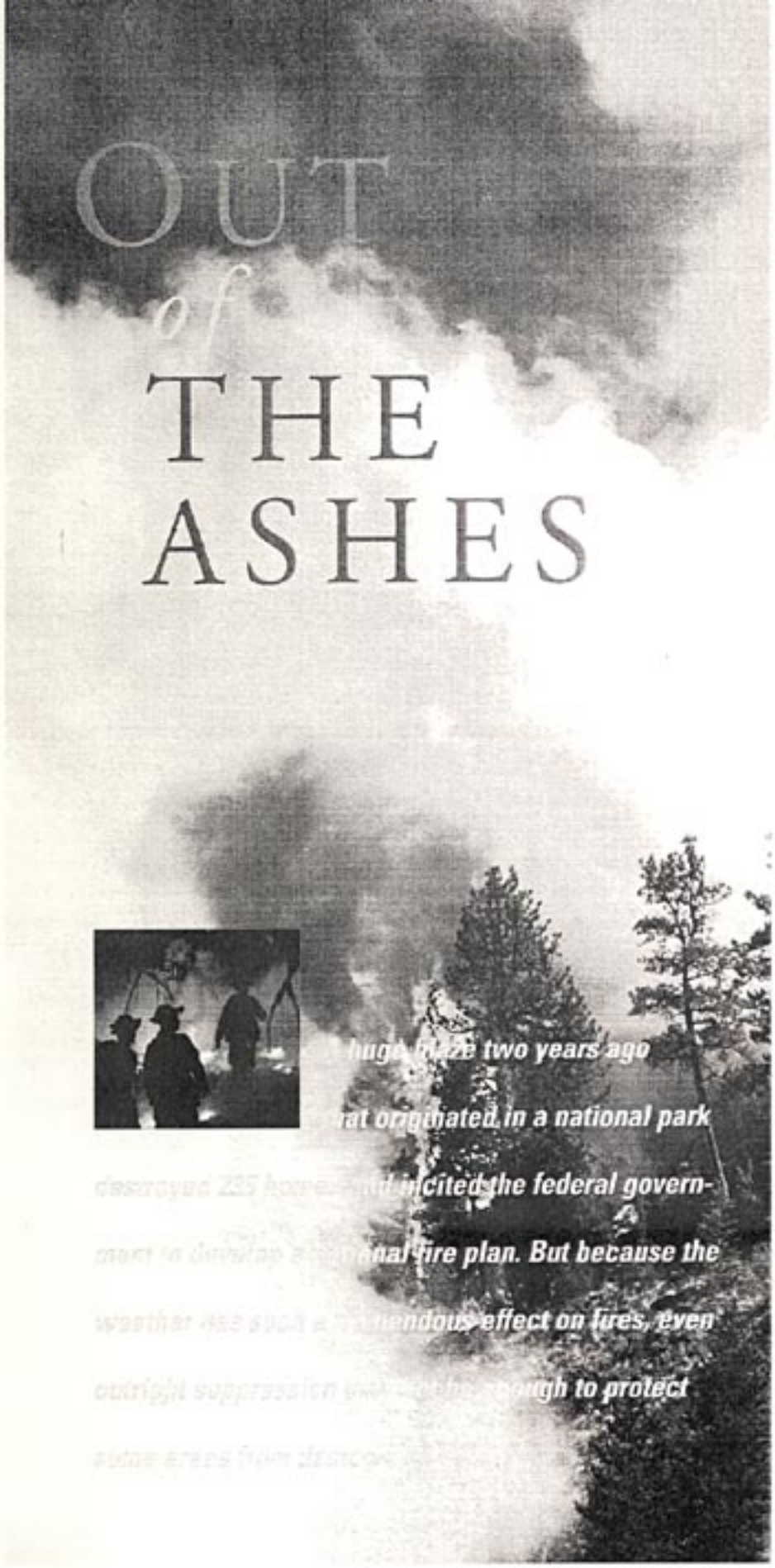
OUT of THE ASHES



A huge blaze two years ago that originated in a national park destroyed 235 homes and incited the federal government to develop a national fire plan. But because the weather has such a tremendous effect on fires, even outright suppression [illegible] enough to protect some areas from destroy[illegible]

By George Wuerthner

On May 4, 2000, a Bandelier National Monument crew climbed to the top of New Mexico's 10,199-foot Cerro Grande Peak to ignite a small fire. The prescribed burn was designed to kill trees invading a meadow and create a fuel break along the park boundary to reduce the threat of fire to nearby Los Alamos National Lab. But the blaze, fanned by high winds, jumped the fire lines. Then a series of errors conspired with the weather to blow the fire out of control. Seven days later, 70-mph winds whipped the flames into the history books, as the fire engulfed 48,000 acres and destroyed 235 homes.

