

Management Response to Eroding Wildland Buffers between Developed and Protected Areas through Education and Collaborative Planning Efforts

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MANAGERS HAVE HISTORICALLY BENEFITED FROM A BUFFER ZONE of undeveloped wildland vegetation between human development and parks and protected areas. Development of wildland areas adjacent to parks and protected areas presents an escalating challenge for managers looking to balance liability with a need to utilize prescribed burns and manage wildfires to meet resource objectives. Such development also increases the risk of uncharacteristic fires that can damage public and private values. This situation presents three major challenges for park management: (1) escaped prescribed fires increasingly threaten people, property, and wildlands, posing costly liability issues that may limit managers' capacity to administer resources effectively; (2) uncharacteristic wildfires, due in part to human activity, pose risks to protected areas, threatening endangered species, sensitive ecosystems and other public values at risk; and (3) today's managers need public support—or at least a lack of vocal opposition—to be able to implement prescribed burns or other management activities to achieve resource objectives. The rapidly evolving policy environment for park and protected area management provides considerable support for managers looking to use community engagement to address these challenges.

Increased liability from escaped prescribed fires is a pressing issue for managers of parks and protected areas, even with attempts to provide a legal basis for appropriate exercise of professional judgment, such as Florida's 1990 Prescribed Burning Act (Brenner and Wade 1992). The risk posed by escaped prescribed fires is well illustrated by the 2000 Cerro Grande prescribed fire that burned 380 structures before being contained at 42,875 acres (IFIT 2000). This prescribed burn, which was intended to reduce hazardous fuel in the National Park Service's (NPS's) Bandelier National Monument, resulted in a payout of \$441 million to satisfy claims (IFIT 2000). Such spectacularly expensive events create intense pressure on protected area managers to mitigate the risk of escapes. This is in direct conflict with their compelling need to employ prescribed burns or allow ignitions to burn in order to maintain or restore desirable ecological conditions.

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Uncharacteristic wildfires—ignitions that occur outside of the season, frequency, location, or severity of the expected historical fire regimes for an area—pose a second rapidly increasing threat to parks and protected areas in the wildland–urban interface (WUI). Such ignitions are costly for protected area managers, requiring significant time and resources to contain, and can endanger sensitive ecosystems, endangered species, protected area facilities, staff, and visitors, as well as other public values. This increased fireload is being experienced at a time when most parks and protected areas have flat or even declining budgets. NPS has had to nearly triple its allocated funding for wildland fire management funding over the last decade (NPS 2008), straining its ability to focus on other management priorities. Despite these expenditures, in NPS-administered areas the number of unplanned fires and acreage burned each year has continued to grow, averaging greater than 250,000 acres burned annually since fiscal year 2003 (NPS 2005, 2006, 2008, 2009, 2010). In 2008, a fire ignited on the boundary of Florida’s Everglades National Park. By the time it was brought under control, the Mustang Corner Fire, a human-caused uncharacteristic wildfire, had burned through the habitat of the endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*), consuming 39,465 acres to become the park’s largest wildfire in 19 years.

Another critical problem facing park and protected area managers is their increasing need for public support for prescribed burning and related activities. Those who live and work in WUI areas increasingly demand a voice in how managers implement activities that affect their interests. Though homeowners are influenced by the degree to which they trust agencies, stakeholders’ attitudes regarding prescribed burns are most significantly impacted by education about the process, and by the expected outcome of the activity (Fried et al. 2006). When their concerns have not been addressed, communities and stakeholder groups have successfully delayed or blocked prescribed burns.

In 2009, citing a lack of prior communication with the community, the Los Padres Forest Watch and the California Chaparral Institute filed a lawsuit alleging that the Los Padres National Forest failed to involve local community members in planning the Tepusquet Fuels Treatment Project. They charged that this exclusion from the project’s development (as they perceived it), which utilized prescribed burning as well as manual mastication to clear vegetation over 19,300 acres, violated the 1992 Forest Service Decision-Making and Appeals Reform Act. They petitioned the courts to halt the project until proper engagement could take place. Though many such actions are ultimately unsuccessful in terminating projects, they create sometimes-costly delays and generate ill will with local communities. In order to implement planned prescribed burns successfully, park managers will increasingly need to recruit community support.

