The Wildland/Urban Interface

What's Really at Risk?

by

Paul Summerfelt [1]

THE WILDLAND/URBAN INTERFACE

WHAT'S REALLY AT RISK?

Abstract

The interface has long been a matter of discussion among land managers and wildland fire professionals. With the release of the National Fire Plan in the fall of 2000, and subsequent congressional appropriations designed to treat hazardous fuels, new parties have joined the debate. The reality is that the interface is bigger than most realize and some are willing to accept. It can easily encompass several jurisdictions and ownerships. It may extend for miles and include substantial public land. A new definition of interface is required, along with a commitment to protect and preserve **all** neighborhood and community values-at-risk.

Various definitions exist as to exactly what the interface is and where it is located. One of the most common is that it is "a geographic area where formerly urban structures, primarily homes, are built in immediate proximity to naturally occurring flammable fuels."

Two functional definitions are that it's the area within a dogs-walk of the house, or as far as one can hit a golf ball from the porch. Both of these describe what many have come to accept: that the interface is what's in the yard, or within sight of a structure. The underlying theme is that the interface is within a relatively close distance to a structure, often expressed as anywhere from 30 – 600 ft.

Traditionally, the Interface has been viewed as an area immediately adjacent to structures.
Photo by: Bonnie Holmes (1999)

In recent years, Jack Cohen, a scientist with the US Forest Service Fire Laboratory in Missoula MT, has directed a research project focusing on how structures ignite during a wildfire – the home ignition zone. (The reader is encouraged to visit *www.firelab.org* to study this research.)

Some have used the results of Jack Cohen's work to justify their position that hazard fuel mitigation work should be strictly limited to within a relatively short distance of structures. At first blush, this approach may appear sound. However, it is a path that offers only the illusion of neighborhood and community protection.

Others believe that no attempt should be made to reduce hazardous fuel accumulations; when fires burn, forest dwellers should be on-their-own. The rationale for such a stance ranges from financial – why spend taxpayer dollars? – to outright opposition to cutting trees, characterized by the zero-cut movement.

Those who advocate these positions fail to understand that structure damage or loss is not the only, and may not even be the main, value-at-risk. Surprised? To fully understand, one must examine the multiple threats posed by wildfire. They are not uncommon, nor are they difficult to find. They include:

Immediate

When fires rage, our focus is drawn to the event itself. The underlying theme is "Smoke & Flames". It can be dramatic and scary for the neighborhood or community, and may be of regional or national interest.

Homes (and other Infrastructure) – Fire professionals realize that in today's world, few wildfires burn where there is not some threat to structures, fences, powerlines, communication sites, or some other type of infrastructure. "Structures threatened" is often the lead for media stories emerging from an incident, and stories and pictures after the fire often focus on individuals shifting through the rubble searching for whatever's left.

There is no disputing the fact that treatments in the immediate area around structures, designed to reduce fire intensity, can dramatically improve their survival potential. However, restricting treatments to these areas does little to protect other values-at-risk, some of which may be equally or more important from a neighborhood and community standpoint.

Public Panic – Wildfires can induce fear, concern, and panic. This can result in a marked increase in call volume at the local dispatch center, thereby reducing the ability to service other emergency calls. In addition, access routes into an incident may be clogged as people either flee the scene or attempt to return home to protect their property or remove other family members or pets. The Spokane WA firestorm and the Oakland Hills CA wildfire of the early 1990's, and the Florida fire siege of 1998, are tremendous examples, and lessons, of these realities.

Public Health – During the 2000 fire season, Montana's Bitterroot Valley provided dramatic evidence of the danger of living in a fire-zone. Besieged by numerous fires, residents of the area were exposed to smothering heavy smoke for several weeks during August and into early September. This resulted in a dramatic increase in both Doctor visits and hospital admissions during and immediately after the fires. Many of those affected lived miles from the actual fires.

Firefighter Safety – In 1997, the "*TriData Study: Wildland Firefighter Safety Awareness Study*" was commissioned to find ways to improve firefighter safety. (Now refereed to as the *SAFE Initiative*,

it can be viewed at *www.nifc.gov/safety_study/phase [I, II, or III]).* Of the 114 recommendations, the #1 was to "implement a large-scale, long-range fuel management program". Fire and land managers must insist on hazardous fuel reduction efforts on a landscape-scale basis if truly serious about improving safety. Small areas do not provide the level of protection necessary.

