



GIS Helps Manage Wildland Fire Threat

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The threat to loss of life, property, natural resources, and other valued assets from wildland fire is significant. This is a growing problem facing federal, state, and local fire suppression agencies; those involved in land management and community planning; and residents throughout the United States. Continued human development or encroachment into wildland areas has increased the potential for wildland fires, added to the complexity of fire suppression in these areas, and has required enhanced fire protection strategies.

Fire science studies have documented the most important factors in protecting a structure: the relationship between its flammability (i.e., its structure ignition component) from fire brands and the heat transferred from surrounding fuels that are ignited near a structure. Despite early findings that the wildland–urban interface is not a geographic location that can be easily mapped, GIS serves a vital role in finding a long-term approach that maximizes the protection of values that are at risk while minimizing losses and impacts.

The wildland–urban interface is a set of conditions that can occur anywhere where structures and wildland fuels are in close proximity. GIS can be used to map the dynamic interrelationships and spatial arrangements of fuel, topography, weather, and conditions that create dangerous wildland fire behavior. This mapping can be performed at parcel, community, landscape, and regional scales.

Despite a decrease in the number of wildland fires over the past 20 years, the fires that do occur have resulted in larger acreage losses. In 2002, the total number of fires recorded was 73,000. Although this was the lowest number of fires recorded for more than 40 years, approximately 7.2 million acres were lost in the same year, making it the third largest loss in approximately the same period. Two of the three worst recorded wildland fire seasons since 1960 have occurred in the past three years, and 10-year averages document these trends.

The wildland fire problem gained national attention following the 1985 season when 1,400 homes were destroyed. A multiagency effort, the National Wildland/Urban Interface (WUI) Fire Program, was established in 1986. The National Wildfire Coordinating Group, the multiagency advisory committee for WUI, has tackled this problem and advanced solutions through the WUI program. Firewise Communities is a program developed by the National Wildland/Urban Interface Fire Program.

The Firewise Communities Workshops program is a public/private partnership project that encourages individual homeowner responsibility, multihazard planning, multidiscipline and interagency cooperation, and community partnership in building a proactive and collaborative planning process. Workshop participants—builders, insurance and real estate professionals, environmental specialists, fire managers, planners, and homeowners—are involved in community design, development, and planning. The goal of these workshops is to design and develop homes and communities that will survive a wildland fire without requiring the intervention of fire suppression resources. A community GIS database that maps community values and issues of concern is the foundation of this type of planning. For information about Firewise Communities, visit the organization's Web site (www.firewise.org).