Education programs can be a powerful tool to reduce potential liability from escaped prescribed fires, reduce the number of uncharacteristic ignitions, and increase public support for prescribed burning activities. By engaging proactively with the community, managers can communicate the realities of living in WUI areas and encourage residents to prepare their homes and properties to resist wildfires, reducing potential risks from escaped prescribed fires. Educational programs also provide managers the opportunity to explain

how to avoid accidentally starting a fire that might become a damaging uncharacteristic wildfire. Educational programs and outreach can serve to improve acceptance of planned prescribed burns and other activities.

In 2004, the Butte County (California) Fire Safe Council (BCFSC) developed wildfire education materials and began distributing them to area elementary schools. “Wildfire in the Foothills” was a five-segment wildfire education program aimed at sixth-grade students in local schools. Teachers were provided a kit, including lesson plans for five one-hour lessons as well as transparencies, handouts, and videos, and take-home materials for children to keep and share with their parents and families. This program, financed by local support and grant funding, has been an unquestioned success. It is requested by teachers in new schools every year who have heard about the lesson plans through word-of-mouth, and fire agencies have reported that the memorable lessons have helped the community understand wildland fires better, expanded recognition of prescribed burning and fuel reduction as important activities, and prompted families to identify practical steps they can take in their homes and communities to reduce risk.

Engaging in collaborative planning activities with stakeholders who live or work in WUI areas can be time-consuming, but it can dramatically improve management effectiveness. Including members of the community in fire planning activities can recruit citizens as advocates for good management, who then proactively educate their families and neighbors about fire’s appropriate place in the landscape. Community members who are engaged in collective planning often participate in on-the-ground fire risk abatement, stretching limited public resources through in-kind donations and work parties.

On July 27th, 2010, two men cutting pipe started a fire near the community of Old West Ranch in California’s Kern County. Within 15 minutes of the ignition of the West Fire (as it came to be known), spot fires burning 0.5 mile away from the blaze were endangering homes and firefighters reported flame lengths of 150 feet (Figure 1; KCFD 2010).

With heavy fuel loading driving extreme fire behavior, nearly no recorded fire activity for 110 years, no established water system and access only via dirt roads, the disaster potential for this incident was significant—but losses were limited to 23 structures. Extensive preparation by federal and county fire officials working collaboratively with local stakeholders can claim credit for this outcome (Figure 2). Kern County Fire Department (KCFD) and the Bureau of Land Management (BLM), working with the Greater Tehachapi Fire Safe Council (GTFSC), had years earlier identified Old West Ranch as particularly threatened by fire. Beginning in 2004, KCFD had created an escape route to help residents evacuate and provide safe passage for incoming emergency equipment. The work to create the escape route had been funded through a grant won by GTFSC, with contributions from its members and agency partners.

The completed escape route allowed every resident to evacuate safely (Figure 3). In the 2010 fire, a shaded fuel break project organized by the same group of agency and community stakeholders stopped the southern progress of the fire. This event illustrates the point that when WUI residents act as stakeholders and participants in fire risk abatement, they reduce the likelihood of catastrophic wildfires as well as protect the surrounding communities, limiting the risk of expensive losses.



Figure 1. West Fire approaches shaded fuelbreak, Wildhorse Ridge, Kern County, California, July 2010. Photo courtesy of Kern County Fire Department.



Figure 2. Kern County Fire Department crew conducts National Fire Plan grant-funded fuel management project on Wildhorse Ridge, spring 2010. Photo courtesy of Derrick Davis, Kern County Fire Department.



Figure 3. Wildhorse Ridge shaded fuelbreak halts the southern progress of the West Fire with no assistance from suppression forces, August 2010. Photo courtesy of Derrick Davis, Kern County Fire Department.

