

# **Wildland Fire Evacuation in the U.S.: The Color vs. the Letter of the Law**

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## **Abstract**

California, Australia and South Africa share similar wildfire regimes, fuel types and wildland-urban interface. Firestorms can be intense and move quickly from wildlands into residential areas, threatening lives and property. Various policies have developed in each of these regions regarding the role that fire and law enforcement agencies play in urging homeowners to evacuate their homes or not. This presentation will examine a range of local, state and federal approaches to evacuation within the United States. Examples will illustrate the various legal mandates, criteria for evacuation decisions, the role of Incident Commanders and local law enforcement in implementing evacuations, and legal liability. A “Perfect Storm” example of a forested residential community in southern California will be presented, in which fuels buildup is too extensive to effectively provide fire safe clearances, and therefore the first focus is on evacuation and community shelter planning.

## **Introduction**

The overstocked conifer of the Rockies, the dense chaparral of California’s Coast Ranges and the drought-stricken ponderosa of the southwest are all products of successful fire suppression throughout western America.

Nearly a century of aggressive firefighting has permitted fire adapted ecosystems to convert to unnatural mixes of species and densities. Today much of the western US suffers from overgrown ladder fuels and overstocked stands. Also aggravated by drought, beetle kill and reduced timber management, recent wildfires have set records in size and intensity.

Compounding the fuel buildup is the explosion of residential growth into the wildlands. This dangerous mix of homes located in fire-adapted ecosystems challenges the skills of fire managers. Urban homeowners who have moved into the wildland interface are often unaware of the fire risk and either do not understand the need, or purposely do not want to clear the vegetation that surrounds their home. Throughout the west new public education campaigns for clearing fuels and creating defensible space are being developed – but it will be a long time before widespread fire safe neighborhoods are achieved.

Over the past 10 years California has been ambitiously developing an infrastructure of Fire Safe Councils. Composed of local residents, fire officials, utilities, and insurance industries, these groups plan and implement fire safe projects in their own communities. Boosted by funds from the National Fire Plan, hundreds of projects have been initiated statewide. Similar approaches are underway in most western states as the US slowly reverses decades of forest neglect.

Despite current efforts to reduce fuels and increase suppression resources, fire seasons across the west continue to set records in size and cost. Driven by hot dry winds, fire fronts many miles long have swept, within hours, up canyons and through communities, destroying homes

and taking lives. Although there are situations where homeowners can successfully protect their homes from slow moving ground fires, most of the western US interface has not yet reached the point of being sufficiently fire safe to rely solely on a “shelter in place” approach. At this early stage in US fuel reduction efforts, evacuation must remain a tool available to fire managers to increase public safety.

## **U.S. Approaches to Wildfire Evacuation**

Outside viewers sometimes stereotype evacuation approaches in the U.S. and Australia as more diametrically opposed than they actually are. The simple dichotomy is sometimes presented as the Australian model of “prepare, stay and defend” versus the U.S. model of “leave or you will be arrested”. When these are examined more closely however, neither is entirely true, and the actual use of evacuation lies along a continuum.

The issue of evacuating residents in the face of advancing wildfire goes straight to the heart of doctrines addressing the private property rights of homeowners to defend their property and empirical evidence on how homes actually ignite. During a slow moving ground fire, if homes have sufficient clearance and firesafe construction, homeowners may safely “shelter in place” and save their homes by dousing stray embers blowing onto roofs and decks. The opposite also occurs however, when homes are surrounded by ladder fuels and dense canopies, have wood shingle roofs and firewood stacked against the wall, and face a windblown wall of flame with 80 foot-plus flame lengths. These homes, and the people in them, have little chance of surviving, and threaten the lives of firefighters who find themselves obligated to stay and assist them.

Other speakers will examine the Australian approach in more detail. Here we look more closely at the U.S. approach, first with a summary of how wildland fire protection is administered across the nation.

## **Overview of fire protection in the United States**

The forests and wildland-urban interface (WUI) of the U.S. are protected by an overlapping structure of federal, state and local fire suppression agencies, each with a different primary area of responsibility, authority and capability. All have a tradition of strong cooperation on the fire line and during evacuations.