The fire gave prescribed burns a bad name and sparked heated congressional debate about the benefits of suppression versus controlled burns. An independent review by the General Accounting Office (GAO) revealed some missteps on the part of Bandelier's fire crew and others fighting the blaze.

As a result, the GAO recommended federal policy changes, released a year and a half ago in a new National Fire Plan. This plan directs all federal agencies to maintain firefighting capability and preparedness and demands accountability and review. Although the national plan emphasizes fire suppression, it also recognizes the ecological benefits of fire and its use under controlled conditions. Congress allotted $2.26 billion to implement it.

Even though the Cerro Grande fire elevated the topic to the highest levels of government, the debate is not a new one. And as we ended one of the worst fire seasons in recent years—fueled by a widespread drought in the western states—the debate is far from over. What fire policy best serves the various needs of national parks as well as the people living near them? Parks such as Grand Canyon are experimenting with a number of approaches (see page 21), but the search for answers is sure to continue. And even with outright suppression, homes will still be destroyed because of variables that are beyond the govern-

GALEN ROWELL

Los Alamos wildfire.

ment's control, such as the weather.

Although the popular vocabulary is skewed to view fires as "bad," experts say fire is a natural process in a variety of ecosystems that range from the tundra in Alaska to sawgrass prairies in the Everglades of Florida.

Fire acts like a wolf on a deer herd—thinning forests and creating healthier timber stands. Because most fires dance and leap across the landscape, they create a random burn pattern of varying intensity and size favoring different species and age classes, increasing biodiversity and ecosystem stability. The resulting mosaic also creates natural firebreaks that influence future fires, as recently burned areas are less likely to burn again.

Fires also release nutrients bound up in dead litter, enriching soils and aquatic systems. Fires open up the forest floor to greater light, increasing the production of nitrogen by bacteria and other plants. Even the smoke may cleanse the forest of certain pathogens.

Dead trees that result from fires are not a wasted resource, as some may presume. Snags left in a fire's wake are used by cavity-nesting birds and mammals. When snags fall to the ground, they become shelter to creatures ranging from ants to black bears. If a snag falls into a stream or lake, it creates aquatic habitat and helps to stabilize stream banks. For these and other reasons, the Park Service tries to maintain fire as an ecological process in park units where it was historically an evolutionary force.

For centuries, American Indians introduced fires to create better hunting, grazing, and living conditions, unlike the white settlers who used fire to clear land for settlement. Many of the beautiful and productive forests that greeted settlers in the new land were actually crafted by American Indians through manipulation by fire.

Although fire is a beneficial force in many cases, public lands advocates also recognize the danger of fires burning out of control and consuming private homes and other property in its path.

"Since Cerro Grande, we have implemented a no-go check list where we review fuel moisture, weather, fire behavior, availability of additional firefighting equipment and personnel, air quality, plus other factors," says Bob Reece, a wildlands fire specialist at Yosemite National Park for 25 years. "Then the superintendent has to sign off on the burn before we proceed. It's all about accountability."

The new national plan encourages many parks to restart a prescribed burn program to reduce the amount of dead wood and scrub—called fuels—to limit hazards to nearby communities.

At 700,000-acre Big Cypress National Preserve in Florida, a leader in prescribed burning, an astounding 40,000-50,000 acres are burned to reduce fuel each year—about equal to what burned in the Cerro Grande fire. But even such ambitious fuel-reduction programs are only part of the answer. One of the biggest challenges facing fire managers is the growing number of homes in areas surrounding parks and other public lands.

"This has created a political incentive to put out fires so they don't spread," says NPCA's Mark Peterson, director of the State of the Parks program. Such an incentive, he adds, "only exacerbates the fire management conundrum for agencies."

Many of those homes are not defensible against fires. A review of homes that burned in Los Alamos found that most were ill prepared to deal with blazes. In many cases, surface fires ignited homes with wood stacked next to them, or a burning ember blew onto a wooden roof covered with pine needles.

Fire suppression and attempts to restrict fires to parks not only reduces the ability of agencies to use fire as a restorative process but is a huge subsidy to homeowners, says Peterson.

"Taxpayers are paying for fire suppression costs to protect outlying homes where they probably shouldn't be permitted to build," he says. "In many fire-prone ecosystems, sooner or later you will have a blaze."

