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

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Abstract

The growth of residential communities within forested areas has increased the danger to life and property from uncontrolled wildfire. In response, states, counties and local governments in the United States have dramatically increased their wildfire mitigation efforts. Policymakers and fire officials are employing a wide range of regulatory and voluntary wildfire risk reduction programs. We researched wildfire hazard mitigation programs developed by state and local governments to establish the website, www.wildfireprograms.usda.gov. The website is a clearinghouse of information to assist wildfire protection officials, community leaders, and policy makers in the development of effective wildfire mitigation strategies. The website currently describes more than 190 programs in 31 states, and includes information about the purpose, features, and accomplishments of wildfire hazard mitigation efforts; as well as links to pertinent websites and program managers' contact information.

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Introduction

Recent years have brought dramatic expansion of residential development into the Wildland-Urban Interface (WUI). A century of fire suppression and extended drought in the West, has placed property, natural assets, and human life at increased risk for wildfire destruction. 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). Also, 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. Departments of Agriculture and Interior 2004). The escalating losses and wildfire risk exposure in the WUI has prompted policy makers and fire managers at all governmental levels to take action. Government officials face a complex challenge—creating effective wildfire mitigation strategies within the built environment.

To date, only limited information has been compiled about the programs, policies and tools being used across the United States to mitigate wildfire risk in the WUI. Some agencies and organizations have websites with information about successful mitigation efforts (California Fire Alliance 2004, National Wildfire Coordinating Group 2004, and National Wildland Fire Leadership Council 2004), but 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 state and local governments across the country have implemented -- the website www.wildfireprograms.usda.gov. The website currently describes more than 190 programs in 31 states, and includes information about the purpose, features, and accomplishments of wildfire hazard mitigation efforts; as well as links to pertinent websites and program managers' contact information. Through the website, community officials can explore wildfire mitigation efforts currently at work in other communities, as they formulate strategies to better protect their citizens.

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 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. Information collected from fire protection officials included 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 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 state and local wildfire risk management efforts, we identified a number of common program components. We organized these components under the broad categories of education, demonstration projects, wildfire hazard assessment and mapping, homeowner services, and regulatory programs.

We constructed a matrix using all responses to determine the frequency of these components. State, 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 residences.

Education

In our examination of program components, we found that a component for education was universal in all 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 a 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 for new developments. Public notices in newspapers and on radio and television 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 curricula for educating students about wildfire ecology, safety and protection. The curricula often include the use of interactive cd-roms and videos.

In many areas, fire protection officials have also developed classroom programs. These efforts have included "hands on" defensible space and fire safety programs for grade school students. Those programs 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 around residences or in small forested areas. These projects give landowners the opportunity to see the recommended fuels treatments in a landscape similar to their own situation. 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 one-half 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 states and in about 50 percent of the local jurisdictions. 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 using GIS. Assessments at the regional, state and county level are used to target high-risk areas. In many jurisdictions, trained personnel use 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 (NFPA). 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 localities 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 percent of all jurisdictions providing assistance to homeowners offered either free or cost-sharing treatment. More than 60 percent 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

A number of policy mechanisms—plans, laws, ordinances, or regulations-- have been employed to encourage fire-wise planning and to mitigate wildfire risk through fuels treatment. Comprehensive community wildfire protection plans have been adopted in 31 jurisdictions. These plans take a variety of forms but most often include the assessment of wildfire risk and identification of high-risk areas. Based on the assessment, at-risk areas are then prioritized for fuels treatment. Another common component of wildfire protection plans are recommended educational measures to inform residents about steps they should take to reduce the ignitability of structures.

Laws, ordinances, or regulations were adopted in 74 jurisdictions that require property owners to treat fuel hazards and/or comply with specific defensible space standards. While some county and municipal regulations require defensible space and fire-wise measures for existing homes, most apply only to new developments. At the state level, only California has adopted defensible space regulations for both new developments and existing structures. In many locations, developers are required to submit detailed plans prepared by a professional forester that contain a provision to mitigate wildfire risk before either subdivision approval or a building permit can be issued. Most often these requirements were adopted in either subdivision/ development regulations or the jurisdiction's fire code.

State guidelines for model ordinances and/or fire protection plans were established in nine states as models for adoption in local jurisdictions. Many of these are modifications of the National Fire Protection Association's Standards for Protection of Life and Property from Wildfire, or the International Code Council's International Urban-Wildland Interface Code.

Other policies utilized in some jurisdictions to address fuel hazard reduction are building and land use codes, insurance guidelines, and real estate disclosure laws. The diversity of policy mechanisms implemented indicates that units of governments are dealing with wildfire risk in ways that best facilitate the structure of their political, legal and administrative systems.

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 that 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 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 in most areas of the nation, some properties in very high-risk areas of California have been subject to a "brush surcharge" on premiums for several years.

Conclusions

As state and local government 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. Through the use of the national wildfire mitigation programs database website, fire protection officials, community leaders, policymakers, planners, and educators can learn about the strategies other communities are employing to reduce wildfire risk and how these programs have been funded, administered, and implemented. Continued development of the website database will include wildfire mitigation programs in additional states and updates of current entries.

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