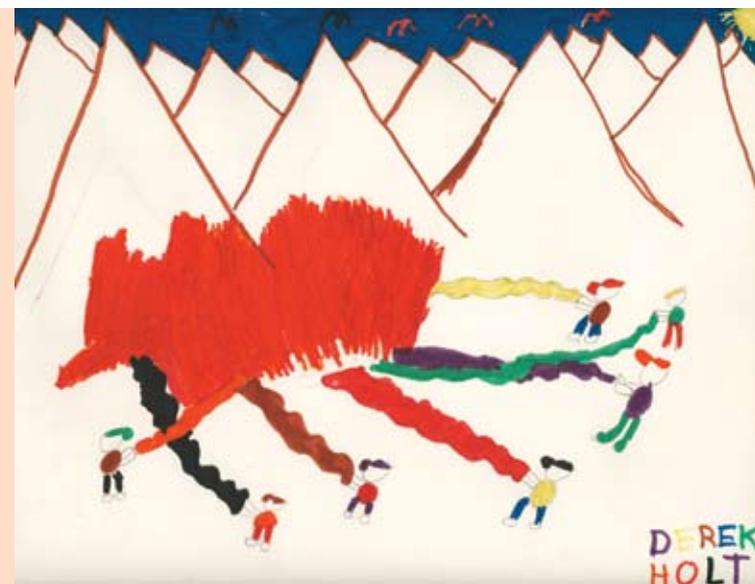


The Yellowstone Fires of 1988





When the school year began in September 1988, Yellowstone's fire fighters began receiving hundreds of letters and drawings from students around the country.



Dear Firefighters . . .



Dear Firefighters:

The Art students here at Minnie Cline Elementary would like for you to have these trees to replace the ones you lost in the fire.

We appreciate your hard work and dedication in fighting the fires.

Sincerely,
Shirlee Kiner
Art Teacher

. . . Smokey Bear must be upset. I know I am. You must be hot in those suits.
—Julie James, Casper WY

I thank you for helping put out the fire . . . Does the snow and rain put out the fire? I heard that you sometimes have to sleep in ditches and that you have only 48 hours to eat and sleep. It must be very hot working out there.
—Alicia Bell, 5th grade, Crawfordsville, IN

My dad has a cabin in Cooke City [Montana] and you saved it! . . . How does it feel to be so close to all the burning and roaring and smoke?

—Kevin Planalp, 4th Grade, Bozeman, MT

Rainbows fill the sky where smoke was. Thank you, fire fighters!

—Jori, Kindergarten, Laurel, MT

Is there a bomber plane, number 68? Because if there is, it's my dad. . . what is it like to be surrounded by huge flames with a water hose? Good luck with the fires.

—Blair Bullinger, 4th Grade, Bozeman, MT

Thank you for saving the towns of Yellowstone and its meadows and mountains. Thank you for saving habitats of the birds, mammals, and reptiles. It's probably going to snow so you might get a nice long sleep! . . .

—Joey, Bozeman, MT

Adults wrote, too

. . . Three weeks ago the smoke was so great in Cheyenne that our eyes hurt and many of us had headaches. I can almost imagine how terrible you feel from the smoke and heat plus many extra hours you're working.

—Mary Lou Edgar, Cheyenne, WY

I am glad to have the opportunity to say thank you to the firefighters. I, along with all Montanans, appreciate all the efforts through the long weeks of summer that continue on through today. Best wishes for your continued safety & thank you.

—Jean Pirrie, Bozeman, MT



To the Ladies of Broadus, Montana,
On behalf of the men and women fighting the fires, I would like to thank you for your very considerate gift of homemade cookies. From the speed with which they disappeared, I know they were appreciated by all of us in fire camp and on the fireline. That you made the long trip to Mammoth (330+ miles!) to deliver them personally made them even more special.
—Dan Sholly (Chief Ranger in 1988)

Most graphics, photos, and text from Yellowstone National Park files and archives. Exceptions: front page, bottom inset photo & back page, cookie photo courtesy C. Duckworth; page 5 graph adapted from a graph in *Atlas of Yellowstone* (in production) ©2008 University of Oregon; anecdotes on pages 6–7 from the individuals listed.

