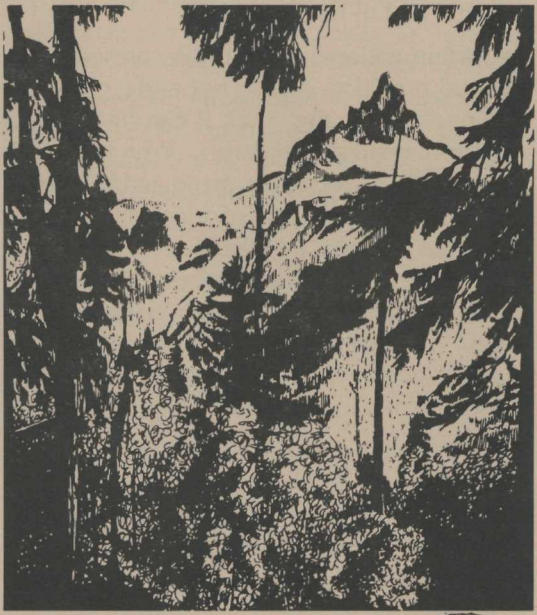
Fire Management

in Crater Lake National Park



Crater Lake National Park
USDI National Park Service

Fire: A Natural Process

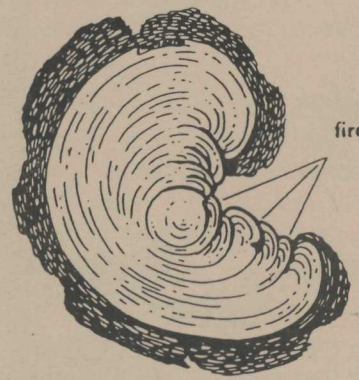
Fire is as much a part of the forests in Crater Lake as are avalanches, windstorms, native insect and disease outbreaks, and volcanoes. All of these naturally occurring forces play an important role in shaping the forest landscape.

For as long as there have been forests, there have been fires. All it takes is the right set of ingredients: fuel, oxygen, and a source of heat.

Forests of Crater Lake National Park have a good deal of fire evidence. You might recognize this evidence in the form of fire-scarred trees, silver snags, charcoal in the soil, mosaic patterns of even-aged trees or charred wood.

Through the centuries, plants and animals have evolved in the presence of fire and, in fact, certain species actually require fire periodically to ensure their survival. Lodgepole pine is one example. Many cones of the lodgepole pine require heat in order to open and release the seeds. Douglas-fir, the dominant tree species in the Northwest, has adapted to periodic fires by developing thick, insulating bark and seeds that germinate best in open conditions and mineral soil such as found after a fire.

In ponderosa pine ecosystems, low intensity fires occurred almost every decade before 1900, often initially scarring small trees. Older trees (**left**) frequently have large basal scars called catfaces resulting from these pre-1900 fires. In a stem cross-section (**below**) each scar is separated by bands of healing tissue, enabling precise dating of each past fire by annual ring analysis.



Wildlife has also adapted to recurring fire. Fire opens up the forest canopy and allows the sunlight to reach the forest floor. Vegetation soon thrives within the reach of many animals and wildlife diversity increases.

Fire is a natural process - a part of each park's ecosystem of plants, animals, soil, water and air. The frequency of fire in each park depends on climate, vegetation, fuels, and topography.

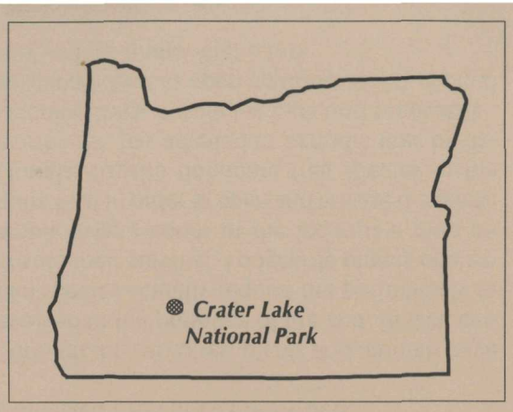
Fire history in Crater Lake National Park

Fire history at Crater Lake National Park has been documented through the research of James Agee, professor of Forest Ecology at the University of Washington, and other researchers since the mid-1970s. Research indicates that historical fire regimes varied according to the forest type in terms of fire frequency and severity.

Crater Lake's dominant forest types and their mean fire return interval:

Mountain hemlock/Shasta red fir	**42 yrs**
Lodgepole pine	**60 to 80 yrs**
Ponderosa pine	**2 to 17 yrs**

Understanding the role fire has played in shaping the landscape can be obtained through the scientific study of fire scars, vegetation structure, and fire ecology of the various ecosystems within the park.