Fire Behavior – Given the right conditions, fire spread can be spectacular and rapid. In May 2000, the Viveash Fire on the Santa Fe National Forest NM traveled an estimated eight miles in one burn period, incinerating approximately 18,000 acres of forest that day alone. For those on-scene, the convection column during the period was beyond what many veterans had ever seen before. What is significant and not uncommon is that a fire start many miles from a developed area can literally be in the backyard by nightfall.

(One of the interesting sidebars to this entire discussion is that many who are so passionately involved have little or no actual fire experience, and have never been confronted with the demands of managing such an incident. In what other subject area would we refer to such people as "experienced" or "experts"?)

Secondary

After the fire is controlled, and both media and suppression resources have returned home, neighborhoods and communities are still left with the result. Savvy fire professionals realize that control of the fire may be the easiest part of the entire incident. For many of those who "remain behind", recovery can be a long-and torturous road.

Financial – Every fire season, stories emerge about the loss of revenue suffered by local businesses attributed to an on-going fire in the area. This can be particularly acute during the height of a summer tourist season. Multiplied throughout a community, the result can be very serious. Chamber-of-Commerce's, Tourism Bureau's, and other merchant associations may need to spend considerable time and money to market themselves and the area following a fire.

Depending upon the fire's severity, state and/or federal money may be available to help offset recovery costs. However, this money is not without cost. Staff time devoted to documentation and accounting requirements can be extensive and it may literally be years before all is settled.

Transportation – Fires can often disrupt travel corridors. This may involve air, rail, or vehicle routes. The 1994 Storm King Mountain fire in Colorado's Rocky Mountains rightly focused on the 14 firefighters who were killed during that event. But shortly thereafter, a debris flow from the fire site moved downhill and totally blocked the westbound lanes of Interstate 70 for an extended period-of-time.

Recreation – Opportunities to enjoy the out-of-doors are cherished by many. Activities are as varied as those who seek them out. But few individuals will travel to a blackened site to pursue recreation possibilities: the opportunity is "lost" until the effects of the fire have passed.

Rebuilding – For most areas, structures and infrastructure damaged or destroyed during a wildfire will need to be repaired or replaced. For many communities, this will involve rezoning requests, public hearings, issuance of new permits, and necessary work-related inspections.

Building and engineering Departments can be quickly overtaxed. This can be extremely frustrating to all involved.

Environmental – A devastating wildfire can affect a variety of environmental concerns. One of the most obvious is wildlife and plant habitat. Some of the sites most at risk are home to various Threatened & Endangered species. It is not uncommon to see this habitat listed as a threatened resource on a wildfire's daily summary report. Nor is it unusual to read this same habitat has been destroyed when reviewing post-fire narratives. It is extremely unfortunate that many who spend considerable time to shield these species ultimately doom their habitat to destruction.

Watershed values are another important concern. An example of such damage is the 11,000 acre Buffalo Creek fire which occurred outside Denver CO in 1996. The fire burned through a portion of the South Platte River drainage, a major contributor to the greater Denver metro-area water supply.

Within months following control, severe soil erosion was occurring. (While vegetation can recover given sufficient time, soil literally takes eons to replace.) Cheeseman Reservoir had to be drained and dredged. In the five years since the fire, thirteen 100-year flood events have occurred and two lives have been lost.

Forest health is another very real concern. Fires are natural events and have been present from the beginning of time. What has changed, however, is the severity of fires we are now experiencing. Western ecosystems have not evolved with the fire intensity they are now subjected to. Inaction or a timid approach to the issue is a death sentence for our forests.

Public Confidence/Support – Following any major incident, public review of officials and programs may occur. Confidence in individuals, institutions, and activities may be questioned. Moreover, this scrutiny is not necessarily reserved for public officials or institutions alone. It can easily be directed to private groups who have either opposed or advocated a particular course of action contrary to the public's desire.

In itself, this examination is not necessarily bad. But the lesson should be clear – foster efforts to prevent or mitigate the effects of the event prior to its occurrence or face the consequences. Proactive leadership is the preferred course. One should not underestimate the potential for detrimental reactionary program or legislative changes.

Scenic – Picturesque long-distance vistas are an important component of our landscape; many travel great distances to partake of the experience. For some, it may be much closer-to-home, such as an open-space area they pass everyday on their way to work. For others, it's simply enough to know they exist. Pictures, and views, do speak louder than words.