An excellent example of a protected area in which managers have used education and collaborative planning to overcome community fire-related challenges and achieved enhanced management objectives is Antioch Dunes National Wildlife Refuge (ADNWR) in northern California. Refuge resource managers have long struggled with the challenge of how to adequately protect the endangered species that inhabit Antioch Dunes. Some, like the Lange's metalmark butterfly (*Apodemia mormo langei*), exist nowhere outside the refuge. For others, like the Contra Costa wallflower (*Erysimum capitatum angustatum*) and the Antioch Dunes evening primrose (*Oenothera deltoids howellii*), ADNWR comprises a major portion of their remaining critical habitat. In fact, ADNWR was established in 1980 to address the threat posed by sand mining to locally endangered species living in the dunes.

Today, uncharacteristic fire can profoundly impact the fragile dune habitat, reducing the availability of the wild buckwheat Lange's metalmarks depend on, and providing an opening for invasive species. Complicating its management, the refuge is composed of two separate tracts, both of which border the city of Antioch (Contra Costa County), with more than 100,000 residents. In the last ten years, unwanted wildfires have burned acreage equivalent to 70% of the tiny 55-acre refuge. Effective management depends on local residents understanding the importance of preventing uncharacteristic ignitions on the fragile dune habitat, and support the use of carefully calculated prescribed burning to control invasive non-native species. Funding for management is a profound challenge for ADNWR; in fact, the refuge is currently completely unfunded, and depends on volunteers to implement projects for

resource objectives. On the heels of a 2006 “suspicious” and damaging 10.9-acre uncharacteristic fire, the US Fish and Wildlife Service (USFWS) staff at the refuge in 2007 partnered with the Diablo Firesafe Council (DFSC) and the Contra Costa Fire Protection District (CCFPD) to secure funding for an education and outreach campaign. Working collaboratively, they developed a proposal and won roughly \$25,000 in grant funding. In 2008, CCFPD initiated an education and outreach program to help visitors and local residents learn about the area’s unique species and how wildfire helps protect or endangers them. This resulted in significantly increased awareness of the refuge as well as the importance of protecting it from uncharacteristic ignitions.

CCFPD determined that the best groups to target for outreach were schoolchildren and young adults at local colleges to educate them regarding the importance of preventing fires. Acting as opinion leaders, it was thought they could pass on this information to their families. During the two-year program, USFWS, in partnership with CCFPD and DFSC, developed a specialized curriculum designed to inform residents about the existence and importance of the refuge. The program educated residents about the dangers uncharacteristic fire poses and encouraged them to participate in the effort to help the endangered species protected within the refuge recover. The education program included posters, signs, and flyers, as well as workbooks and bookmarks aimed for student audiences (Figure 4). They created opportunities for the public to interact with fire officials and learn about the key significance of the refuge, including a display set up at a local library.

Though ADNWR continues to struggle, the two-year outreach program has had lasting impact in helping the refuge continue to meet its resource management objectives. Lacking funding to employ California Conservation Corps workers to curb the influx of invasive species and reduce fuels through cautious prescribed burning, the reserve has instead relied on the student and community groups who were targeted in the educational campaign and have since grown into advocates (Figure 5). Over the last three years they have volunteered time and assistance to manually remove invasive species and excess fuels from the property.

The environment in which park and protected area managers confront the problems addressed here is continually evolving. Community-based fire planning was formally recognized in federal policy as one of three elements vital to reducing the threat of catastrophic wildfires in the wake of the damaging wildfires of 2000. By the time that year’s fire season was over, 123,000 fires had burned more than 8.4 million acres at a cost of more than \$2 billion to American taxpayers. At the request of President Clinton, the secretaries of agriculture and interior jointly developed a report presenting suggestions for handling the aftermath of the wildfires and preparing for future ignitions. This report, *Managing the Impact of Wildfires on Communities and the Environment*, came to be known as the National Fire Plan.

