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Fire and the Greater Yellowstone Ecosystem

In the summer of 1988 a series of forest fires burned a million acres in and around Yellowstone National Park — about one half of the ecosystem — and the Park Service was criticized for letting such a disaster happen. Some critics argued that the park "let it burn" policy which allowed natural wildfires to burn if they didn't threaten human settlements, led up to the massive fires of 1988. They also argue that intentional burning as it is practiced in other types of forests to reduce fuel loads would have avoided the burned forests, dead wildlife, massive soil erosion, property damage, and air pollution the fires caused. Bill Wattenburg, a radio personality, in a letter to *Science* referred to Yellowstone as a "vast cemetery of burned, rotting, and bug infested tree stumps that is all that remains of 880,000 acres of once beautiful Yellowstone forests..."

However, scientists who have studied the Yellowstone ecosystem before and after the great fires say that prescribed burning, although it may reduce wildfires in other kinds of forest, is unworkable in Yellowstone. The historical fire regime in Yellowstone was characterized by infrequent but very intense fires. While the 1988 fires were unprecedented in modern times, such fires have occurred pretty regularly every

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few hundred years, and the Yellowstone ecosystem was not permanently damaged by the fires.

We spoke with two scientists who have worked on different aspects of Yellowstone ecology about their work before and after the great fires, Linda Wallace, a grasslands ecologist, and Grant Meyer a geologist who has studied fire-related soil erosion. We asked them to give us their perspective on the 1988 fires.

ER: Professor Wallace, what is your training?

LW: I received my Ph.D. in botany from the University of Georgia, after which I did a post-doc at Syracuse University studying grassland ecology in the Serengeti. Then I got a job here at the University of Oklahoma in 1981, which is the perfect place to study grassland ecology. My work focuses on grassland ecology and plant-animal interactions, particularly how grazers affect grasses.

ER: I thought of the park as mostly forest.

LW: It is. You can divide the park into two main categories, high and low elevation. The majority of the park, perhaps three-quarters of it is high elevation subalpine plateau. This is the southern part of the park and it is mostly forested. The lower elevation part of the park — the northern part — is where the grasslands are, and this is the winter range for grazers like the elk, deer, bison. The low elevation area runs along the Lamar Valley and Yellowstone Rivers and follows the northern courses of those rivers.

The largest expanses of grasslands are in the northern part of the park which has the richest soils. The northern part of the park has rich soil and the southern part of the park has extremely poor soil. In the southern part of the park there are practically no nutrients in the soils in some areas, it's like trying to grow plants on washed sand. So as a consequence,

