

CHAPTER 6. EXTERNAL INFLUENCES ON SAFETY

This chapter discusses the largest outside pressures that affect wildland firefighter safety. They include public and political pressures regarding which fires to fight and how to fight them; diminishing budgets and resources for firefighting; and forest health. The growing interdependence of various levels of government involved in firefighting might also be considered an external influence, but was already discussed in Chapter 4.

Public Fire Safety Education

Public perceptions and expectations of wildland firefighters and fire fighting are often formed from a lack of information, misinformation and inadequate understanding of wildland fire management and, in particular, the wildland-urban interface problem. The issue is summed up as follows in the publication Course to the Future: Positioning Fire and Aviation Management:¹

"The public's expectation for wildfire protection is growing. Development at the wildland/urban interface, coupled with demand for forest resources continues to escalate. Remarkably, this escalation is occurring with little public understanding-or tolerance for the ecological processes necessary for the health and sustainability of forests over the long term."

The report includes the following findings:

- Increasing public use and interest in public lands creates greater demands and conflicts.
- Internal and external awareness concerning fire's role in the ecosystem is limited.
- Public concern and expectations are not aligned with the Forest Service mission and capabilities.
- Population in the wildland/urban interface is increasing rapidly, and it expects and uses a significant amount of wildland protection resources.

¹ USDA Forest Service Fire & Aviation Management, Course to the Future: Positioning Fire and Aviation Management, Washington, DC, 1995.

- Wildland/urban realities, fire safe design and fuels management practices are not well understood or accepted by the public.
- The wildland/urban interface contains hazards that wildland firefighters are ill-equipped and ill-prepared to confront.
- The Forest Service Manual direction for planning wildfire suppression strategies prioritizes the protection of life (both the public and firefighters) above protecting natural resources and private property.²
- Due to the increased population and private development within the interface, *public concern and expectations influence decisions and the commitment of Federal resources.*

These findings apply, in some degree, to all of the agencies participating in this study. The last point especially implies (though does not overtly state) the critical link between the attitudes and perceptions of the public and firefighter safety. Public pressure to stop a fire when there are insufficient resources present can endanger firefighters.

Many members of the public have a more personal stake in wildland fire management than ever before. The interface population is burgeoning. More people are using public lands. Public expectations are high and influence strategic and tactical decisions that bear on firefighter safety. Decision makers on fires sometimes address public pressures by placing priority on protecting private property, and sometimes this is at the expense of firefighter safety, whether inadvertently or not. The agencies must do what they can to inform the public, the media and all levels of political leadership to bring public expectations in line with ecological reality, and with agency missions and capability.

²The 1995 Federal Fire Policy orders the priorities as 1) public and firefighter safety, 2) protection of resources, 3) protection of property.

The agencies have conducted many fine public outreach efforts in the past and continue to do so. They and various NWCG working teams have conceived or planned several promising initiatives for implementation in the near future. What is lacking is a comprehensive, coordinated strategy to assure that vital information is getting to the target audiences in sufficient quantity and with the desired effect. For example, the NWCG formed a Wildland/Urban Interface (WUI) Advisory Group to provide a forum to increase public awareness of the wildland/urban interface problem. The NWCG also sponsors the Wildland Fire Education Working Team (WFEWT).

The NWCG Wildland/Urban Interface Advisory Group maintains an Internet website which provides a central point of contact for mass distribution of prevention information. However, website visitors must request publications through the Publication Management System (PMS) of the National Interagency Fire Center. The PMS was designed to primarily serve interagency clients from government agencies. The National Fire Protection Association (NFPA) produces an extensive catalog and will provide some specific publications and videos from the NWCG agencies on request. However, the NFP A primarily serves a fire department clientele and does not handle or list products that compete with NFP A catalog products. The U.S. Fire Administration also handles some products from the NWCG group. While the efforts to educate the public have been fragmentary and not wholly 'coordinated, the goals remain clear:

Goal 83. Educate the public on the limitations and dangers of wildland firefighting.

Goal 84. Educate the public on the specific mitigating factors that may influence wildland fires and reduce damage from them.

Implementation Strategy 1 - Promote public education on the limitations of firefighting and practical mitigation efforts through a variety of venues.

