Grand Canyon

National Park
National Park Service
U.S. Department of the Interior

Fire On The Rim

Pre-burn

Wildfire

Prescribed Fire

Fire is as much a natural part of Grand Canyon as are rain, snow, wind, and wildlife. It is a part of the forests which until recently was not well understood and thought by many to be only an agent of destruction. In the last 25 years research has determined that the role of fire in these forests is one of renewal, enabling the growth of lush new vegetation, and providing many needed nutrients for plant and animal life.

THE ROLE OF FIRE

Long before people began visiting the canyon, fire was an important force of sudden and dramatic change on the canyon rims. Natural (lightning-caused) fires resulted in a mosaic of old and young plant life, and of open and heavily forested areas. This mosaic produced a diverse array of habitats which supported a large variety of wildlife on the rims. For example, deer and elk ate meadow grasses produced by fire, and spotted owls and goshawks dwelt in old growth areas.

In addition to the physical changes which fires created, when forest litter burned, nutrients were returned to the soil. These nutrients were in turn taken up by plants. Studies of the nutritional value of forage in pre-burn and post-burn areas have clearly shown that post-burn areas offer better food for wildlife.

The natural fires were generally of low intensity and caused scarring of small trees. Many of the oldest ponderosas have *cat faces*, large basal scars produced by fires which occurred before the turn of the century. By studying the scars in tree rings of large dead trees, scientists have learned much about the regularity of natural fires. In ponderosa pine forests, natural fires burned about once every 10 years. Other ecosystems, such as the spruce-fir forests on the North Rim, had longer breaks between natural fires (70 to 250 years).

The rim forests exhibit adaptations which developed in response to these cyclical natural fires. Ponderosas, for example, shed their lowest branches as they grow. This reduces fuel, and decreases the likelihood of an intense *crown fire* -- one in which entire trees are consumed. Douglas-fir has thick bark which insulates it from the heat of a fire, and its seeds germinate best in the open areas and mineral soils which fires produce. And the colorful aspens take advantage of reduced competition after fires by sprouting many new plants.

THE HISTORY OF FIRE MANAGEMENT AT GRAND CANYON

When Europeans began to settle the western United States, the natural cycles of fire were broken. People became better at controlling fire, which they perceived as an evil force in nature. Eventually, most fires were extinguished if at all possible.

As a result of this fire suppression, the health of the forests suffered. Some of the physical diversity of the habitat was lost as the mosaic pattern of old and new growth disappeared. Nutrients remained locked up in the forest litter. Because forest fuels accumulated, the likelihood of crown fires increased, as did the chance of damage to public and private buildings.

THE FIRE POLICY TODAY

Since 1968 the National Park Service has viewed fire as a natural part of the ecosystems it manages. Slowly, as time and circumstances permit, the park service is returning these systems to a more natural state. This is accomplished through the implementation of a Fire Management Plan in each park, including Grand Canyon.

The Fire Management Plan at Grand Canyon aims to "effectively manage wildland fire, providing for the protection of life and property, while ensuring the perpetuation of park ecosystems, natural resources, and their associated processes."

Fires at Grand Canyon are termed either ***prescribed fires*** or ***wildfires***. A prescribed fire is any fire which occurs in an area which has been determined to be in need of fire. A prescribed fire may be deliberately ignited by the fire management staff, or it may be a lightning-caused fire which is allowed to burn. All other fires, regardless of the cause, are termed wildfires.

Under what conditions does the park service allow fires to progress? First, the fire must be in a prescribed burn area (that is, in an area predetermined to be in need of a fire). Second, park managers evaluate the fire conditions to determine the maximum allowable spread and duration of the fire. A number of variables must meet specific criteria: wind speed and direction, fuel moisture, weather conditions and predictions and the potential for smoke dispersion are all taken into account.

Lightning-caused prescribed fires are allowed to burn only if the conditions are right as pre-determined by the fire management plan. Staff-ignited prescribed fires are planned months ahead of time. The goal for all prescribed fires is to use fire to reduce forest fuels to acceptable levels, and to return fire to its proper role in the canyon's ecosystems.