The National Fire Plan was a significant departure from previous federal fire policy documents, such as the 1995 Federal Wildland Fire Management Policy and Program Review. Earlier policies had discussed only the position and role of federal agencies in wildland fire-fighting efforts. The National Fire Plan, passed by Congress in 2001, introduced a collaborative theme, acknowledging that wildland fires do not recognize agency boundaries or property lines (FY 2001 Interior and Related Agencies Appropriations Act [P.L. 106-291]). It identified local community coordination and outreach as one of three crucial elements of the

LANGE'S METALMARK BUTTERFLY

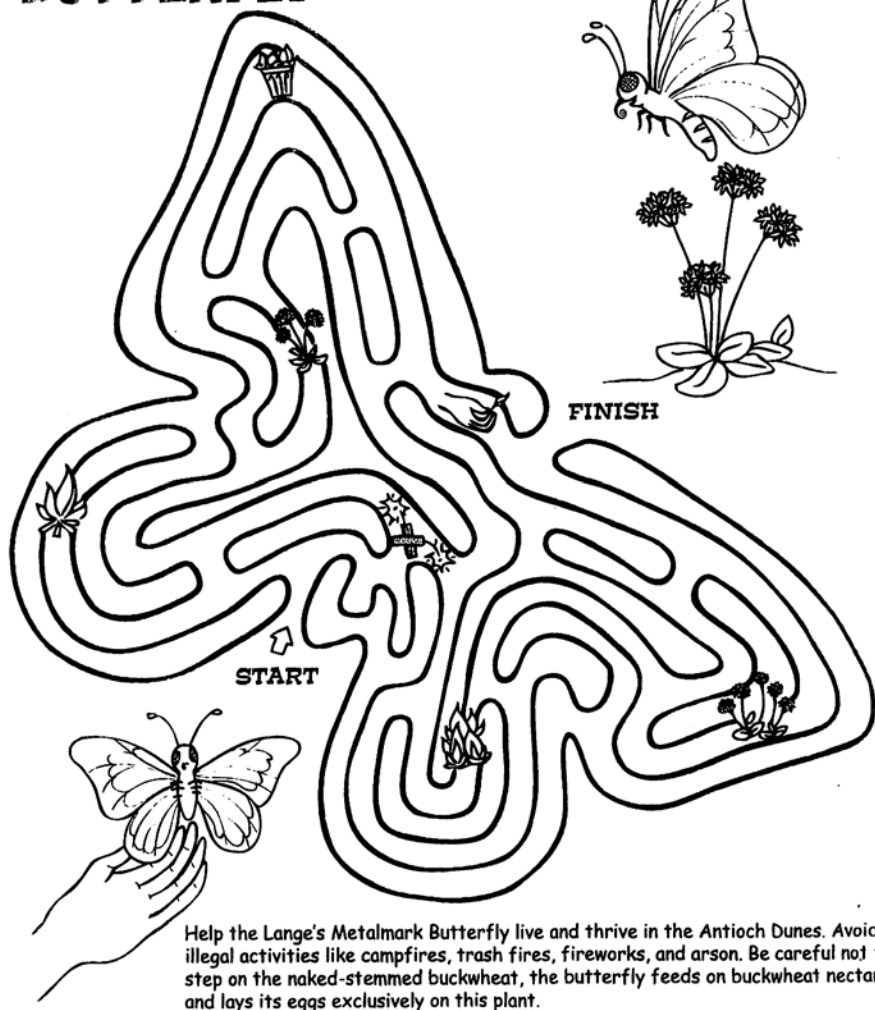


Figure 4. A page from a workbook designed to inform elementary students about the risk uncharacteristic fires pose to endangered species. Courtesy of Contra Costa Fire Protection District, US Fish and Wildlife Service.

administration's fire policy, confirming the importance of coordination and capacity-building with stakeholders, agency partners, and communities adjacent to or near federal lands. In response to a congressional mandate to develop reporting requirements for the National Fire Plan, in 2002 the Western Governors' Association wrote *A Collaborative Approach to Reducing Wildland Fire Risks to Communities*, emphasizing achieving goals through a collective, community-based process. In 2003, Congress passed the Healthy Forest Restoration Act (HFRA), which, in addition to incorporating elements of the Healthy Forest Initiative devel-

Antioch Dunes

National Wildlife Refuge

Guided tours second Saturdays 10:00 a.m.