Prior to fire suppression activity, these small but frequent fires served to decrease the amount of fuel on the forest floor. In the absence of fire, ground fuels and understory vegetation began to accumulate to unnaturally high levels. This accumulation of fuel presented a serious fire hazard. To lessen this hazard and restore natural forest conditions, managers at Crater Lake National Park are prescribing low intensity fires. These burns are set in pre-determined areas usually in the spring and fall so that low levels of fire intensity are assured.

Fire: The policy today

Fire has been viewed as a major enemy of forests for many decades. Now this view is changing. Scientific research has given us new insight into fire's relationship to the forest environment. Fire polices throughout the United States are changing the total fire suppression to a broadened concept of fire management. specifically in national parks and wilderness areas, fire is recognized as a natural phenomenon and integral part of the ecosystem.

In certain national parks today, prescribed fire is used provided it does not endanger human life or property and when it can be contained within the parks boundaries. Why is this? The National Park Service is mandated to preserve the natural environments of our park lands. Since 1968 the National Park Service has recognized fire as one of the natural processes important in maintaining our parks in their primeval conditions. Therefore, some fires burn under close surveillance, ensuring management objectives are being met in a safe manner.

In some areas prescribed fires are ignited to simulate natural fire or to reduce fuels to natural levels. Fire suppression is an always present option, if needed to control prescribed fires or to control human-caused wildfires.

Though the polices toward managing fire have changed, fire's potential force and destructive power has not. We must still be careful with our use of fire. An unwanted fire caused by human carelessness can have disastrous effects.

On examining those sections whose trees are a hundred years old or two hundred, we find the same fire records, showing that a century or two ago the forests that stood there had been swept away in some tremendous fire at a time when rare conditions of drought made their burning possible.

John Muir
Olympic Mountains
1918

What is fire management here at Crater Lake National Park?

At Crater Lake National Park, a complex fire management program is currently being implemented. The program is guided by an approved fire management plan that has met compliance requirements of the National Environmental Policy Act. Fire management strategies that can be utilized include prescribed natural fire, management ignited prescribed burns, and one of the three suppression strategies: *Contain, confine, or control*. Ultimately, all the fire management goals are designed around the resource management objectives of Crater Lake National Park.

Fire management is concerned with the historical role of fire within various ecosystems. The decision to manage a fire utilizing a specific strategy is based upon fire ecology research, fire effects monitoring, social, economic, legal, and cultural values.

The park fire management committee makes the final decision on how each fire will be managed as part of a team effort to ensure that objectives will be reached.

Fire: backcountry safety

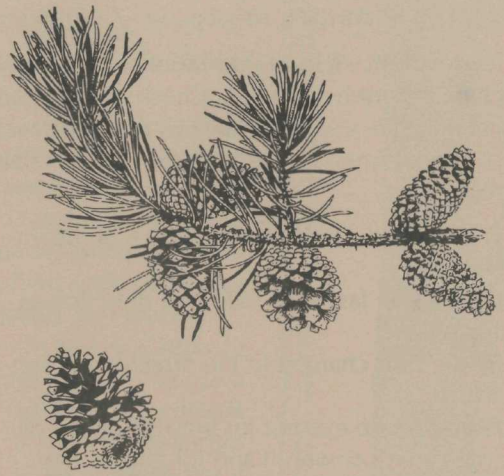
A back country trip in this national park could include experiencing a fire. Check with the park staff for the fire plan in the area you plan to travel. If you see or smell smoke, remember these safety tips:

- Fires usually travel faster uphill than downhill.
- Fires travel fastest in the same direction as the wind.
- Be alert for changes in the direction of the wind.
- Keep a sharp eye out for burning debris or logs rolling downhill and for falling trees.
- Keep together-do not panic. Think of your safest route out and away from the fire.

Possible "safety zones" are:

- Large open meadows located downhill and up wind from a fire.
- Rocky outcrops.
- Lakes, large streams.
- Within the burned areas.

The park superintendent welcomes your comments on the existing fire plan for Crater Lake National Park.



Some lodgepole pines retain seeds inside resign-coated cones until a fire passes, killing the tree and opening the cones. Seeds fall onto nutrient-rich ash, resulting in a new generation of lodgepole pine. This adaptive mechanism is the result of evolution in an environment where fire has been present for many thousands of years.

FOR MORE INFORMATION about Crater Lake National Park's fire management policies, please contact:

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