

## Prescribed Fire: Managing Smoke and Fire in the Tahoe Basin

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This fall, you may see smoke rising in the Lake Tahoe Basin. It is likely to be from “prescribed fires.” The use of prescribed fire has become an essential tool of forest management, and it is highly effective in reducing wildfire risks and enhancing forest health.

### **Decades of fire suppression build up fuels**

To most people, fire in the forest brings images of danger and destruction. Fire, specifically wildfire, can have devastating effects on the watersheds, water quality, habitats and a range of other resources. However, the large and severe fires we have seen recently in the West are partly the result of decades of suppressing nearly all fires. We did not always recognize that fire has an important role in maintaining forest health, diversity, watersheds and habitat. Many decades of suppression contributed to dangerous accumulations of dead woody debris and overgrown stands of trees in poor health. These changes created conditions for producing high-intensity wildfires that can not only be catastrophic for humans, but for wildlife habitat and forests as well. High-intensity fires often burn so hot that they kill most, if not all, of the vegetation in their paths. Conversely, more frequent low-intensity fires, which only burn close to the ground, do not kill healthy trees or even destroy the organic duff layer on the soil, but rather maintain and improve wildlife habitat and species diversity.

### **What we can do**

With the dramatic increase in Sierra Nevada populations and communities, and the build-up of

hazardous fuels that has occurred over the past several decades, what can we do to restore forest health and reduce wildfire risks? Like a doctor, a forester can use fire in a prescription for a specific condition. No two applications of prescribed fire are the same, as each is designed to meet the specific conditions and needs of the location, such as vegetation types, slope, and nearby communities. Additionally, prescription burns include pile burns, used to remove excess fuels when physical removal from the area is not possible, due to topography or resources; and broadcast burns, which are low-intensity ground fires used to support the fire-dependent forests.

Before any prescribed fire can be introduced, the area must be carefully prepared. Thinning is used to remove the heavy growths of small-diameter trees. Then, the floor of the forest is cleared of heavy buildup of dead and downed wood. Ladder fuels are also reduced. Ladder fuels are burnable materials that can carry fire on the forest floor up into the trees, such as hanging dry branches that extend from the ground to the crown of a tree. These preparations reduce fire spread and help the fire to mimic the low intensity and slow movement that characterized fires before suppression efforts were common. For example, broadcast burns are often ignited at the top of a slope and allowed to burn slowly downhill.

### **Protecting air and water quality**

Many agencies work together on prescribed fire planning, including the TRPA, the county air pollution control districts, forest and fire management agencies and others. These agencies are sen-

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sitive to the impacts of smoke on communities, including sensitive individuals such as children, the elderly and those with respiratory ailments, such as asthma. They also do not want to negatively affect the scenic values so important to Lake Tahoe. Therefore, prescribed fires are only done at certain times, when weather conditions are favorable. Winds that can transport the smoke up and out of the Basin must be present. Only a few days each year meet the weather criteria needed to perform prescription burns.

Fire management agencies have specific protocols for prescribed fire, which are used to develop a “burn plan” for all prescribed burns. These plans must specify how smoke impacts will be kept to a minimum. They also outline specific contingencies in the event that smoke affects communities and describe conditions when it might be necessary to suppress the fire.

Over the long run, prescribed fires can actually reduce negative air quality impacts. Prescription burns and biomass fuel removal help prevent larger, catastrophic fires that could generate much more smoke and burn much longer, depending on weather and the amount of fuel in the forest.

Prescribed burns also help protect Lake Tahoe’s famed clarity. Whereas high-intensity wildfires generate large amounts of smoke that deposit nutrients and particles into the lake, prescribed fires produce less smoke and are conducted at times when the smoke will leave the basin rapidly. Prescribed burns are also designed to prevent erosion, whereas high intensity wildfires often increase the potential for soil erosion.

## **A prescription for success**

Prescribed fires are implemented by highly trained professionals who know the potential risks of managed fire. While most of the public has heard of a prescribed fire somewhere that has escaped, these situations are very rare. Burn plans always consider potential escape, and crews and equipment are standing by for all possible contingencies. While one escaped prescribed fire certainly makes the headlines, the fact is, thousands of successful prescribed fires

are conducted in the United States every year, helping to protect lives and our environment.