The National Park Service believes education may be the key. Fire education specialists are teaching homeowners how to live with fire much as they might educate hikers about bear safety.

Rocky Mountain National Park is taking a lead in this effort, says Larry Gambel, the park's land use specialist. Rocky Mountain has worked with the

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Fueling the Fire Debate

AP PHOTOS/ELAINE THOMPSON

This past summer, the largest wildfires on record consumed hundreds of thousands of acres of forest, destroyed hundreds of homes, and displaced thousands of people in both Colorado and Arizona.

The Arizona fire became the largest in U.S. history when two separate fires joined at the end of June, charring more than 450,000 acres and destroying more than 400 structures. In Colorado, the state's largest fire on record consumed nearly 140,000 acres.

Although the fires did not affect national park units, the sheer magnitude of the fires and their destructive force will undoubtedly encourage policymakers to take another look at fire management policies, especially on Forest Service lands.

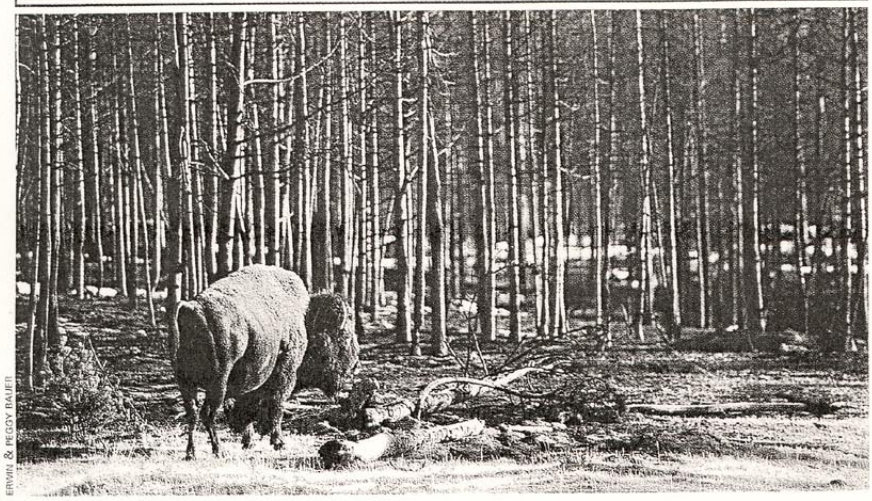
At the height of the disaster, Gov. Jane Hull (R-Arizona) criticized past forest management practices, finding fault with what she called the layers of administrative process that prevented more aggressive efforts to clear national forests of dense underbrush.

Although most federal land agencies, such as the National Park Service and U.S. Forest Service, try to reduce "fuel" on public lands by clearing small-diameter trees and dense undergrowth, these measures do not slow blazes under extreme conditions.

Little could have been done about the abnormally dry winters and continuing drought—the single most important contributing factor to these and other large fires. Under such dry conditions, some live trees are actually more flammable than dead ones because of the resins they contain.

Wind is another major factor, spreading flames beyond fire breaks, and under such conditions, firefighting has nearly no effect on advancing flames.

Large fires have been common in the West for decades. Dr. Greg Aplet of the Wilderness Society recently charted the total acreage in the United States burned by the decade, beginning in 1919 and continuing up through 1999. In the Dust Bowl drought decade between 1930 and 1939, nearly 40 million acres of land burned. By contrast, between 1990 and 1999, about 4 million acres burned, just one-tenth the acreage charred by blazes in the 1930s. Says Aplet, "Despite all the talk about increases in fire frequency and intensity, the current level of fires is trivial compared with historical levels."



ERWIN & PEGGY BAUER

A bison rummages through a charred landscape after a fire at Yellowstone.

community of Estes Park and county government officials to map fire hazard zones. They developed wildfire mitigation standards for the county. Altough these standards don't prohibit development, they do require clearance of trees adjacent to homes and other commonsense approaches.

Fuels reduction and homeowner responsibility may not be enough to prevent another Los Alamos, and thinning forests may ultimately fail. Most fire ecologists agree that factors controlling the spread of fire depend on a host of variables. Under ordinary conditions, fuels are usually the biggest factor. But under extreme drought, such as that experienced this past summer in many parts of the country, weather more than fuels controls the size and spread of big fires.

Identifying all the factors is critical because they affect which management options are realistic. Although Dr. William Romme, a fire ecologist at Colorado State University, believes thinning low-elevation forests can reduce fire hazards for homeowners, mechanical thinning or logging isn't a likely panacea on a landscape scale. Too many acres have to be treated to have a significant effect on fuel build-up.