The fire programs in the five agencies have been promoting Smoky Bear and other safety education efforts successfully for decades. The education efforts have focused on preventing the ignition of fires, with considerable success.

More recently, efforts have started through a variety of means to educate the public on the need for prescribed fire, and the measures people can take to better protect themselves in the urban-wildland interface zone. The agencies spend far less time informing the public on the limitations of wildland firefighting once a fire gets going, and the need for fire authorities to consider what is feasible and prudent when choosing a fire suppression strategy. These are more

difficult concepts to get across, especially without denigrating what is possible. Nevertheless, the point needs to be made in articles, various contacts with the media and formal public education programs.

Homeowners who live in or are planning to build homes in places that are frequently susceptible to fires should be advised of the danger, and should be advised that there may be many situations where firefighters may be unable to stop a wildland fire from destroying their home. The public needs to understand that the danger of moving into a forest that periodically has fires is the same as building a house on a seashore regularly buffeted by hurricanes. People do not expect emergency management forces to stay and buckle down their house, nor to face hurricane winds or tornadoes. They have to understand the same is true for wildland fires. They need to understand that, just as a river in full flood may overwhelm a line of sandbags, a fire driven by winds may overwhelm a fireline. Residents of flood-prone areas recognize that there is a point at which the sandbags cannot hold and the defense switches to an evacuation of the community. The same switch occurs in urban interface fires; however, even the potential for evacuation often comes as a surprise to the residents. They need to understand the priorities in Federal fire policy.

This educational effort will hopefully motivate the public to support mitigation of fire risks by homeowners and agencies, and also to decrease the political pressure for firefighter heroics to save homes. It may also help in dealing with the media and politicians when a fire could not be stopped if the homeowners involved had been advised of the danger ahead of time.

Both the top fire leadership, the Information Officers at fires, and in general the whole fire community need to take advantage of various opportunities to educate the public. Some specific approaches are noted below, but what really needs to be thought out is a different, intense national public education program to get the above messages across.

Implementation Strategy 2 - Broaden the efforts of the Wildland/Urban Interface Group, and link them to others.

The NWCG should expand the membership of the WUI Advisory Group to increase participation of opinion leaders from outside Federal agencies and from fire and emergency

services associations. For example, opinion leaders from the real estate, insurance, building, and landscaping industries should be involved. ³

The agencies, through the auspices of the NWCG, should connect the efforts of the WUI Advisory Group and the agencies' strategic efforts to improve firefighter safety efforts. Appropriate initiatives of the WUI Advisory Group, the Wildland Fire Education Working Team (WFEWT), and the Safety and Health Working Team should be linked. Comprehensive, coordinated effort should be the intent, with the end being greater outreach and more bang for the buck. Linking these related efforts into a comprehensive approach might be a useful and logical mission for the "Fire 21" cadre in cooperation with the NWCG.

Implementation Strategy 3 - Use the Internet.

The agencies, perhaps through the auspices of the NWCG, should enlist the cooperation of representatives from national building, architectural, landscaping and recreational organizations, and form public-private partnerships to link the Fire Wise Homepage and the planned NWCG Homepage to websites commonly used by the public to obtain information on real estate, insurance, building, architecture, landscaping, and recreation on public lands. Those planning to build in wildland areas need to know the risks (e.g., frequency of large fires in their area) and how they can mitigate them (e.g., landscaping, cleared space, construction materials, etc.).

The agencies, the WUI Advisory Group and the WFEWT should distribute publications and literature to the public through mechanisms that are "user friendly" and familiar to the public, including use of the Internet. The agencies are currently using the PMS distribution system and making some use of the Internet. However, the agencies should seriously consider a commercial-styled Internet bookshop and/or links to existing commercial booksellers such as Amazon.com.

³ A project we undertook for the fire program of the State of Washington Department of Natural Resources received considerable support from these outside groups. It was important to determine what they were doing on their own, and how much moral and practical support they were willing to lend.

The WUI/Fire Wise and NWCG homepages should also be linked to the homepage of the National Fire Protection Association (NFP A), U.S. Fire Administration (USF A), and others with fire safety education materials.⁴

Implementation Strategy 4 - Distribute catalog of public education materials.

