

TREATING HOMES AND THE IMMEDIATELY SURROUNDING AREA BEST PROTECTS COMMUNITIES FROM WILDFIRE

With hot summers and an ever-increasing number of trees attacked by bark beetles, many people wonder how much treatment needs to be done around communities to provide a reasonable amount of protection from wildfire. This issue has also become timely given the proposal to allow an exemption in the Colorado Roadless Rule to permit fuels reduction activities to reduce community wildfire risk.

Given the unpredictability of wildfires, there can never be a precise answer to this question, but research conducted by the Forest Service provides considerable insight, and indicates that:

- As little as 40 meters of defensible space is sufficient to prevent ignition of homes.
- Additional defensibility is best accomplished by reducing the flammability of structures themselves.
- The construction of forest roads increases the likelihood of fire ignition, and thus increases the risk to homes and infrastructure.

Additional detail on each of these conclusions is provided herein.

Creating Defensible Space Should Emphasize Areas Immediately Adjacent to Structure and/or Infrastructure at Risk. Cohen, 1999, found that “large wildland flame fronts (e.g., forest crown fires) will not ignite wood surfaces (e.g., the typical variety of exterior wood walls) at distances greater than 40 meters”.

He cites case studies showing that “vegetation clearance of at least 10 meters was associated with a high occurrence of home survival” during wildfires. Conversely, a study of a 2007 California fire shows that most of the 199 home ignitions there did not occur from crown fires but rather from surface fires. See Cohen and Stratton, 2008. The same occurred for the fire near Summerhaven, AZ in 2003. See Cohen, 2003.

If a fire cannot directly ignite a home, and there is nothing to transmit the fire to the home, the home cannot ignite. Thus Cohen, 1999, concludes:

...effective fuel modification for reducing potential W/UI fire losses need only occur within a few tens of meters from a home, not hundreds of meters or more from a home. ... research indicates that home losses can be effectively reduced by focusing mitigation efforts on the structure and its immediate surroundings.

In other words, the best protection for homes from fire is not fuel reduction treatments well away from the home, but rather applying Firewise principles¹ on and next to the

¹ see www.firewise.org

home. These principles include: have a non-flammable roof, have no flammable materials of any kind immediately adjacent to the structure, and remove or prune vegetation that could transmit a fire to the structure.

Reducing structure flammability reduces the chances of firebrands igniting the structure. Forest fires that engulf whole trees (crown fires) can send firebrands, or burning embers, a considerable distance, and these embers can then start new fires. Thus homes can be ignited from a forest fire a considerable distance away. However, if there is no flammable material on the outside of the house or near it, embers will not be able to ignite the structure.

As Cohen, 2000, noted:

Although firebrands capable of ignition can originate from a fire several kilometers away, homes can only be threatened if the firebrands ignite the home directly or ignite adjacent flammable materials that then ignite the home.

Areas with road access have a much higher rate of ignition. Roads are often necessary for logging, as logged material needs to be removed. Otherwise, logging would make an area more fire prone because it would create a large amount of fuel that would quickly dry out in a logged area more exposed to the sun and become susceptible to ignition. According to Forest Service research, areas containing roads have two to three times more fire starts than unroaded areas in the Rocky Mountain Region. USDA Forest Service, 2000. Thus constructing roads to log in the backcountry might lead to more ignitions in future years.

In sum, the science is clear: fire protection for homes and other structures is best accomplished by ensuring that the homes and the immediately surrounding areas, for a distance of up to 40 meters, are as non flammable as possible. Creating and maintaining this condition greatly increases the chances of homes surviving a wildfire. Roads used for logging considerably increase the probability of ignition.

The Colorado Roadless Rule would allow road construction and fuel treatment in areas a long distance away from communities, much more so than is needed to protect them.

Under the current version of this Rule, road construction and logging to reduce the wildfire hazard could occur in the community protection zone, which is defined as an area up to 1.5 miles away from communities. In fact, areas even further away could have new roads and be logged under this proposed rule if the area is covered by a community wildfire protection plan. Finally, the Colorado Roadless Rule fails to even provide direction to prioritize treatments where they are most effective, that is, in immediate proximity to homes and infrastructure potentially at risk.

Logging in more remote areas – for example, areas beyond a half mile from communities – would not provide any protection for these communities. Road construction in these areas might even increase the probability of ignitions. In any case, conducting these activities in areas distant from communities would likely divert resources (funding, personnel, and equipment) away from operating in areas near communities where treatment would help provide protection against wildfire.

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