

# Fire Management



## The Fire Ecology of Healthy Parklands

**FIRE!** The word conjures up images of leaping flames, fleeing wildlife, and charred remnants of trees that jut like snagged teeth against the skyline. These are the images that many of us have seen through the eyes of Smokey the Bear as he warned, "Only you can prevent forest fires." This campaign to prevent the careless destruction of forests by human-

caused fires has been very successful, but it does not tell the whole story. Not all fires in parks and forests are man-made. Many occur naturally, ignited by lightning or volcanic activity. In addition, not all fires are bad. Some are actually necessary and, in fact, can be healthy for a natural environment. It is also important to keep in mind that no matter how devastating a fire in a forested area may be, the effects on nature's time scale are

short-lived. Inevitably, new life will follow old in the natural cycle. Tender young shoots will push up from under fallen trees. Before long, among the blackened stumps, young plants will appear. Animals will feed on them. From the destruction of the old will come the potential for rejuvenation and rebirth.

## Fire Management

From the earliest of times, people have feared the power and mystery of fire, yet desired to control it. Realizing fire's power, many civilizations had myths about it; some even worshipped it. The Greek hero, Prometheus, stole fire from the gods as a gift to humankind and was punished for providing mortals with such a powerful tool.

The desire to control and use fire continues today. Contained, it cooks our food and heats our homes, providing warmth and cheerful comfort. In the wild, when it may rage out of control, we feel threatened by its untamed power. "You're playing with fire!" we caution one another, meaning "be careful—there may be serious and dangerous consequences."

The National Park Service, recognizing both the values and dangers of fire, takes a variety of actions in dealing with it. These range from total suppression of wildfires when people, park resources, or the property of park neighbors are threatened, to monitoring wildland fires that benefit the natural environment. Basically, the National Park Service's fire policy attempts to recognize natural processes and to work within them. Consequently, some natural fires may be allowed to burn as a part of natural processes. At other times, when natural fire has long been absent and fire is

determined necessary for the ecological health of the area, the National Park Service may do burning under controlled conditions. However, all fires begun by humans through arson, accident, or ignorance are suppressed wherever and whenever possible.



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# Fire Management History

Fire has always been part of the natural environment. The great open prairies in the middle of our continent continued as grasslands because fires periodically swept through, killing trees that had invaded and searing open seeds too tough for rain and snow to penetrate. Native Americans intentionally set fires on the Great Plains to attract buffalo and other wildlife to the newly sprouted grasses that would germinate afterwards. Similarly, the character and composition of our forests have historically been in continuous flux from fires caused by lightning strikes.

Only relatively recently did we fully realize the essential role that wildland fire plays in the natural order of things. Initially, all wildland fires—both natural and human-caused—were seen as destructive, to be avoided at all costs. Fires were put out as quickly as possible. From its beginnings in 1916 until 1972, the National Park Service practiced a policy of total and immediate fire

suppression, as did most other land managing agencies. As a result, fires were not performing their natural function and the consequences of an unnatural buildup of fuel began to be apparent.

We began to learn that when fires are eliminated from the natural scene, as they were on federal lands as well as elsewhere, a number of things can happen. Fuel—in the form of dead wood, leaves, needles, and brush—can build up to the point that any fire, natural or not, will result in a destructive inferno. In addition, when periodic fires do not occur, a forest may grow into an old, even-aged stand of trees, highly susceptible to widespread damage from disease, high winds, or fire. Also, as the forest ages, the thick leaf-and-branch canopy of these mature stands of trees blocks out the sunlight needed to support vegetation on the forest floor. These forests often are nearly devoid of ground-dwelling wildlife because the plants that create their habitat are not present. Further, many species of plants in fact depend on fire for their germination or healthy

growth. Without periodic fire, these species die out or are replaced by others. The diversity of the plants and animals is reduced.

We also learned that while some wildlife are lost in fires—though most are adept at escaping—wildlife actually thrive in diverse communities enhanced by periodic fire. Such fires enhance diversity by reducing woody brush to organic ash and permitting grasses and forage plants to return and prosper. Where old stands of trees (with their insects and parasites) are burned, meadows open up. These serve as pastures for wildlife and natural fire breaks for the adjoining forest. Fire rarely spreads evenly through a forest; its path is often an erratic one—burning some areas, barely touching others, and completely skipping the rest. The diversity of vegetation this creates helps check new fires and provides food and cover for animal life.

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## Fire as a Management Tool

Monitored carefully, fire has become a critically useful tool for managing natural resources. Scientific methodology now enables us to predict how a fire will behave under various conditions. By analyzing weather conditions, fuel types, and the topography of an area, a professional fire manager can predict how fast a fire will spread, how high the flames will go, and even how intensely the fire will burn. This technology lets managers know how the fire will “look” when it starts or before it is ignited. It also allows managers to use fire as a tool. Fire intentionally used as a tool is known as prescribed burning.

Prescribed burning is the scientifically applied use of fire to achieve specific, desired results. It is called prescribed burning because a prescription is written

in advance that defines the objectives to be attained, the fuel and environmental conditions under which the fire will burn, and the specified final size of the fire. When the physical and environmental conditions are met for the prescription, the fire is allowed to continue burning if it was naturally started, or, if necessary, it is ignited. It is then carefully monitored by fully equipped and trained firefighting crews. During the prescribed burn, conditions are continually monitored; if conditions change and the fire no longer meets the prescribed requirements, the fire is extinguished.

After decades of trying to put out all fires in parks, the National Park Service now uses prescribed burning to remove accumulated fuels that create the risk of catastrophic fires; to replicate the historic cycle of natural fire occurrence; and to let natural fires continue to perform their natural function.

With our improved understanding and appreciation of the role and nature of fire, the National Park Service is now able to take a more balanced view of fire's values and dangers. Fire can be either beneficial or disastrous, friend or foe. As with all powerful forces, it must be handled with intelligence and care.

**For further information** on the fire management program of the National Park Service, write to: Director, National Park Service, U.S. Department of the Interior, P.O. Box 37127, Washington, DC 20013-7127.