As has been discussed by the WUI Advisory Group, the agencies (through NWCG) should produce a catalog to be printed and distributed, perhaps through the NFP A. Similar efforts should be made through partnership with the U.S. Fire Administration.

Fire Program Budgets

The reality of reduced budget levels, downsizing, and costs rising faster than budgets can have subtle but insidious effects on firefighter safety if proper precautions are not taken. Cutting corners in training, equipping, and supporting firefighters will lead to disastrous results eventually. Also, as preparedness budgets of some agencies remain high relative to budgets of other program areas, there is a tendency to allocate more indirect costs against fire accounts, further eroding the capability to deploy an effective and safe fire organization.

The external pressure to reduce the size of organizations produces the undesirable cumulative effect of continually reducing and diluting the experience level of firefighters.

Another external force compromising the safety of firefighters has to do with the environment in which they work. The safety of firefighters and the general public is being threatened like never before due to what some call a "forest health crisis" that has produced large accumulations of fuels and a greater likelihood for higher intensity fires. (The forest health problem includes increased insect infestation and disease, much deadwood, overgrown forests where natural fire has been excluded for decades, and changes in the mix of species.) Measures

⁴ Progress has been made toward this use of the Internet for something similar to what is recommended here. As of March 1998, a BIA computer specialist has been assigned to be webmaster for a computer site resident in F&WS that will provide a static page for the public, and an interactive (password controlled) page for agency personnel, for access to fire safety information and reports.

to reduce the threat to people from high intensity fires by improving the health of forests has significant budget implications as well.

Ironically all of these budget-related issues are cast in the shadow of the largest outlays ever made by Federal agencies in emergency firefighting funding in the 1990s. In 1994, for example, over 3 million acres were burned by wildfires on Federal lands, costing agencies one billion dollars in suppression costs. Newspaper editorials across the West were asking pointed questions about how this enormous outlay of money was helping citizens - as the fires seemed to be getting bigger and bigger that summer and the toll of firefighter fatalities mounted.

Obviously there is a need to define "the bang for the buck" that a given budget level entails. This definition should identify for the public a more balanced total fire management budget that better protects people, property, and natural resources. Fire prevention and hazard reduction need to become equal partners with the strong fire suppression program that has been in place for decades; and that equality needs to arise from a more equitable distribution of budgets among fire prevention, fire hazard reduction, and fire suppression programs. Encouragingly, major progress was made with the FY98 budget, which contained \$83 Million taken from suppression funds for prescribed fires and fuel reduction, but there has not been a similar move for fire prevention.

Goal 85. Fire budgets and their allocation need to be set with an eye toward their implication for firefighter safety.

Implementation Strategy 1 - Fund the new safety initiatives.

The many recommendations in this report for improving safety obviously do not come free. Many of the changes can be made as part of the existing budgets, often at low cost or no cost. For example, making communications into a two way dialogue, monitoring fatigue, better distributing existing radios, promoting accountability and doing on-the-job training all have low or no incremental cost. However, many of the recommendations will require extra resources (e.g., establishing a fire safety incident reporting system, or a Center for Lessons Learned; revision of many courses; or starting a safety bulletin). Estimates obviously will need to be made of the cost of implementing the recommendations, and considered when setting priorities.

Implementation Strategy 2 - Get budgeteers to clarify the potential impacts of different budget levels, including the shift to do more prevention and hazard reduction.

It is important to establish the connection between a budget and the level of firefighting it will pay for. Defining the capability (or reduction in capability) associated with a proposed budget already is part of the process of developing budgets. However, an effort should be made to do an even better job of defining the "bang for the buck" that a given budget level entails. What the public gets for its money should be identified as well as what the public won't get. In particular, budget decisions need to be made in the light of how many large fires could be fought at one time. These should be compared to the expected number of large fires, and the shortfall acknowledged. The shortfalls should not be made up by cutting comers in firefighter safety. Safety has to remain a constant priority regardless of the budget level. For example, if funding for seasonals is reduced, the reduction should not come out of the minimum amount of training they need at the beginning of the season, as has sometimes been done.

A part of this strategy is to ensure that decision makers and the public begin to appreciate that more of the same as in the past is not appropriate in safeguarding the health and welfare of the public and firefighters. The natural environment has changed. It is time to make a major course correction in the manner in which agencies allocate fire management budgets. It is increasingly important to identify that public needs and firefighter safety are better served by a more balanced fire management program in the future.