**At the federal level** the primary wildland fire protection agency is the US Forest Service (USFS), with 191 million acres (77.3 million ha) of forests and rangelands concentrated in the national forests of the 17 western states and Alaska. Other federal agencies with wildland fire protection responsibilities include the Bureau of Land Management (BLM), Bureau of Indian Affairs, National Park Service and the US Fish and Wildlife Service. Federal agencies traditionally specialize in wildland fire suppression and do not have authority, equipment or training for structural protection, except for the Park Service, which is trained and equipped to protect park facilities.

**At the state level** wildland fire protection varies across the 50 states. California has one of the largest state-managed fire departments, providing fire protection to 31 million acres of wildlands, generally in the mid-elevation conifer, oak and chaparral vegetation zones. The California Department of Forestry and Fire Protection (CDF) staffs 229 state and 405 contract fire stations during fire season; operates an Aviation Unit of 23 air tankers, 13 air

attack planes, and 9 Super Huey helicopters; runs 197 inmate fire crews for hand line construction; and operates 370 state-owned wildland engines. In addition to its core wildland mission, CDF also provides structural protection, emergency medical assistance and all-risk services to dozens of local governments through contract agreements. Most other states have some state-based wildland suppression capability, with access to inmate crews, engines and aviation resources, but they are generally less developed than the California model. Outside of California, the USFS and BLM are the prevailing wildland fire protection agencies in most western states. Local fire agencies within a state are linked through their state Office of Emergency Services or State Fire Marshall's office, which coordinates the response of state and local agencies for all types of disasters (hurricanes, tornados, earthquakes, floods etc.).

**Local Fire Protection** is provided by a network of city, county and local district fire departments. Local districts are staffed with a mix of paid and volunteer personnel and generally supported by a local tax or fee. As suburban communities spread into adjacent brushlands and forests, many local fire districts are starting to add wildland capability to supplement their traditional focus on structure fire suppression.

Across the nation we therefore find a continuum of wildfire suppression capacity, ranging from the mega-infrastructure of the federal government to the local muster of volunteer residents. Large incidents typically have an Incident Command Team assigned operating under the Incident Command System (ICS) to direct the response. When the incident involves multiple jurisdictions, a Unified Command Structure is established, with an Incident Commander representing each affected jurisdiction to provide coordinated response. The relationships among fire agencies are spelled out in a quilt of compacts, contracts and memoranda of understanding describing how the various governmental entities cooperate and apportion costs to each other.

### **The Evacuation Process**

Evacuation is a collaborative undertaking among fire authorities, law enforcement and emergency service managers. Policies across the US follow certain common themes and do not differ substantially across federal and state boundaries. Evacuations can be divided into four phases: pre-planning, decision, evacuation and re-entry.

**Pre-planning** for evacuations can be quite well developed and detailed, yet flexible enough to respond to specific fire behavior. The Incident Evacuation Plan developed by Los Angeles County Fire Department provides a comprehensive example of evacuation planning with voluntary, mandatory and "shelter in place" options. (LA County Fire Department 2001). The 12 million people of the Los Angeles basin live in the heart of a fire-adapted coastal chaparral ecosystem with the "great natural fuel break" of the Pacific Ocean to the west. A series of severe fires in 1992, 1993 and 1996 swept rapidly from outlying wildlands into dense residential neighborhoods, highlighting the need for better interagency coordination. The LA County Fire Department took the initiative to facilitate 36 months of collaboration among fire jurisdictions, law enforcement, elected officials and animal control agencies to develop a comprehensive format for evacuations.

Similar to an Incident Action Plan, an Incident Evacuation Plan provides a structured format which details actions and specifies agency responsibilities. Plans are generally separated into public elements and confidential portions that are available only to the involved responders. Plans contain such elements as:

- Incident command posts and staging sites for fire apparatus, designated on a common map base
- Protocols for communications, command and control between fire and law enforcement authorities
- Zones and trigger points for phasing evacuation stages
- Designated evacuation routes and alternates to separate ingress of firefighters from egress of residents. Intersections for traffic control points are identified and adjusted as the fire advances
- Delineated areas with entrapment potential, such as neighborhoods with narrow, dead end roads
- Locations of hydrants and water supplies, cell phone reception, stockpiles of detour signs, tape and traffic cones etc.
- Plans for shelter in place or evacuation of schools, organized camps, hospitals and senior homes
- Contingency plans for dealing with injuries, providing heavy equipment for pushing abandoned cars off roads, and temporary morgues
- Public information networks and communication centers for keeping the public and media informed
- Single ordering points designated to avoid duplicate resource orders being placed and to assist in after-action documentation and cost recovery

Inter- and intra-agency safety training is important. Fire agencies need to train law enforcement and media representatives in fire safety so they can protect themselves in the field. All firefighters, and especially those unfamiliar with the area, need pre-briefing on fire behavior, fuel conditions and specific incident plans.

A sample of evacuation policies and plans from various states are noted in the References. Although these are formal agency plans, it should also be noted that local church groups and private organizations may develop evacuation plans for their own members as well.

**The decision to evacuate:** The decision to evacuate is determined as much by concern for the safety of firefighters as for the safety of residents. Firefighters need safe ingress unhindered by the confusion of fleeing residents and general traffic.

The decision to declare an evacuation generally rests with the fire protection agency. Thus, whether the fire is a federal, state or a Unified Command fire, the decision rests with the Incident Commander(s), the Operations Chief, or comparable designee. In reality the decision is collaborative with law enforcement, which is usually already on the incident in an Agency Representative role within the ICS command structure when evacuation decisions are made.

In some cases, local law enforcement may decide on its own initiative to implement an evacuation, independent of the fire control agency. This can be complicated when each has separate command and control systems, communication structure, policies and cultures. Usually the experience of one uncoordinated event between fire and law enforcement will serve as a wakeup call and stimulate efforts to initiate cooperative pre-planning before the next one.

Voluntary evacuations may be issued when there is time and fire behavior may change. In LA County, voluntary evacuations may be triggered when the fire is 24 hours away. Early voluntary evacuations can significantly reduce the local population if mandatory evacuation later becomes necessary. Mandatory evacuations are triggered when there is imminent threat to an area. In LA, criteria include a wind driven fire which is within 10 miles and may burn through the neighborhood in 1-4 hours. A “shelter in place” option is also considered for low intensity fires where structures have good clearance, are made of fire resistant materials, and the Fire Department feels it is safe to stay.

Decisions to evacuate are not taken lightly. Poorly coordinated evacuations can cause as many or more problems as they solve. Risks include traffic jams, accidents as cars run off the road due to smoke and poor visibility, blocking of ingress to firefighting equipment, entrapment in areas with no escape, overloading of receiving sites, dealing with pets and livestock, and patrolling against looting of abandoned neighborhoods. Deliberate pre-planning, staging, sufficient staffing and good communication during the evacuation are critical for reducing chaos and confusion.

**Implementing the Evacuation:** Once the fire authority requests an evacuation, local law enforcement is in charge of implementation. This is typically the county sheriff’s office, Highway Patrol, state police and other peace officers. Thus, on a US Forest Service fire, the Incident Commander will call for an evacuation of a designated region, and the local sheriff or state police will implement it. Like the fire services, law enforcement also has a mutual aid system that is very effective in quickly bringing local law enforcement agencies and Highway Patrol together in adequate numbers. In some instances when resources are strained the National Guard may be called to assist.

Traffic control points for egress, ingress and perimeter controls are established, and residents within the designated zone are notified of the order to evacuate. The Emergency Alert System (EAS) is activated through radio and television media, and reverse 911 telephone systems or community phone trees are activated where available. The fire agency uses its public information network (press releases, Web postings, e-mail to pre-listed addresses etc.) and public address systems to disseminate information about the fire. Law enforcement officials fan out through neighborhoods to contact homeowners. No entry or re-entry of residents is permitted into the closed area. Residence-by residence contact is made and fire behavior, safe travel routes and safe collection centers are explained.

**Evacuation Centers:** The Red Cross in conjunction with the county emergency services office is responsible for establishing shelters for short-term housing and care. Temporary Evacuee Collection Points may be designated as holding areas for smaller groups until shelter locations can be established. Stationing a fire representative at the evacuation site to provide updates on the fire and to seek specific information for citizens is extremely helpful in soothing frayed nerves, and addressing a common complaint that “...once we evacuated we didn’t know what was happening and no one spoke with us.”