A comment often heard is "should a fire occur, that's what insurance is for". It's ironic that one never hears that from those whose home has survived, but which now overlooks a black, desolate landscape or from those confronted with several feet of mud in their home.

Emotional/Spiritual – Many individuals and groups may have intense bonds to a particular site. This bond is often overlooked or under-appreciated by many. Nonetheless, it is true and powerful. Damage, real or perceived, to these sites can cause mental or even physical pain to an

individual, a family, or an entire culture. An example of the latter is the sacredness of the San Francisco Peaks to many Native American tribes in the Four-Corners area.

Notice that ***Public Safety*** is not listed in either the **Immediate** or **Secondary** threat list. Fire professionals are occasionally chided by some for using the public safety argument too-frequently. But it is real, and it's not exclusive to either time-frame: the effects of a fire – both immediate and secondary – may threaten public safety throughout the length of an incident. As demonstrated above, the life of-an-incident may extend for years.

Do the points listed mean that private landowners are excused from the need to build wisely or implement vegetative treatments in the area immediately adjacent to the structure? No! In fact, to be truly effective, vegetative treatments must occur on both sides of the boundary fence. Work done close-in to a structure can prevent it's loss, while that done at further distances can prevent or mitigate the other damaging effects of a serious fire. Both are important: treating one without the other won't resolve the problems we almost always face when the fire(s) occur.

This leads one to re-examine the traditional definition of interface and the emphasis on treatments applied immediately adjacent to structures. A more functional definition of interface might be:

> *An area in-and-around a neighborhood or community where the immediate or secondary effects of a wildfire threaten values-at-risk and will be a serious detriment to the area's overall health and sustainability*

Such a definition broadens one's perspective and requires action outside of the building envelope.

The Interface is bigger than most realize and some are willing to accept.
Photo by: Paul Summerfelt (2000)

A successful example of an approach to mitigate the wildfire threat within the interface is found in Flagstaff AZ. With several hundred wildfires each year in-and-around the City, wildfire is the #1 fire threat to the community. The Flagstaff interface extends for several miles outside the city's corporate limits and includes private, county, state, and federal lands. It encompasses a geographic area that can reasonably be expected to burn given 2-3 consecutive days of active fire behavior.

Operating within the Prevention Bureau of the Fire Department, the Fuel Management program works to protect all values-at-risk threatened by wildfire. It has become a core-technology of the Department, equal to that of emergency medical service, hazardous material response, structure fire suppression, and the other numerous services performed by any municipal fire department.

With a full-time staff of five personnel, augmented by a 10-person seasonal crew plus one-two university student interns, the Fuel Management program treats over 1300 acres within the city each year with selective tree thinning, brush disposal, and prescribed fire. An active public outreach and education effort seeks to recruit property owners to implement treatments. New developments, including individual homes, are required to implement fuel hazard reduction efforts prior to occupancy. Fire personnel receive on-going classroom and field training so they may properly respond to interface fires; this includes membership on both regional and national interagency Incident Management Teams.

In addition, the City is an active participant in efforts to reduce dangerous fuel accumulations and restore forest health outside the City but still within the Flagstaff interface. City Fuel Management personnel will provide advice, prepare Forest Stewardship plans, designate trees for cutting, oversee treatments, and conduct prescribed burn projects if the proposed project is within the threat-zone of the City. Doing so is in the City's best interest. (Operational details of the effort are contained in a separate document -- *"Flagstaff Interface Treatment Prescription: Results in the Wildland/Urban Interface"* – available from the author.)

Wildfires in the Interface can easily threaten all neighborhood and community values.
Photo by: Eliot Pickett (2000)

The goal in the wildland/urban interface must be to protect **all** values-at-risk. Those who are accountable to the public, who have a responsibility to act, must do so to reduce wildfire threat across jurisdictions and ownerships and at considerable distances from structures. To do anything less is to neglect our duty to act and to jeopardize the health and sustainability of our neighborhoods and communities.

---

[1] Paul Summerfelt is the Fuel Management Officer for the Flagstaff Fire Department, Flagstaff AZ. He directs the City's Fuel Management program, now recognized as a national model. A professional forester and member of the Society of American Foresters, he has been involved in wildland fire management for the past 25 years. He has testified before the US House of Representatives on the National Fire Plan, is a cadre member with the National Prescribed Fire Training Center, and is a member at the Command & General Staff level of a national Type I Interagency Incident Management Team.