



American, Australian, and Canadian WUI programs Hitting Home

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Homeowner education programs are a common tool for wildfire management in the wildland urban interface (WUI) regions of the US, Australia and Canada alike. WUI is defined as an area “where humans and their development meet or mix with wildland fuels” (USDA Forest Service). In the US, public relations and education programs have been a critical part of WUI fire management ever since the inception of the US Forest Service suppression campaigns. Funds allocated to homeowner education are seen as valuable investment dollars with the potential for high-yield returns. In a survey of over fifty administrators of both regulatory and voluntary wildfire risk programs across the US, public education programs ranked as one of the highest priorities and successes for mitigating wildfire risk in the WUI (Reams et al. 2005). There are three main WUI education programs in the United States, Australia and Canada, respectively: FireWise, FireSmart and Prepare: Stay and Defend or Go Early. These programs are aimed at communities and homeowners with the common goals of modifying their behaviors and preparing their properties to account for the reality that wildland fires may reach their doorsteps. These programs all seek to inform the public about wildfire dangers and suggest actions and tools individuals and communities can use to mitigate risks to WUI property.

However, there are some distinct differences between the Australian and North American approaches. FireWise and FireSmart are programs developed in the US and Canada in the 1990’s that seek to reconnect WUI homeowners with the realities of wildland fire in response to increasing urbanization in close proximity to fire-prone wildlands. The innovative Stay and Defend approach is an educational program derived from decades of first-hand experience with interface bushfires in Australia.

The Australian program emphasizes sharing responsibility with homeowners much more clearly in terms of preparation, and in some cases, the actual defense of the property. The success of the program has even inspired a US version called Shelter in Place, which has been introduced in San Diego. Both of these are discussed more ahead as potential models to guide the future of preparing for and fighting wildfires in the ever expanding interface.

Prepare: Stay and Defend or Go Early

The concept of Stay and Defend has gained international attention in recent years and has expanded Australia’s influence in the field of fire management. Stay and Defend ultimately encourages residents to consider the option of remaining on their property in the event of an approaching wildfire and defending their property from potential ignition. This concept and approach is unique, despite the fact that homesteaders world-wide practiced their own form of “stay and defend” for centuries before established, mobile-mechanized fire suppression programs existed. In many developing nations, and where suppression tools are not available, defending one’s property is the only choice. But Stay and Defend is complemented by an alternative approach also advocated by Australian fire management agencies-- “Go Early.” According to Alan Rhodes, Manager of Community Safety Research and Evaluation at the

Victorian County (AU) Fire Authority, “We do not tell people whether they should stay or go.” Rather, citizens are provided with information describing their options and the decision rests within the household, based on their own level of preparedness, particular site conditions, and actual fire behavior. The approach reflects a realization from fire management agencies in Australia that residents can benefit from sharing the responsibility for their own safety and the safety of their homes.



This well-prepared home survived a hot crown fire that passed nearby. Credit: Utah State University Extension.

A series of informative brochures and a massive advertising and outreach campaign have worked to convey the message. Similar to the FireWise and FireSmart programs, homeowners are encouraged to take measures as soon as possible to protect their homes from potential wildfire. Brochures also present descriptions of what conditions are to be expected if residents decide to stay and defend their homes. Residents who are elderly, infirm, or physically or emotionally unable to actively defend their homes are strongly encouraged to evacuate early – stay and defend is not appropriate for everyone and a last minute decision to evacuate could cost lives.

At an Australian bushfire information media day last October, Professor John Handmer, the Director of the Center for Risk and Community Safety at the Royal Melbourne Institute of Technology (RMIT) discussed some of the research examining the Stay and Defend or Go Early program. His findings present overwhelming support for the program: Most fatalities in bushfires were caused by people leaving their homes at the last minute; a significant portion of those killed or injured were in their vehicles or out in the open attempting to escape on foot. (Media Presentation Handmer 2006) Research following the legendary 1967 Tasmanian Hobart fire showed that 50% of those who lost their lives while fleeing actually left houses that never burned down. A central tenet behind the program is that a home, even if unprepared, offers residents greater protection than fleeing on foot or in an automobile. Similarly, bushfire researchers are hoping to change perceptions as to how homes actually burn in a fire. Scientist Justin Leonard of Commonwealth Scientific and Research Organisation (CSIRO) Sustainable Ecosystems (AU) argues that greater than 90% of homes lost in bushfires were not consumed by the main fire front, but instead by accumulated embers and spot fires. According to Leonard, active participation by homeowners following the passing of the fire front could save the vast majority of homes lost to bushfires.