Agencies should develop fire management budgeting strategies that more equitably allocate funds among fire prevention, fire hazard reduction, and fire suppression program elements. More funding support should go towards fire prevention and hazard reduction programs in the future than has occurred in the past. Two of the agencies (NPS and FWS) do not break out prevention explicitly in the formalized "FIREPRO" budget process; they need to change this, and to fully identify and integrate prevention programs in the budget process.

Budget trends under the new Federal Fire Policy are upward, especially for fire management. What is critical at this juncture is to redefine planning processes to include safety issues; they should not be dealt with ad hoc. There is an opportunity to move from planning for acres under flame to integrated analysis of prevention/education, fuels management, and control needs.

The reduction in the spendable part of the budget attributable to indirect costs (the pre-planned limit for non-production items - what is overhead in industry) needs to be considered as well as the total budget when considering impacts on firefighting resources and safety. The indirect costs have been escalating but are often not taken into account in assessing capability.

Implementation Strategy 3 - Inform firefighters and fire managers about the budget decision.

We found considerable cynicism among fire managers and those responsible for safety that, despite public statements, firefighters ultimately are asked to do the same job and follow the same strategies even when budgets and resources are cut.

To reduce cynicism and remove this major barrier to changing the culture will require leveling with the firefighters and letting them know the intent behind budget decisions. Building in a reporting link about new budgets back to the firefighters may achieve three things:

- Help prevent Agency Administrators or political decision makers from violating the intent of a budget, by making it clear that they would be renegeing on a "deal" if they subsequently set the same requirements for the same number of fires with less resources.
- Reassure firefighters that attention to safety is serious, and that if cuts have to be made the firefighters are not going to be pushed beyond what is feasible with the remaining resources.
- Encourage fiscal responsibility with Agency Administrators ("plan the work; work the plan; charge as worked").

This feedback should be part of a deliberate policy to include employee participation in implementing change.

Implementation Strategy 4 - Modify the Fire Management Leadership course to reflect impacts of alternative budget strategies.

Disseminating information regarding the advantages of a more balanced fire management program should be done through the Fire Management Leadership Course at the National Advanced Resource Technology Center in Marana, Arizona. It should reflect the national leadership's important role in enacting such change, and the flexibility in allocating the budgets that Agency Administrators ultimately receive. At present the course is heavily weighted towards an Agency Administrator's reactive role in responding to a fire emergency, not towards

the more desirable proactive role of enhancing fire prevention and fire hazard reduction efforts prior to a wildfire. Firefighter safety would be well-served if the agencies increased emphasis on preventing a wildfire before it started, reducing hazardous fuels in advance of fire seasons, and restoring the ecological role of fire. Heightened awareness of these leadership responsibilities (with related re-focusing of resources) could begin to produce the necessary changes in budget allocations to accomplish more balanced programs on the ground. This recommendation also affects improving public education (Goal 83, 84) and prescribed fires (Goal 86).

Implementation Strategy 5 - Develop an interagency fire prevention strategy as input to budget.

An unwanted wildland fire that never starts is a wildfire that never exposes firefighters to risk. Although this truism is well understood at all levels, the fact remains that much more diligent attention is focused on fire suppression than on the real gains that might be made through implementing more progressive fire prevention programs. The excitement and appeal of crisis management is a major part of the organizational culture, and appears to many as more appealing than prevention activities.

A high-level interagency fire prevention strategy session should be convened to identify the latest innovations in fire prevention and to recommend budget levels needed to implement meaningful programs. A product of the session would be a Fire Prevention Strategy paper authorized by agency Fire Directors and distributed widely to fire management personnel highlighting the importance of relevant fire prevention efforts in ensuring the safety and welfare of both firefighters and the public. Fire prevention "success stories" also could be collected and distributed to field personnel to demonstrate the cost-effectiveness of appropriate fire prevention planning and implementation. The emphasis on prescribed burning and Fire 21 has moved the culture in this direction, and the proposed strategy session, if well-publicized, would move it even further. ⁵

⁵ The FY 1998 Interior and Related Agencies Appropriation Act moved hazardous fuels management funding out of the fire preparedness function into a fire management operations account. This new budget structure should ensure that money is available to supervisors who are managing fire through prescribed fires and fuel treatment by providing a more flexible source of funding.