Displaced pets and livestock are an important element in evacuation planning and implementation. Hundreds of dogs, cats, and birds may appear at local animal shelters, and horses, livestock, llamas and others may be directed to local fairgrounds. To assist in animal evacuations, many communities have formed animal evacuation assistance groups.

**Enforcement of Evacuation:** Although the color of authority is brought to the resident's door, in fact most jurisdictions interpret evacuations to be voluntary and not mandatory. In California, Penal Code section §409.5 allows law enforcement officers, including CDF peace officers, to close or restrict an area or protect a command post in the event of a calamity. If a person willfully and knowingly enters an area that has been closed, they can be found guilty of a misdemeanor. Further, if the person is interfering with rescue personnel they could also be subject to arrest under Penal Code section §148. However, these sections are silent on the authority to remove a person who refuses to leave their home. A series of Attorney General and county counsel opinions acknowledge that the law on mandatory evacuations is complex and mostly un-tested in modern times, hence most jurisdictions across the country stop short of arresting residents who refuse to leave.

It is also more effective for peace officers to keep moving in order to warn more residents, rather than take the time to arrest those who refuse to leave. The names and addresses of individuals choosing to stay are written down and communicated back to the command post as verification that contact was made, so that property can be checked after the fire moves through. The names and addresses of "next of kin" may be requested, which often leads to an abrupt change of heart. In some jurisdictions, forceful evacuations of children and disabled individuals are made, even if the guardians refuse to leave. In most cases, residents respond positively to the color of authority and comply with instructions.

In a Colorado example, the Southwestern Pueblo County Wildfire Evacuation Plan (2002) explicitly states these assumptions:

- " A. The public will receive and understand official information related to evacuation.
- B. The public will act in its own interest, and evacuate dangerous areas spontaneously or when advised to do so by local government authorities.
- C. People who refuse to follow evacuation instructions will be left alone until all that are willing to leave have evacuated. Then – time and conditions permitting – further efforts may be made to persuade the "stay puts" to evacuate."

Experience in LA County so far finds around 85% compliance by residents; the other 15% are dealt with on a case-by-case basis. Minors and disabled individuals are forcefully removed. Adults can stay, but not endanger their children. Similar provisions are cited in numerous other states.

**Once Out, Stay Out:** Permission to re-enter the evacuated area is prohibited until the evacuation is officially terminated. Authority to arrest violators is clear and enforced as a misdemeanor. Although patience is thin among affected homeowners who are anxious to see the fate of their homes, strong enforcement enables firefighters to operate unobstructed. Residents opting to stay must remain in proximity of their residence. Persons roaming the area, even though a resident, can be forced to leave or be removed.

**Re-Entry:** Large-scale evacuations should have formal re-entry plans, considering the potential for hazardous conditions, staging of re-entry and security. Clearance for safe re-entry is announced through the media, at roadblocks, evacuee collection points and shelters.

**Liability:** The issue of liability for officials who call -- or fail to call – for an evacuation has not been seriously challenged. The California legislature provided statutory immunity from liability for public entities and public employees acting in the scope of their employment for

“any injury caused in fighting fires” (Government Code §850.4). This has been interpreted broadly through case law and would be invoked in the event of an evacuation claim.

LA County interprets their responsibility for life and safety of residents as superceding the risk of liability in calling for an evacuation. As long as logical policies have been adopted, with a deliberate action plan and clear decision points, then legal vulnerability is reduced. Calling for evacuation exposes the fire agency to no more liability than responding to an emergency medical or structure fire call. In fact the agency could be accused of negligence if it did nothing. So far, this interpretation has held up. Although public criticism of evacuations may occur after the fact, no examples have yet been found by this writer where fire agencies were held liable for actions during evacuations.

