



**Some lodgepole pines retain seed** inside resin-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 a specific park's fire management policy, please contact the Superintendent at:

**Crater Lake National Park**

PO Box 7  
Crater Lake, Oregon 97604

**Mount Rainier National Park**

Tahoma Woods, Star Route  
Ashford, Washington 98304

**Olympic National Park**

600 East Park Avenue  
Port Angeles, Washington 98362

**North Cascades National Park**

800 State Street  
Sedro Wooley, Washington 98284

Produced by:

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Cooperative Park Studies Unit  
College of Forest Resources  
University of Washington  
Seattle, Washington 98195

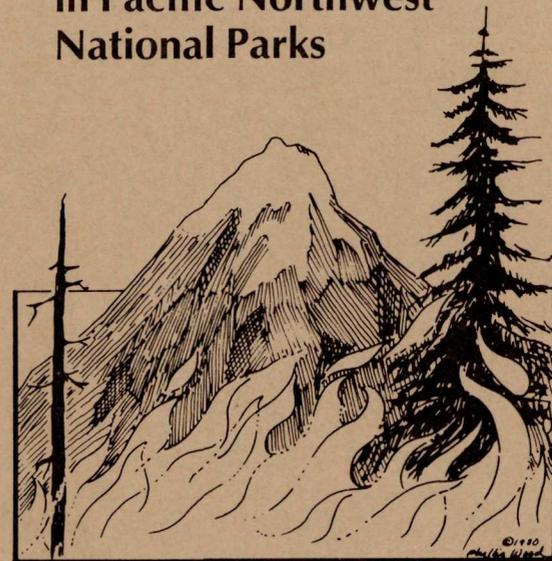
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# FIRE:

## in Pacific Northwest National Parks



Pacific Northwest Region  
USDI National Park Service



## FIRE: A NATURAL PROCESS

Fire is as much a part of the forests in the Pacific Northwest 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.

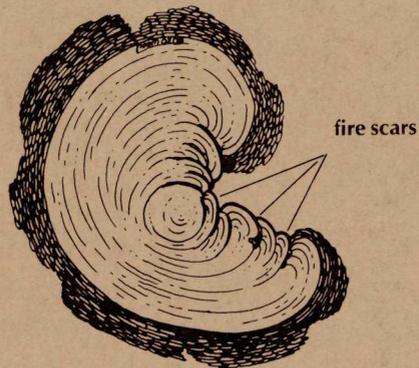
For as long as there have been forests, there have been fires. All it takes is the right set of ingredients: fuel, oxygen, and a source of heat.

Forests of the national parks in the Pacific Northwest 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



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 cat-faces 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.



germinate best in open conditions and mineral soil such as found after a fire.

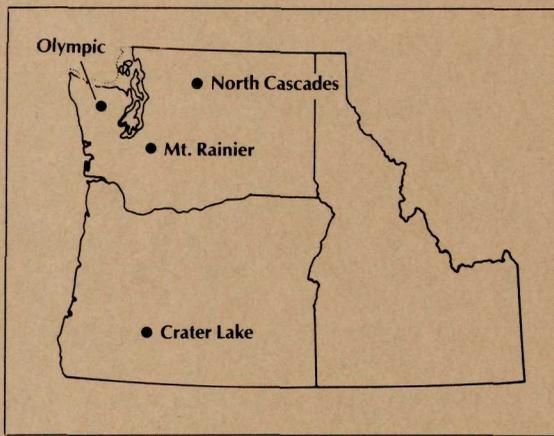
Wildlife has also adapted to recurring fire. Fire opens up the forest canopy and allows sunlight to reach the forest floor. Vegetation soon thrives within the reach of many animals and wildlife diversity increases.

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 the Pacific Northwest

There are two "stories" to the frequency of naturally caused fire in the Pacific Northwest: the "west side story" and the "east side story." Forests of Mt. Rainier, Olympic, and the western portion of North Cascades National Parks are generally moist, fir-dominated regions. The fire cycle at any one point is infrequent here, occurring at intervals of 150 to 700 years.

East of the Cascades, the fire story is quite different. For example, the drier, pine-dominated region encompassing lower elevation zones at Crater Lake National Park has a much shorter interval between fire. Here natural fires occurred every 5-15 years.



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 policies throughout the United States are changing from 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 an 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 predetermined 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 in certain parks will be allowed to 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 our policies 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?

It is the integration of fire prevention, suppression, and prescribed fire activities based on *management objectives of the agency.*

All national parks are considering this range of alternatives for managing fire and many are in the process of developing new fire management plans.

In the Pacific Northwest, all parks operate under a total fire suppression policy until they complete revised fire management plans. National parks which have recently completed new fire management plans now have the option of using a combination of prescribed burning, prescribed natural fire, and fire suppression.

The new planning process for fire involves several steps:

- Determining the natural role of fire in the various ecosystems of the park.
- Evaluating the natural role of fire in relation to social, economic, legal and cultural values, and the current state of the ecosystem.
- Consideration of all environmental impacts inside and outside the park's boundaries.

### Fire: backcountry safety

**A backcountry 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, logs, cones 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 upwind from a fire
- rocky outcrops
- lakes, large streams
- within the burned areas

The area superintendent welcomes your comments on the development of the park's fire plan or on the existing plan for the park. □