms.usda.gov. The website currently describes 184 programs that are being implemented in 125 areas in 27 states and the database continues to be expanded.

Because website users may be interested in specific approaches to wildfire mitigation, we have designated categories for programs in the database search feature. These categories include education, designation of high-risk areas, homeowner assistance, regulatory, and community recognition programs. Website search options also include selecting programs for each individual state and by administrative jurisdiction, – i.e. state, county, city/town, or fire district; or, users may use multiple selections from the search features. Program descriptions include background information, key features, and highlights of the most significant activities. Program profiles also include the program manager's contact information and links to pertinent websites.

Discussion

National Fire Plan grants have provided much needed funding to offset the cost of state and local wildfire mitigation programs. In 2001, communities received \$28 million for wildfire hazard mitigation projects through federal State Fire Assistance (SFA) Program grants. Funding for the SFA community grants increased to \$51 million in 2002 (U.S. Departments of Agriculture and Interior 2003). In addition, the

Healthy Forests Restoration Act of 2003 points to increased federal emphasis on reducing wildfire hazards on federal lands and promoting actions to protect WUI communities. Given these factors, and the continuing trend of human development in fire-prone ecosystems, it is likely additional high-risk areas will be adopting wildfire risk management strategies and that existing programs will be expanded.

In the future, regulatory mechanisms may be an increasingly common component of wildfire mitigation programs. Many of the regulations and ordinances we identified had been adopted in recent years, and a number of fire officials indicated that regulatory programs were being formulated or considered for adoption.

Insurance programs also may play an increasingly important role in shaping homeowners' wildfire mitigation efforts in the future. Insurance companies have experienced large losses due to wildfires in recent years. For example, a single fire event, the Colorado Hayman fire, cost insurance companies \$38.7 million, accounting for more than half of the state's \$70.3 million in total insured losses for wildfires in for 2002 (Reese 2003). As a result of an increase in perceived risk, State Farm Insurance Company initiated a home inspection program to evaluate defensible space and wildfire hazards around homes in the summer of 2003. Over 20,000 homes in six Rocky Mountain States are slated for inspection. After evaluation, insurance officials will make recommendations for treatments to homeowners in writing. Homeowners will then have two years to make the recommended modifications. Although the inclusion of wildfire risk in insurance evaluations is new, some properties in very high-risk areas of California have been subject to a "brush surcharge" on premiums for several years

Conclusions

Through the use of the national wildfire programs database website, fire protection officials, community leaders, policymakers, planners, and educators can learn about the strategies communities are employing to reduce wildfire risk and how these programs have been funded, administered, and implemented. The website can facilitate the development of effective state and local wildfire risk mitigation programs while reducing time and cost in planning and implementing new wildfire mitigation strategies. Continued development of the website database will include wildfire risk management programs in more states and will update information about existing programs.

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