There is reticence among some police agencies to publicly designate evacuation routes ahead of time because wildfires are dynamic, and injury or death may result if pre-designated routes lead to danger rather than escape (Hills Emergency Forum 2002). In many communities however, maps are included in fire-preparedness brochures indicating major arterials and alternatives, and advising residents to follow the instructions of local officials during an actual event (e.g. Tuolumne County 2002; Shingletown Ridge 2002). In the face of increased national attention to homeland security, local hazard mitigation planning is accelerating and evacuation routes are being identified and mapped for different contingencies.

## Discussion

Several key elements are critical to a safe and effective evacuation:

1. **Multi-Agency Pre-Planning:** Coordinated planning across all concerned agencies is essential. Incident Evacuation Plans spell out authorities, jurisdictions, trigger points at which actions will be taken, communications, traffic management, temporary shelter locations for humans and animals, and other key elements ahead of time. Bringing law and fire agencies together beforehand is important for preventing free-lancing and independent action during the crisis atmosphere of a fast moving fire. Tabletop exercises identify weak points before the real event occurs.
2. **Public education on fire hazards and personal responsibility:** This requires a concerted multi-media public outreach campaign to residents and visitors before fires occur. Brochures, web tips, neighborhood contacts, postings in markets, tourist facilities, town meetings and school sessions are all means to contact local residents ahead of time, informing them of fire risks and what to do in the event of evacuation. The California Fire Safe Council program and Firewise workshops offer models for extending education and developing grassroots constituencies for fire-safe communities.
3. **Fuels reduction and fire-safeing structures:** Statutory requirements for building standards, road widths, water supplies and fuel clearances in high fire risk zones help protect structures. Periodic enforcement inspections of fire-safe clearances can be accompanied with evacuation instructions, locations of safe gathering points, and tips on how to leave your house and what to take with you.

## Conclusion

There is no single answer whether staying or leaving is the better strategy during a wildfire. The outcome rests on such factors as:

- The aggressiveness of fire behavior
- The fire-safe characteristics of the structure and surroundings
- The degree of preparation by the homeowner
- The degree of pre-planning by local officials
- Confidence of homeowners in their ability to defend their property
- Equipment and water supply available to homeowners
- Public expectations of what firefighters can do
- The number of firefighting resources available, and the need to rely on citizen firefighters
- The need to protect firefighters from “late deciders” and egress traffic
- The ability of the road network to accommodate the peak evacuation traffic flows without becoming gridlocked

It appears that Australia and the US start at opposite ends of the spectrum, but in some instances tend to merge. The Australian “prepare, stay and defend” model places primary decision responsibility on residents, but if the situation becomes severe enough, as in the Canberra and Sydney fires of 2002, the fire authority may step in to order active evacuation. It appears that the effort invested in the Australian policy debate has created a strong body of public understanding regarding the role of the individual in protecting one’s property, which well exceeds that of most US residents. However the lesser emphasis on evacuation may contribute to some confusion as residents delay their decision to leave, change their mind as the fire approaches, or take their families out and then return to wage a defense (Saunders 1998; Brennan 1998). As noted by Launie (2001), while it is one thing for a resident to decide to shelter in place on a clear sunny day, “... it is quite another thing to stand your ground when the embers start flying through the air and the smoke turns the day into night. Many people will take one look and then jump into the car and try to get out of Dodge City.”

It is last-minute decision-making that aggravates confusion. Fire professionals on the fire line know more about fire behavior than most residents, and their judgment should be respected and exercised. Reliance on evacuation may err on the conservative side of protecting lives at the expense of losing property that perhaps could have been saved. It remains a matter of cultural setting, public attitudes towards risk, and political will as to the relative priority placed upon self-defense versus evacuation as a public policy.

Evacuation is not a contentious policy issue in the US. Although there may be disgruntled individuals in specific instances, in general the deliberate approach of institutionalizing evacuation procedures is accepted. Once it is explained that homeowners may stay, compliance is substantial. Clearly the intent of a mandatory evacuation is to get as many to leave as possible, and when there is time, two-stage alerts, voluntary and mandatory, help to phase departure and protect incoming firefighters. Following the western firestorms of the past three years there has been more experience in evacuations, and implementation is becoming more effective. However, far more national attention is now focused on fuels reduction and augmenting suppression resources than on evacuation policy.