All wildfires (that is, any fire which is outside of the prescribed burn areas) are extinguished. Park scientists analyze the effects of every fire at Grand Canyon National Park.

EVIDENCE OF FIRES AT GRAND CANYON

As you travel through Grand Canyon National Park, see if you can find evidence of fires. Can you find a cat face? How about evidence of a recent prescribed burn? Crown fires? Did you notice any areas with large amounts of dead and down trees? What are the chances of those areas becoming crown fires if someone is careless? Is there a prescribed burn in progress today? If so, you will probably see signs posted indicating this.

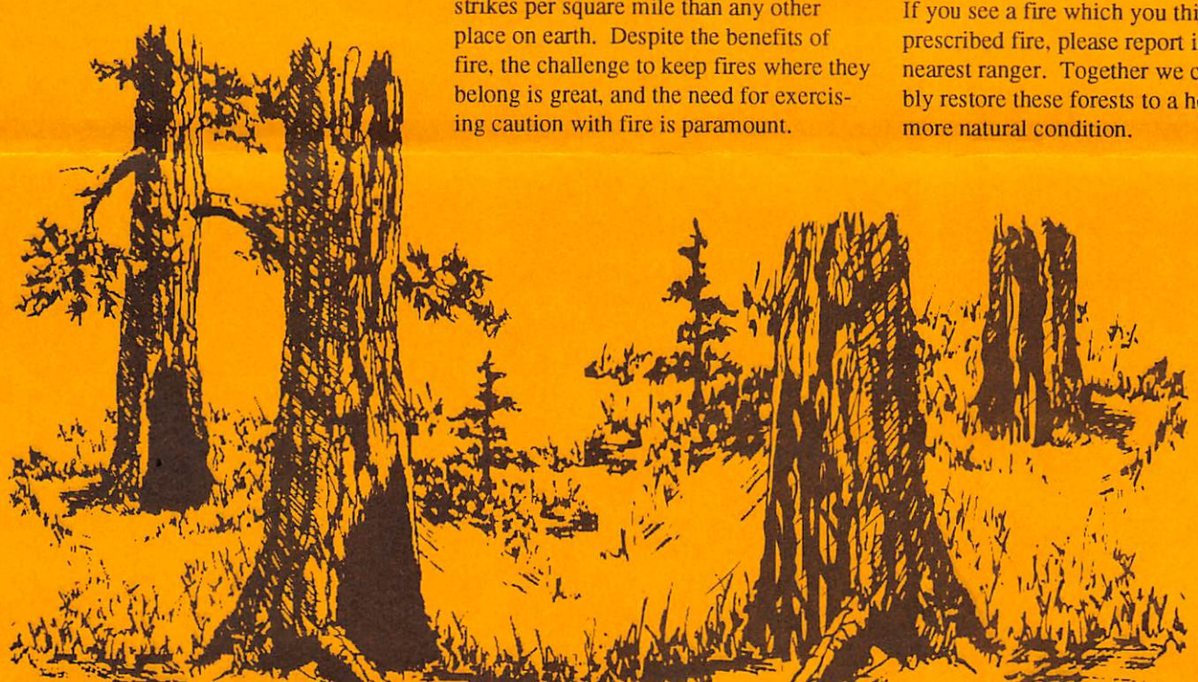
Fire Scars

HOW YOU CAN HELP

Each year, the southwestern United States is subject to about 2,600 wildfires. The Colorado Plateau receives more lightning strikes per square mile than any other place on earth. Despite the benefits of fire, the challenge to keep fires where they belong is great, and the need for exercising caution with fire is paramount.

Unwanted human-caused fires can be disastrous. Please be careful with fire!

If you see a fire which you think is not a prescribed fire, please report it to the nearest ranger. Together we can responsibly restore these forests to a healthier, more natural condition.



12/92