🌸 line for events...



Figure 5. A poster that educates residents about the presence of endangered species while inviting visitation. Courtesy of US Fish and Wildlife Service.

oped by President Bush in 2002, also legislated increased involvement with communities.

In addition to streamlining the environmental appeal process for hazardous fuels reduction projects, the HFRA targeted federal lands near vulnerable communities with fuel reduction projects to slow the spread of fires near structures. Without risk reduction efforts on the private side of the WUI, however, Congress recognized that defending homes in WUI areas from fire would remain costly and difficult, if not impossible. In order to encourage local communities to take part in prefire planning and make appropriate efforts on private lands to prepare homes and communities for wildfire, they created a framework for locally developed prefire management plans, called community wildfire protection plans (CWPPs). In order to encourage states and communities to create CWPPs, the HFRA established incentives, allowing groups that developed CWPPs to influence the location and prioritization of hazardous fuel abatement projects on nearby federal lands. It also allowed those groups to define their WUI boundaries, which impact property value, insurance costs, and the availability of grant funding. Additionally, communities with CWPPs received priority access to US Forest Service and BLM hazardous fuel reduction funding.

The passage of the HFRA marked the beginning of a greater national emphasis on engaging communities in all aspects of prefire planning. In fact, the 2008–2012 NPS Wildland Fire Management Strategic Plan explicitly directs employees to engage with stakeholders through both education and collaborative efforts. The strategic plan repeatedly cites a lack of engagement as a barrier to success and identifies education or collaborative planning as a crucial component to achieving agency goals. Local stakeholders have helped develop

CWPPs, and stakeholders have had the opportunity to provide input in land planning decisions and participate actively in fuel reduction projects that complement the efforts of the state and federal land managers throughout the United States. The full potential of such programs, however, has not been completely realized. Limited financial and personnel resources dampened participation and leadership in community outreach and planning. With a paucity of resources, managers taking a leadership role in cultivating productive, diverse, collaborative planning processes has not been a priority.

As people settle in and around parks and protected places in ever-greater numbers, educating and working collaboratively with stakeholders must be a priority for managers. It is clear that without parallel work on both the private and public boundaries of protected areas, wildfire risk abatement cannot be successful because of the potential for liability due to prescribed fires escaping from and uncharacteristic fires burning into protected areas. Without the mutual trust and relationships that outreach can forge, communities will be isolated from resource management decisions and are significantly less likely to support prescribed fire activities. Managers of protected areas may be able to catalyze significant reductions in fire risk by engaging a diverse range of stakeholders in collaborative planning and educational efforts. By working together, organizations and individuals may be able to eliminate unnecessary duplication and stretch limited budgets. Moreover, because collective implementation of prefire hazard mitigation activities is significantly supported in current resource management policy, additional sources for funding may be available to managers of protected areas and groups that work for mutual benefit.

The stakes have never been higher for managers confronting wildfire-related issues. Presently more than 38% of Americans live in the WUI, the zone in which structures and other human development mingle with undeveloped vegetation. As Americans move from urban areas into undeveloped or rural settings in increasingly large numbers, it is ever more clear that the residents of these WUI areas play a pivotal role in preventing ignitions and limiting the impact of wildfires. Managers have been challenged by increased potential liability should a prescribed fire escape protected area boundaries, increasing numbers of uncharacteristic wildfires impinging on protected areas from outside, and increasing demands from the public for information and a voice in decisions regarding wildfire risks. At the same time, managers are held responsible for achieving resource management goals despite budget cuts. In this era of shrinking budgets, community outreach through education and engagement is a comparatively inexpensive way to leverage limited funding to reduce fire risk both within and outside of the protected areas. Park managers must seize the opportunity to enlist their new neighbors as potential allies in achieving resource management objectives. Through collaboration with the public, managers of parks and other protected spaces may achieve significant gains in community education and support, as well as protecting private lands from fires escaping protected areas.

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