Fuel Build-up

The safety, health, and welfare of firefighters and the general public are becoming increasingly linked to the decline in the health of forested ecosystems. Fire exclusion practices and lack of adequate thinning and pest management over many decades have transformed many open-grown and fire-resistant forests on drier sites into fire-prone thickets plagued by insect and disease epidemics. Declining ecosystem health in many areas has greatly increased the vulnerability of firefighters and the public to threats from extreme fire behavior due to the excessive accumulation of fuel. Threats to human life are compounded by the fact that more and more people are building homes in the fire-prone forests, placing themselves and the firefighters who try to protect them at greater risk.

The efficacy of fuel hazard reduction strategies in combination with appropriate silviculture practices to reduce the intensity of subsequent wildfires has been demonstrated repeatedly. Still, it was somewhat surprising and gratifying that more firefighters surveyed in Phase I of this study chose *a long-range program of hazard reduction* as likely to make a larger difference in their safety than any other course of action. Agencies are faced with serious challenges in conducting hazard reduction projects on a large enough scale to significantly affect the fire behavior of future wildfires. Despite the obstacles, it is of paramount importance that agencies establish long-term fuel treatment strategies that create effective buffers of less flammable fuels that reduce fire spread rates and lower fire intensities.

Most agencies recognize that fire hazard reduction efforts of the past have been too small and too fragmented to provide any lasting improvement to forest health and firefighter safety. Most fire hazard reduction projects have been characterized by too little and too late; partly a function of being funded at only very modest levels. The severe nature of the threat to firefighters from fuel accumulation and the resulting high intensity wildfires has garnered the attention of all wildland fire agencies. Many have established fuel treatment priorities based on reasonable criteria and scheduled greatly expanded fuel hazard reduction projects.

Although agencies are taking positive steps to improve management of fire dependent ecosystems, numerous barriers still stand in the way of successfully reducing hazards through thinning, harvesting, fuel management, and prescribed fire. Many examples exist where agencies have demonstrated creative approaches in dealing with even the most challenging of external barriers like air quality constraints, but there continues to be a level of external resistance and internal inertia. However, things are changing. At the national level, wildland fire

suppression efforts traditionally have been better supported than mechanical hazard reduction and prescribed fire, but in FY 98, \$83 million were available for these purposes. Agencies need to assess whether the level of budget support is likely to continue and be sufficient to accomplish the reduction of hazardous fuels within a reasonable time frame.

As a result of several severe fire seasons culminating in the disastrous 1994 season, the Agriculture and Interior Departments requested a comprehensive review of Federal wildland fire policies. The new Wildland Fire Policy reaffirms the protection of human life as the first priority in wildland fire management, and highlights the role of fire as an essential ecological process and natural change agent that must be reintroduced into the ecosystem. Where wildland fire cannot be safely reintroduced because of hazardous fuel build-ups or values at risk, various other forms of pre-treatment will be considered.

The Department of Interior estimates that 55 million acres require periodic treatment by fire. The Department of Agriculture has reported that unnatural, fire-prone forest conditions exist on 39 million acres, or 20 percent of the National Forest System. Policy changes to address the fuel accumulation problems on these high priority areas that have been identified include mechanical forest treatment, budget structure changes, new planning priorities, personnel training, new research, carefully planned prescribed fires, and many other initiatives.

It has taken seven or eight decades for the consequences of attempted fire exclusion on fuel accumulation to be fully realized. It will take just as long a period of time to restore the health of fire-adapted ecosystems. Fortunately the agencies are addressing this long-term need in their scheduling of treatment priorities. Interior agencies have projected an increase in acres treated from 298,000 acres in 1996 to 1,100,000 acres in 2001. This represents approximately a 25 percent annual increase over the next five years. In 1996, the Forest Service treated 532,000 acres and nearly one million acres were treated in 1997. By 2005 the Forest Service plans to treat 3.5 million acres annually. If this schedule is adhered to, by 2015 the Forest Service will have accomplished fuel hazard reduction on nearly all of the 39 million priority acres. The goal, then, is basically to continue the initiative to do this.

