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*Yellowstone National Park*

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## THE EFFECTS OF THE SUMMER FOREST FIRES ON YELLOWSTONE NATIONAL PARK

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Throughout the summer, the nation watched as fires swept through Yellowstone National Park. Media coverage made people from all parts of the United States aware of the change that was taking place in Wyoming. Concerns ranged from the effect of the fires on the park, its attractions (such as the geysers) and the animals to worries of what the smoke being released by the burning trees would do to the atmosphere.

The tragedy exposed was the general lack of understanding people have about the role of fire in the wild. This is an indication of the scientific illiteracy with which our society is plagued. For example, some press reports short-sightedly emphasized destruction caused by fires and neglected to inform the public of fire's role in maintaining nature's "balance." Many failed to report the inevitability of the fires, given the prolonged and severe drought conditions and the age of Yellowstone's forests.

Admittedly, a large portion of the park *was* burned, but fires have burned at Yellowstone before. Fires are like hurricanes and earthquakes: they may do some damage, but, in the long run, they are a way the earth renews itself.

What primarily burned in Yellowstone's fires were vast areas of old, diseased lodgepole pine trees. Lodgepole pines generally live between 300 and 400 years. At that time, they lose their resistance to beetles, which bore into the trees to lay eggs. The dead trees become dry and susceptible to fire, and, sooner or later, a forest fire starts and "cleans" away the lodgepoles.

Forest fires are a perfectly natural occurrence. Without the cleansing effect of fire, forests would soon be crowded with standing dead trees and debris. Bears and elk would be hard pressed to find food since grasses and shrubs would be scarce under a closed canopy. In the temperate regions of the earth, in which Yellowstone is located, fire is the major decomposing force. In the tropics, fungus does the decomposing, but farther north, the climate is too cool for fungus to fill that role.

As for the concerns regarding the effects on Yellowstone's attractions, the geysers and hot springs are completely unaffected by the fires. Forest fires just don't get hot enough to affect rocks in thermal areas. When the news media reported fires threatening Old Faithful, they meant the buildings surrounding the famous geyser, not the geyser itself.

Needless to say, the animals in Yellowstone's forests are accustomed to fire. Small mammals, like squirrels, can get caught by a rapidly advancing fire and, no doubt, many did this summer. However, these animals also have high reproductive rates. Even if many individuals perished, Yellowstone has not lost its small mammal populations. Within a few years, their numbers should return to pre-fire levels.

Larger mammals, like bears and elk, generally move out of the way of forest fires. One bear was reportedly found with burned paws and had to be put to sleep, but, other than that, rangers in the park have seen bears moving through the burned forest, seemingly unperturbed. The other large animals either get out of the way or just ignore the fire. The naturalist at the Norris Geyser Basin saw a fire "crowning" (burning in the tree tops) while a herd of elk placidly sat in the meadow next to the trees, chewing their cud and watching the fire.

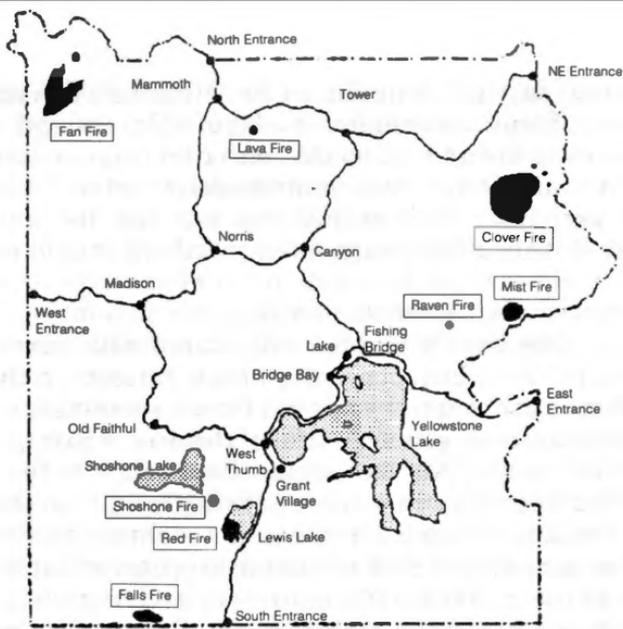
One of the purposes of Yellowstone is to preserve natural processes and learn from them. A team of scientists is studying what, if anything, needs to be done to help the park recover. Some of the park's winter range was burned, and some large mammals' food supplies may be affected by the fires (although what has most affected the winter range is drought).

Yellowstone is a delicately balanced ecosystem. Any interference on the part of humans could easily upset the system. If park rangers were to interfere by feeding some animals, for example, we could unintentionally cause others to starve. We could also easily upset the ecological balance by planting trees and grasses that aren't native to the park.

There were 52 fires at Yellowstone in 1988. Most of them were small and many went out on their own. About 12 persisted, however, and burned more acreage in one summer than was ever previously recorded. To date, over 900,000 of Yellowstone's 2,250,000 acres have been affected by fire. However, not every twig has burned within fire perimeters. In some places, when winds blew hard and where "fuel" (vegetation) was plentiful, the fires burned everything. In many other places, the fires burned here and there, leaving islands of unscathed trees.

Except where the fires were very hot, seeds and burrows in the soil are unaffected by fire. That means that plants can sprout again, beginning a wonderful "rebirth" of the forest that we can watch for a generation. Before the snow flew this winter, rangers at Grant Village and Norris spotted green shoots popping up through the ash.

The old wood has been turned into ash that will fertilize new plants such as grasses and shrubs. Pine seeds have already been planted by the old trees (one kind of lodgepole pine cone opens when it is heated by fire). The seeds landed in soil that is just right for them: soil that has a layer of ash on it.



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**YELLOWSTONE FIRES**



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Yellowstone is a different place now. However, it is not destroyed; it isn't lifeless. Fires have removed a lot of old trees and prepared the way for new grasses and shrubs that will provide new food opportunities for many animals for years to come. No doubt when the trees that sprout this year reach 300 or 400 years of age and another severe drought comes to the northern Rockies, fire will return to Yellowstone and the cycle will start again. The joy in all this ash and soot will be a rebirth from which we all can learn.

Many students and teachers have expressed their desire to help Yellowstone recover. The most important contribution they can make is to study fire ecology. A good source of general information about the long-term effects of fire is *Effects of Fire on Fauna: A State-of-Knowledge Workshop, Denver, Colorado, April 10-14, 1978*. This publication is United States Forest Service General Technical Report number WO-6. It is actually a series of six reports on the effects of fire on soil, water, air, flora, fauna and fuels. To obtain a copy of the series, write to the Forest Service, United States Department of Agriculture, PO Box 96090, Washington, DC 20090-6090. Ask for GTR-WO-6. This is a detailed study and suitable for advanced high school students.

Also available is a publication titled *The Greater Yellowstone Area: An Aggregation of National Park and National Forest Management Plans*. The entire publication, including color wall maps showing a variety of resources in the Greater Yellowstone Area, is \$62 (\$52.70 for schools and libraries) and may be obtained from the Yellowstone Association, Inc., PO Box 117, Yellowstone National Park, WY 82190.

Recommended reading for teachers includes *Fire Ecology: The United States and Southern Canada* by Henry A. Wright and Arthur W. Bailey (John Wiley & Sons, Inc., 1982). Most collegiate libraries have this book as it is the standard text on the subject of fire ecology.