FireWise

FireWise is a non-profit United States federally funded program that advocates infrastructure-based solutions to fire management problems for communities, homeowners and firefighters. The organization works across agencies at multiple levels and produces a variety of educational products. According to Jim Smalley, Program Manager at FireWise, the most successful of their programs are those targeted at homeowners and communities. At the homeowner level, FireWise has developed a series of informative brochures, highlighted by the “Is Your Home Protected from Wildfire Disaster” guide to home retrofitting. This twenty-five page guide provides landscaping and home construction information detailing flammability hazards and tactics to minimize them. In addition, a fire risk assessment tool is included to help residents gauge the potential risk-factors that they and their homes face. Key to the FireWise program is faith in an infrastructural approach to fire safety: If homes and communities don’t catch on fire, people won’t be injured and firefighters won’t be involved in risky situations attempting to save property. Several tragic events in the past several years have demonstrated the perils firefighters face when trying to defend homes from wildland fires. One of the deadliest wildfire incidents in recent history, the Esperanza Fire in Southern California, claimed the lives of five fire fighters who were defending a WUI

neighborhood. Even with the home protection program advice, FireWise still advocates that homeowners should evacuate if a wildfire threatens the area rather than actively participate in home defense.

Taking the FireWise home-front ideology further, the organization has developed a FireWise Communities initiative and recognition program designed to identify entire communities who have taken fire prevention steps to ensure their safety and longevity. The communities must carefully consider a number of items, including:

- Access and escape roads
- Vegetation removal from within 30 feet of structures
- Fuels reduction in nearby forests (e.g. shaded fuel breaks, defensible fuel profile zones, thinning and/or mastication of fuels)
- Water supplies (should be dedicated for wildfire events)
- Exterior building materials

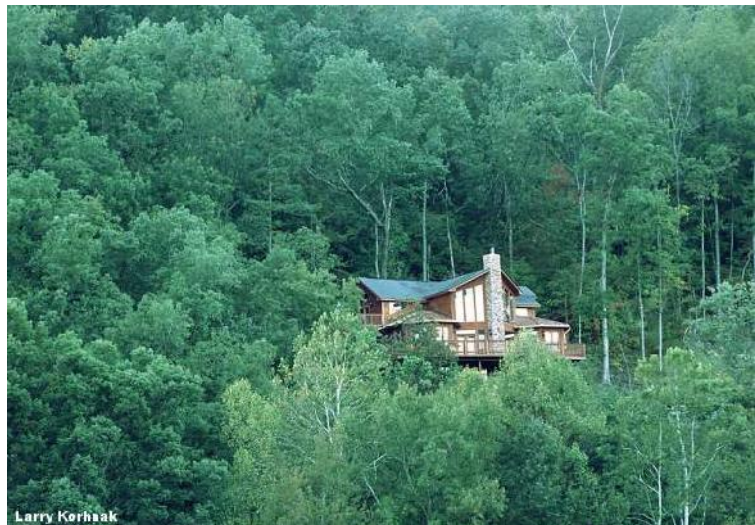
To date there are over 230 officially recognized FireWise Communities spanning across the country in 34 states. The communities show a fairly geographically uniform distribution across the country with several surprising clusters and gaps. Arkansas has the most FireWise communities with over 50 certified. Other states well represented by the program include Washington, Florida, Arizona and Virginia. Surprisingly, California, a frequent hot-spot for WUI fires, has only 5 recognized FireWise communities.

FireSmart

The FireSmart Program was initiated in the 1990s in Canada and has since grown under the auspices of the non-profit NGO, Partners in Protection. Partners in Protection is an organization comprised of members from a variety of local, provincial and national agencies involved in natural resource management, planning, and emergency management. As a non-profit, explained Brian Modis, Administrator of Partners in Protection, the organization is less influenced by political pressures than government agencies. “Managers can hang their hats at the door when they walk in,” said Modis, “and groups with differing objectives can work together for the overall benefit of Canada.”

*Home in the wildland-urban interface.
Credit: Larry Korhaak*

The FireSmart and FireWise programs are quite similar. FireSmart focuses on developing multi-scalar community wildland fire protection plans that range from individual homeowners to communities, and include designs for fuel-breaks to protect entire cities. The primary source of information distribution is the “FireSmart: Protecting Your Community from Wildfire” guide. This guide is available online in print, or on CD, and covers topics including: the wildfire hazard assessment system, solutions and mitigation, WUI training (for individuals, professionals and local leaders), communications and public education, land use planning, and examples of communities taking action to decrease their risk. For individual homeowner residing in the interface, FireSmart advocates home fire protection methods and fuels management practices that should be completed in advance of the wildfire season. Once a fire threatens the property, FireSmart, like FireWise, instructs homeowners to prepare their homes by limiting interior access to embers and sparks, providing visible tools and water sources for firefighters and evacuating to safety. When asked about shelter-in-place or stay-and-defend options for Canada, Modis said that the original FireSmart guide actually included information for homeowners about making the decision to stay on the property. However, he explained, such information was removed from



subsequent publications due to litigious concerns. It was his opinion that stay and defend could be an effective option for Canada in the future.

Shelter in Place

An innovative version of Stay and Defend has emerged in the United States in recent years with the concept of Shelter in Place. Shelter in Place is a program advocated by the Rancho Santa Fe Fire Protection District (FPD) outside wildfire-prone San Diego in Southern California, US. The program has created its own firestorm of controversy among local residents and garnered the attention of fire managers across the country. Shelter in Place encourages citizens in certified Shelter in Place planned communities to stay within their homes, businesses, and schools in the event of an approaching wildland fire. Designation of these planned communities has hinged on several key fire protection aspects: Fire resistant home materials, fire resistant landscaping, and fire protection features for the homes and community.

