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# DISCOVERY

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## THE FIRES OF YELLOWSTONE 20 YEARS LATER

Research reveals that fire is essential to the ecological health of the Greater Yellowstone Ecosystem. Photo: Jonmikel Pardo

**I**n the summer of 1988, newspaper headlines declared that one of our great national treasures was a charred wasteland. But the headlines were wrong. The fires were not destroying Yellowstone. Rather they were a normal part of a functioning ecosystem. Every 250 to 400 years, fires of comparable scale blaze through Yellowstone. Those species that figure out how to make it through such an event, such as the lodgepole pine, dominate the landscape. After 20 years we are starting to see some of the long-term impacts of these

### What's Inside...

- 75TH ANNIVERSARY CHALLENGE
- UPDATE ON GRAY WOLF DELISTING
- BISON MANAGEMENT POLICY UPDATE
- NEW! YELLOWSTONE BOOK REVIEWS

fires and to understand that the short-term impacts, which seemed so destructive at the time, help maintain the health of the Yellowstone ecosystem.

The speed with which fire acts—and the slowness with which the ecosystem responds—makes it hard for humans to see anything but the destructive aspects of fire. For most of Yellowstone's history, fire management meant extinguishing; fire was perceived as a destructive force that had to be stopped. But over time, research revealed the importance of fire as an essential component of the ecological

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health of Greater Yellowstone. In 1972, the National Park Service adopted a natural fire policy for Yellowstone. Under this policy, which was updated in 1992, lightning-started fires were mostly allowed to run their courses.

This policy was carried out with little fanfare from 1972 to 1987. During that time 235 fires were allowed to burn; 208 of them burned less than an acre. There were no fatalities; no significant structures were lost; and the program was less expensive than fighting every fire. The worst fire season of that period was in 1981; 21,000 acres, or about 1 percent of the park burned that year.

The fire season of 1988 was not expected to be very drastic. The previous winter had less than one-third the average snow pack, but the spring was especially moist. April and May of 1988 had 155 percent and 181 percent normal precipitation respectively.

Then the rain stopped.

From late May to early July, there were 18 lightning-ignited fires in the park, but 9 of those simply died out on their own. According to the National Weather Service, July was supposed to have normal precipitation. It didn't. Instead, record high temperatures and dry weather used up most of the spring moisture. By August 2, an estimated 150,000 acres had burned in the Greater Yellowstone Ecosystem. By the time the fires were out, that number had grown to 1.4 million acres, including 793,880 acres—more than one-third of the surface area—in the park. These fires put Yellowstone's natural burn policy in the national spotlight and created a political firestorm that matched the real fires in the park.

Twenty years later, the political fires have died, and the Yellowstone ecosystem has, by and large, carried on much as it always has. While there were certainly immediate and drastic impacts on the park, long-term consequences of the fires have been fairly minor. There were fluctuations in population or behavior of certain animals

(such as showing preference for, or avoidance of, burn areas), but these were rather minimal. By the following summer, even humans had returned in large numbers. More than 2.6 million people visited Yellowstone in 1989, a record at that time, with many of them coming to see the effects of the fires first hand.

From the perspective of 20 years later, we can see that despite the immediate devastation of such dramatic fires, Yellowstone endures as it always has. Lodgepoles continue to dominate Yellowstone's forests; the watersheds are still healthy; and the park remains one of the most popular natural wonders in the world.

## Survival of the Forests

It is hard to talk about forest fires without talking about the trees. In Yellowstone, those trees are likely to be lodgepole pines. Lodgepoles constituted 80 percent of Yellowstone's forests and took the brunt of the fires.

Each type of tree that survives in the Yellowstone ecosystem has its own way of adapting to fire. For example, the whitebark pine escapes fire by growing in higher, moister environments, and the Douglas-fir has a thick bark that protects it from all but the most intense fires. However, no tree is better suited to Yellowstone's frequent fires than the lodgepole pine, which accounts for its continuing dominance.

## Lodgepole Pines

There is roughly the same amount of lodgepole cover today as there was before 1988. These trees hold onto their place in the ecosystem with a remarkable adaptation: serotinous cones. These specialized cones, which begin to appear on some trees between the ages of 20 and 50, are coated with a waxy substance that keeps them sealed at temperatures below 113° F. As a result, lodgepoles require fire in order to reproduce, giving them a considerable advantage over other trees in most of Yellowstone.

Although lodgepoles have returned, they have not returned equally to all places. The density of seedlings varies depending on several factors. The number of serotinous cones in the pre-burn crown can be directly correlated to the number of new seedlings. Three main factors impact

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### THE MISSION OF THE YELLOWSTONE ASSOCIATION

The Yellowstone Association, in partnership with the National Park Service, fosters the public's understanding, appreciation and enjoyment of Yellowstone National Park and its surrounding ecosystem by funding and providing educational products and services.

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