Interestingly, the county of Los Alamos, New Mexico, where the national nuclear laboratory was frighteningly threatened by the Cerro Grande firestorm of 2000, has just announced that they are advocating a “shelter in place” strategy this season rather than evacuation (Los



Alamos National Laboratory, 2003). Aggressive thinning and salvage of burned timber has treated the flats and mesa tops surrounding the community, but has not yet been conducted in the canyons, creating a scenario that makes mass evacuation unsafe. Fires are anticipated to be small, short and hot in the canyons, calling for a different kind of response compared to the earlier condition when thousands of acres were burning in the surrounding forests. Parents are being asked to leave their children at school and not clog the roads trying to retrieve them.

Few areas in the wildland-urban interface however enjoy this degree of fire preparedness. Most western forests are still overstocked, and most home sites still have inadequate clearance. Fire behavior driven by topography and wind will override most of the modest fuel reduction steps taken so far, leaving the US still reliant on evacuation as a tool.

A real-time example of evacuation planning for the 350,000 acre (140,000 ha) bark beetle and drought-killed pine forests of San Bernardino, Riverside and San Diego counties will be presented as an example of an aggressive multi-agency response to potential conflagration. Thousands of structures and hundreds of thousands of residents and tourists are threatened by millions of standing dead trees. Narrow roads, dense homesites, tangles of electric lines and lack of markets for wood waste set up a potential disaster, which only aggressive evacuation planning can help to minimize.

### **References and Web Links:**

Brennan, P., 1998. Bushfire Threat: response in a small community. Centre for Environmental Safety and Risk Engineering, Victoria University of Technology, Melbourne.

California Department of Forestry and Fire Protection: <http://www.fire.ca.gov>

California Fire Safe Councils: <http://www.firesafecouncil.org/>

Firewise Workshops: <http://www.firewise.org/>

Florida, 1999. State of Florida Regional Evacuation Procedure: Wildfire Annex. [http://www.dca.state.fl.us/fdem/DEM/DOCUMENTS/EvacSOP/fire\\_a~1.doc](http://www.dca.state.fl.us/fdem/DEM/DOCUMENTS/EvacSOP/fire_a~1.doc)

Florida Division of Forestry evacuation tips:  
<http://www.fl-dof.com/Pubs/prevention/evacuation.html>

Hills Emergency Forum, 2002. Comments on draft publication entitled Hazard Mitigation: Fire Hazard Planning and the General Plan. Letter to California Office of Planning and Research, September 23.

Launie, J.J. 2001. A risk management approach to land-use planning. The RHA Review. Vol. 7, No.2. <http://www.roberthughes.com/Archive%20Articles/Land-Use%20Planning.htm>

Los Angeles County Fire Department. 2002. Los Angeles County Incident Evacuation Plan. Form V10-C2-S30, 9/01/02. Personal communication: Battalion Chief Jim Powers, LACFD.

Los Alamos National Laboratory, 2003. New fire danger requires new emergency response. <http://www.lanl.gov/worldview/news/LANL/060903.pdf>

National Fire Plan <http://www.fireplan.gov/index.cfm>

Pierce County Washington, 2000. Comprehensive Emergency Management Plan. Department of Emergency Management. Contact: Steve Bailey, [sbailey@co.pierce.wa.us](mailto:sbailey@co.pierce.wa.us)  
<http://www.co.pierce.wa.us/pc/Abtus/ourorg/dem/EMDiv/CEMP.htm#ESF24>

Saunders, Wendy, 1998. Tasmanian bush fires: report on the response of residents affected by the fires, 17-18 January, 1998. Swinburne University of Technology, Melbourne.

Shingletown Ridge, 2002. Are you prepared? Wildland Fire Evacuation Plan. California Department of Forestry and Fire Protection, Shasta-Trinity Unit.

Southwestern Pueblo County Colorado, 2002. Wildfire Evacuation Plan, June.  
[http://www.co.pueblo.co.us/wildfire/sw\\_evac\\_plan.pdf](http://www.co.pueblo.co.us/wildfire/sw_evac_plan.pdf)

Tuolumne County, 2002. Are you prepared? Wildland Fire Evacuation Plan. California Department of Forestry and Fire Protection, Tuolumne-Calaveras Unit.