Goal 86. Improving forest health and removing accumulated fuels should be pursued to reduce the intensity of fires.

Implementation Strategy 1 - Consolidate diverse strategies into a cohesive plan.

Most agencies already have established priorities to identify and attack the most hazardous fuels, primarily the fuel complexes associated with short return interval fire-regimes. The fire regimes in which historical fires were most frequent (those with fire return intervals of 1-25 years) have been most affected by fire exclusion practices of the past. A ponderosa pine forest, for example, that historically averaged a fire every 10 years may have been accumulating fuels over the past 70 years in the absence of fires. This fire regime has been altered to the point where the frequent low intensity surface fires experienced prior to 1900 have now been transformed into less frequent, high intensity crown fires due to unnatural fuel accumulations and lack of adequate forest management.

Some of the obstacles that must be overcome or questions answered in the implementation of the hazard reduction strategy are the following:

- The flammability of many forests is so high today that hazard cannot be safely reduced by prescribed fire alone. Thinning and commercial harvest often must precede prescribed burning to remove fuels and reduce tree densities, but many people object to cutting of any kind.
- The sheer magnitude of the immediate treatment priorities, 55 million acres for Interior agencies and 39 million acres for the Forest Service, is overwhelming.
- Although it is necessary to establish treatment priorities as the agencies have done, other, current lower priority fire regimes will pose threats to people as fuels accumulate over time. The Bureau of Land Management manages 272 million acres (much of it range land), and the Forest Service manages 191 million acres. Many of these acres that lie outside treatment priorities represent future high hazard problems as well.
- The actual impact of the new fine particulate smoke restrictions (PM 2.5) on prescribed fire practices has yet to be determined.
- There still is much less tolerance by the public for prescribed fire than there is for wildland fire problems. Suppression decisions are more risk-free (to decision -

makers) than prescribed fire decisions. The public does not yet fully understand the need for prescribed fire nor for thinning and timber harvest in managing fire-dependent ecosystems. (As noted earlier, the FY98 budget increased spending for prescribed fire and evidenced a growing understanding in Congress of the needs.)

- There is still a certain amount of inertia within the agencies that impedes initiation of large-scale fuel treatment programs, especially for prescribed fire because of its perceived risk.
- The agencies have not been especially successful in persuading developers and homeowners to assume more of the responsibility in solving the wildland/urban interface problem (hence Goal 83).
- The agencies need to work at seeking consensus among contentious publics to overcome the trend of decrying timber harvest and other land management priorities. Thinning and timber harvest comprise important parts of the solution in better safeguarding people from wildfires.

For each of the above obstacles there are examples across the country where managers have risen to the challenges and overcome the barriers in creative ways. In implementing the important hazard reduction strategy, it will be essential for agencies to consolidate the fragmented successes into a more cohesive and integrated plan of attack.

Implementation Strategy 2 - Consider using multiple funding options.

The magnitude of the fuel treatment program requires that a multiplicity of funding options be explored. As mentioned earlier, the Appropriations Act for FY 1998 moved hazardous fuel management funding into a more flexible fire management operations account. This will be helpful to managers, but funding opportunities for treatment need to be expanded beyond appropriated funds. There are some examples in the West where the harvest of small diameter material can pay the way for follow-up hazard reduction treatments. Agencies need to identify wood and fiber markets that will substantially improve commercial prospects for reducing the flammability of forests, though there have been environmental pressure groups opposing use of trees for commercial purposes.

Implementation Strategy 3 - Amend the National Environmental Protection Act to require consideration of firefighter safety.

The National Environmental Policy Act should be amended to require that firefighter safety (and public safety) be evaluated and provided for in the selection of land/resource management direction. There is a somewhat related precedent at the state level: The Washington state legislature has exempted prescribed fires designed to restore forest health from restrictions that stem from the Clean Air Act. Thus, the state legislature is providing expanded opportunities for prescriptive burning to improve the health of forests in eastern Washington.

Summary

This chapter on external influences addressed public fire safety education, fire program budgets and fuel build-up. The next chapter gives the project team's recommendations on priorities across all goals, and the next steps needed to implement them.