Unfortunately, even current prescribed fire programs are deficient. The acreage burned during controlled conditions often fails to affect a significant amount of the landscape. When it's absolutely safe to burn, it's difficult to get the fire to spread. Tony Caprio, a fire ecologist in Sequoia-Kings Canyon National Parks—among the park units with the most experience and longest track records with prescribed burning—says his park has a "fairly aggressive burn program." Yet, in terms of restoring fire to anything like its historic role, says Caprio, "we are still falling behind."

That's where wildfires or natural ignitions allowed to burn under prescribed conditions play a critical role.

According to Dr. Greg Aplet, an ecologist at the Wilderness Society, "It's clear that we need to protect homes and lives that are in harm's way, but we have to acknowledge that fire suppression has created some of the problems we find

Under ordinary conditions, fuels are the biggest factor in the spread of fire, but under extreme drought, weather plays a greater role.

today. Fire suppression is not a long-term sustainable solution."

Neither is prescribed burning, in Aplet's view. "We are not going to get fire back into the ecosystem 300 acres at a time," he says. "We need landscape-scale fires, and only wildfires can come close to burning the acreage we need to achieve the ecological restoration and fuel-reduction results we desire."

Managers may not have a choice about whether large fires occur. Fred Van Horn, assistant chief ranger at Glacier National Park in Montana, says fire suppression and even fuel treatments often have no effect on a fire's spread during extreme drought, a statement tragically confirmed by the more than half-a-million acres combined that burned during the Colorado and Arizona fires this past summer. And during the summer of 2001 in Montana, the 71,000-acre Moose Creek fire burned with fury across Forest Service land adjacent to Glacier National Park—despite a heavy suppression effort.

William Romme, of Colorado State University, agrees. "There are almost no places in the lower 48 states where a fire couldn't potentially threaten someone's home. This poses a real threat to the natural processes by which we are supposed to be managing our parks." Yet, ironically, under extreme conditions of high winds and drought, the forests are going to burn, and "there's nothing we can do about it," says Romme.

Whether the new national fire plan will lead to a greater willingness to live with fire and use it effectively remains to be seen. Fire exclusion, however, is ultimately not an option. The inevitability of fire is probably the greatest lesson we can take from the Cerro Grande fire.

LAURENCE PARENT

To Suppress or Not to Suppress

More than a century and a half ago, the ponderosa pine forests of Grand Canyon National Park were dominated by large old trees. Periodic low-intensity blazes, most likely set by lightning strikes, burned most of the leaf litter and seedlings from the forest floor, leaving the mature trees unharmed. More than a century of fire suppression has changed this dynamic.

Today, extensive areas of the forest are crowded with dense stands of small trees, which are more susceptible to disease, insect infestation, and high-intensity wild fires.

In part because of fear of high-intensity fires and also to improve the health of the forest, the Park Service wants to begin long-term experiments at Grand Canyon National Park to evaluate the short- and long-term effects of reintroducing fire to ponderosa pine ecosystems. Through this research, the agency plans to gain information that can be used to refine fire management practices and preserve the park's forests.

The Park Service proposes to set up two 80-acre parcels, one on the North Rim on Swamp Ridge and one on the South Rim near Grandview, to test four different approaches. The research will compare prescribed fire and fire suppression with two levels of thinning small-diameter trees followed by prescribed burning. The Park Service is looking at a mixture of alternatives because not all forest conditions are appropriate for prescribed burning alone, and without the reduction of "fuel" through thinning, some prescribed burns have been hot enough to damage old trees. One of the driving forces for devising a plan to deal with the change in forests is to protect the park as well as surrounding lands.

"It has yet to be proven that either prescribed burning alone or in combination with mechanical treatments can correct the fuels problem quickly enough to prevent large, catastrophic wildfires," the Park Service states in its Executive Summary of the environmental assessment. "However, the risks of no action far outweigh the risks of prescribed fire or mechanical thinning. There is no doubt that without intervention to modify the fuels complex, an unnatural and catastrophic wildfire will sweep across tens of thousands of acres on the North Rim within the next few years."

The Park Service first outlined this plan more than three years ago, but environmental groups, including NPCA, opposed several of the proposals. Among the most offensive to the environmental groups were proposals to cut relatively mature trees of up to 16 inches in diameter and sell the wood and to use chainsaws in an area on the North Rim that is included in the park's wilderness proposal.

The Park Service's most recent proposal limits the size of the trees cut to five inches, which will allow for the use of hand tools on the North Rim sites, and none of the material will be removed from the park. The park intends to release the final plan sometime this fall.