Rancho Santa Fe FPD Fire Marshal Cliff Hunter explained that the concept of Shelter in Place communities originated 10-15 years ago with what was then new information, advocating the incorporation of fire prevention strategies into community design. Yet only in the past 5-7 years has building technology advanced towards creating truly fire resistant homes. As of April 2007, over 5,000 houses in the Rancho Santa Fe district were certified under the Shelter in Place program, Hunter explained. Homes in those communities are subject to annual inspection by the FPD, a key element in maintaining the safety and effectiveness of the structures. Residents who alter their homes or landscapes in a way that could increase fire risk will be required to make modifications or remove the alterations. For those who choose not to take corrective actions, the District will pursue forced abatement actions following proper homeowner notice and apply charges incurred to the homeowner's annual property tax bill. Hunter argues that increasing the risk of fire at one home increases the risk of fire for the neighbors and the entire community.

Although older communities cannot be certified as Shelter in Place under the current program, they can be "hardened", or modified in some aspects of their construction and landscaping, to increase their fire prevention measures. Shelter in Place uses some of the same justification which prompted Australia's Stay and Defend program: A large percentage of civilian casualties in wildland urban interface fires are actually the result of hastened evacuations. In contrast to Stay and Defend, Shelter in Place does not encourage residents to actively participate in extinguishing the fires. They are instead instructed to "batten-down-the-hatches" and wait for the fire to pass. Educational materials and programs for Shelter in Place communities are restricted to certified areas. Non-certified communities are not instructed to stay in place in the event of a fire, but instead are implored to evacuate.

Encouraging the local public to seek shelter from the fire within their homes has stirred controversy surrounding these certified communities, and has positioned community leaders against skeptics who remain unconvinced that Shelter in Place community planning will be successful. Putting it simply, in defense of the program, Fire Marshal Hunter explained: "In Florida, homes are constructed to resist hurricane winds; in California, homes are constructed to withstand earthquakes; why then aren't we building homes and communities to resist wildfire?"

Final Comments

As reflected in FireWise and FireSmart educational programs, the central paradigm in North American WUI fire management is to evacuate residents in threatened neighborhoods or communities, and to do so as early and safely as possible. In contrast to Australia's Stay and Defend approach, the FireWise / FireSmart programs could both be referred to as "Prepare and Leave". Residents are encouraged to do the best that they can before wildfires begin, and when wildfires threaten a locality, residents are encouraged to evacuate according to a pre-developed plan. In the US and Canada, during the period of the actual threat, the wildfire is monitored or suppressed by local, state, and federal agencies. The Australians have taken an alternative approach and shown that fire protection can be successful if shared amongst agencies and homeowners alike.

As news of the Stay and Defend program has spread outside of Australia, support for the program has grown – even in the United States. For example, noted Tasmanian Fire Service Chief John Gledhill

promoted the Stay and Defend approach in a presentation at the 3rd International Fire Ecology and Management Congress in November of 2006. His argument has had an impact on many fire managers in the US, and could lead to a shift in WUI fire management in the future. Author Thomas Wolf noted in his recent book, "In Fire's Way – A Practical Guide to Life in the Wildfire Danger Zone", that, "No amount of federal money, federal troops, federal aircraft or federal firefighters can save us from wildfire hazards we ourselves can and should handle." Similarly, famed fire author Stephen Pyne speaking at the 2006 Congress, expressed his support that Shelter in Place is a program that the United States must work to perpetuate.

Beyond the theory lies the financial burden that Stay and Defend helps to alleviate. The 2006 U.S. Forest Service Large Fire Suppression Costs Inspector General Audit Report cites that WUI protection in large fire events assumes 50 – 95% of the cost of fighting large wildfires. Taken into the total account, this amounts to between \$547 million and \$1 billion in 2003 and 2004. Whether Shelter in Place or Stay and Defend will be widely incorporated into North American WUI fire education programs remains to be seen. However, the results of the current FireWise and FireSmart pursuits are showing that unless drastic changes are made, the future of fire in the WUI will be costly for state and federal agencies, and especially for the firefighters who endanger their lives to protect WUI property.

Advances in Fire Practice is a sub-site of wildfirelessons.net and is focused on bringing efforts and ideas to the forefront that leaders in the fire management, practice, and research communities have identified as innovative and widely applicable. It provides access to critical and proven fire information and resources. Advances in Fire Practice section can be reached directly by going to <http://www.wildfirelessons.net/AFP.aspx> or through the main Wildland Fire Lessons Learned Center website at www.wildfirelessons.net.

The Wildland Fire Lessons Learned Center actively promotes a learning culture for the purpose of enhancing safe and effective work practices in the entire U.S. wildland Fire community. It is located at the National Advanced Fire & Resource Institute in Tucson, Arizona.

