

Many people equate protecting communities with constructing fuel breaks. Fuel breaks are areas manipulated to reduce fuel loads and curtail the spread of wildfire in forests, usually through very aggressive thinning. Unfortunately, fuel breaks provide a false sense of security more than effective fire protection.

Safety on the ground

Fuel breaks are strategically located strips of land where trees are heavily thinned and ground fuels removed. They provide attack points and relatively safe access for firefighters to battle a blaze with less severe fire behavior.

Way too much emphasis has been put on fuel breaks. Fuel breaks are part of the solution for protecting communities from wildfire but they won't work by themselves.

Fuel breaks have shortcomings from both fire protection and forest restoration perspectives. While fuel breaks can help drop a crown fire to the ground, for instance, they only provide meaningful protection if a sufficient firefighting force is deployed in the fuel break when the fire enters it. If firefighters aren't on the scene at that precise moment, the fire can actually accelerate through the fuel break at the surface level and erupt out the other side with the same fury it had before reaching the fuel break.

Furthermore, most fuel breaks are too small to stop a catastrophic fire – a 200-foot wall of flame can easily jump highways and other breaks. Catastrophic fires often launch firebrands – bits of



Fuel breaks often provide a false sense of security – wildfires can burn through or around fuel breaks, as happened in the 2001 Star Fire near Lake Tahoe that charred more than 16,000 acres.

burning branches, twigs and cones – a mile or more ahead of the main fire. Firebrands also catapult burning embers on rooftops. During the Los Alamos Fire of 2000, hundreds of homes, even those that had cleared defensible space, burned when firebrands from afar landed on pine needles near homes.

During the 2003 Southern California firestorm, hundreds of homes that were theoretically protected by fuel breaks burned. The Old Fire, for example, simply swept around the east and west

ends of Highway 18 that firefighters were using as a fuel break to protect Lake Arrowhead.

Unightly scars

Fuel breaks not only provide inadequate community protection, they fail to restore forests or address the root cause of our wildfire crisis.

The extreme thinning used to construct most fuel breaks leaves tracts of forestland devoid of most plant and animal life. With understory and surface

vegetation removed, many fuel breaks look more like a sea of telephone poles than a forest. Biodiversity suffers in fuel breaks because wildlife needs a variety of vegetation for cover and food.

Fuel breaks are also expensive to construct and maintain – the maintenance is particularly important. If a fuel break is not maintained at 10 or 15-year intervals it will soon be overgrown with brush and other highly flammable fuels that can worsen fire conditions. This is happening all too

frequently throughout the West as fuel breaks built in the 1960s and 1970s have been abandoned due to budget constraints.

A better way

Restoration forestry offers a more effective, sustainable way to protect communities. It incorporates fuel breaks with moderate thinning as part of an overall plan rather than relying on narrow strips of heavily thinned forests that may or may not be placed effectively.

The real problem is that huge tracts of public forestlands are vastly overcrowded. As long as that remains true, communities near those forests will not be safe. Restoration forestry addresses that.

Whereas a fuel break is the last desperate line of defense, a restored forest provides the most effective first line strategy. Restoring forests so they look like historic forests in which catastrophic fire was rare is the best way to protect communities. By recreating a patchy

Fuel breaks, like this one in the Tahoe National Forest created eight years before this photo was taken, need expensive ongoing maintenance.





Meaningful, sustainable protection means establishing multiple layers of defense and fuels reduction.

forest mosaic with openings, young and open older forests and some dense stands of trees, there will be only limited opportunities for fires to reach the extreme temperatures they do today.

Levels of defense

The best way to protect communities is through restoration forestry and its levels of defense that include defensible space around structures, restoration fuel breaks, and restoring the forest at large.

The fires that threaten lives and property frequently start in distant forestlands. Addressing the whole forest and reducing fuel loads in a sustainable fashion, therefore, is essential.

Protecting communities with a practical solution requires establishing multiple zones that break up concentrations of highly flammable fuels. The use of fire-resistant roofing materials also is prudent where possible.

The first zone is defensible space near homes. California law requires that clearings extend at least 100 feet from a building. In the 30 feet closest to the home, grass or other low-lying vegetation is appropriate; firewood should be stored away from houses and tree limbs that hang over houses should be pruned. In the last 70 feet of the clearing, thin large trees so their crowns don't touch. In brushlands, thin 50 percent of the brush and remove lower limbs.



Communities in forested areas are safer when the forests around them are managed to reduce fuel loads.

The second zone is restoration fuel breaks around communities. Fuel breaks should be at least a quarter-mile wide. Restoration fuel breaks feature a patchy distribution of trees and shrubs with each patch a different age. Most patches should be small, generally less than a quarter acre. Surface and ladder fuels are removed, but some large logs and snags should be left near the outer edge. Restoration fuel breaks provide less severe burning conditions and serve as an anchor point for restoring the entire forest. They are also sustainable and provide habitat for wildlife.

The third zone is restoring the forest beyond fuel breaks. This zone, the largest of all, will ultimately resemble historic forests with lesser concentrations of highly flammable fuels. Re-establishing the patchy forest mosaic that dominated California's lands before European settlement addresses the root cause of the wildfire crisis and can reduce the incidence of catastrophic wildfire.

While the same strategy can also restore brushlands, re-introducing low-intensity fire can help sustain reasonable fuel loads in brushlands. The goal in brushlands is to establish a mosaic in which half of the vegetation is less than 20 years old.

Sustained protection

More than 1,100 California communities face a high risk of catastrophic wildfire. Building and then abandoning isolated fuel breaks will not offer those communities relief. Sustaining a safer, more natural forest with modern forestry supported by a robust forestry infrastructure will protect people, forests and wildlife. ■