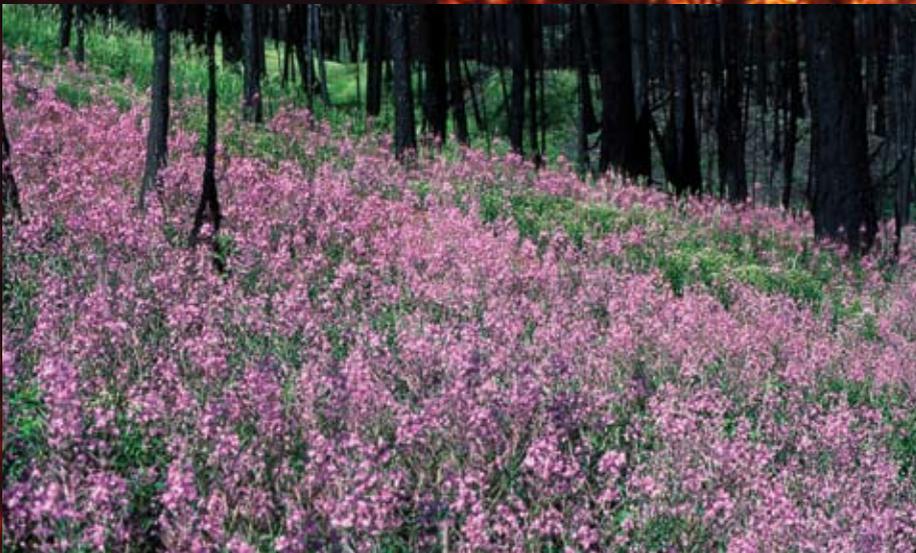
Yellowstone National Park

National Park Service
U.S. Department of the Interior





The Yellowstone Fires of 1988

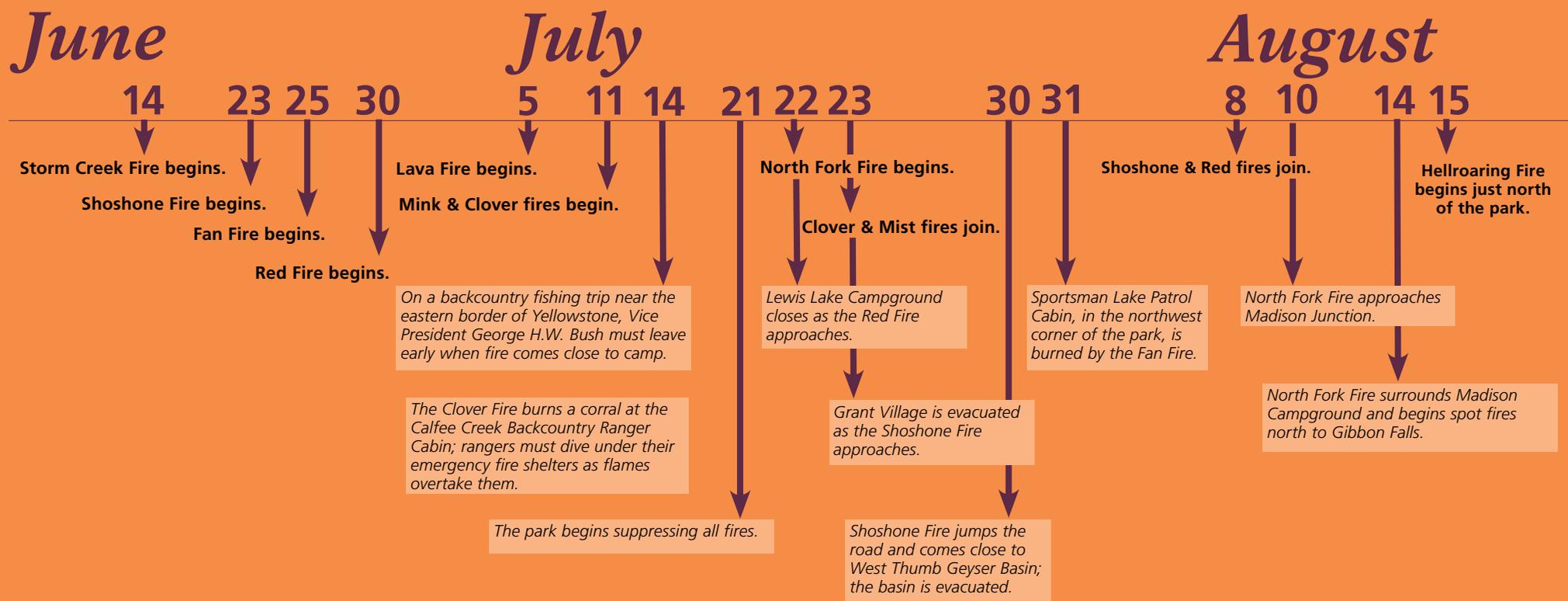


*June 14, 1988:
A small fire starts on
Storm Creek, just
north of Yellowstone
National Park. . . .*

*The Storm Creek Fire
and many other fires
would keep burning in
Yellowstone until cool,
wet weather arrived in
the fall.*

*Now legendary, the
“Summer of Fire”
brought people,
science, and wild
nature together like
never before or since.*

A Blazingly Long Summer



The park's 1988 summer season began quietly, according to the "Daily Park Briefing," a daily recording from park headquarters that updated rangers about park events and conditions.

During June, park staff heard mostly about bear activity near public areas and trails. A few fires had begun (see timeline above), but they were small and seemed insignificant compared to news about the "the worst drought since 1934. Barge traffic on the Mississippi River is restricted by low water. . . . In Alabama, the National Guard is hauling water to persons whose wells have gone dry. . . . Some scientists are saying this marks the beginning of the 'Greenhouse Effect.'"

Then, the July 1 briefing reported the Fan Fire was sending out enough smoke to be noticed by the public. July 3 reported the growth of the Red Fire near Lewis Lake; July 6 reported three more fires, and so on. The July 15 briefing began, "The big news today has to do with fire . . ." and the big news stayed about fire for the rest of the summer.

Highlights from the 1988 summer briefings:

July 21: A smoky haze hangs over much of the park today. The weather forecast calls for another hot day.

July 22: Lewis Lake Campground closes because the Red Fire "is getting close."

July 24: Fragmentary reports from Grant Village indicate fire crews were wetting down buildings at 5 PM.

July 26: At the Clover-Mist Fire, now 46,000 acres, "Helicopters from Cody are the only way in and out of these [fire] camps."

July 30: We've had reports of elk and small mammals like rabbits feeding peacefully on unburned vegetation in the midst of smoke and burned over places. . . .

August 4: Grant Visitor Center will reopen on Saturday. No campfire programs will be offered.

August 13: Many places in the park got rain yesterday.

August 15: The North Fork Fire was pushed by high winds yesterday. It surrounded the Madison campground, started spot fires in the staff housing area, and began spot fires as far north as Gibbon Falls. The road between Norris and Madison is closed.

August 17: Last Sunday the Clover-Mist Fire burned into a thermal area; sulfur caught fire resulting in poisonous gases. Seven firefighters were treated for inhalation of these gases.

August 18: The road between Madison and Norris is closed . . . The road from the West Entrance to Old Faithful is

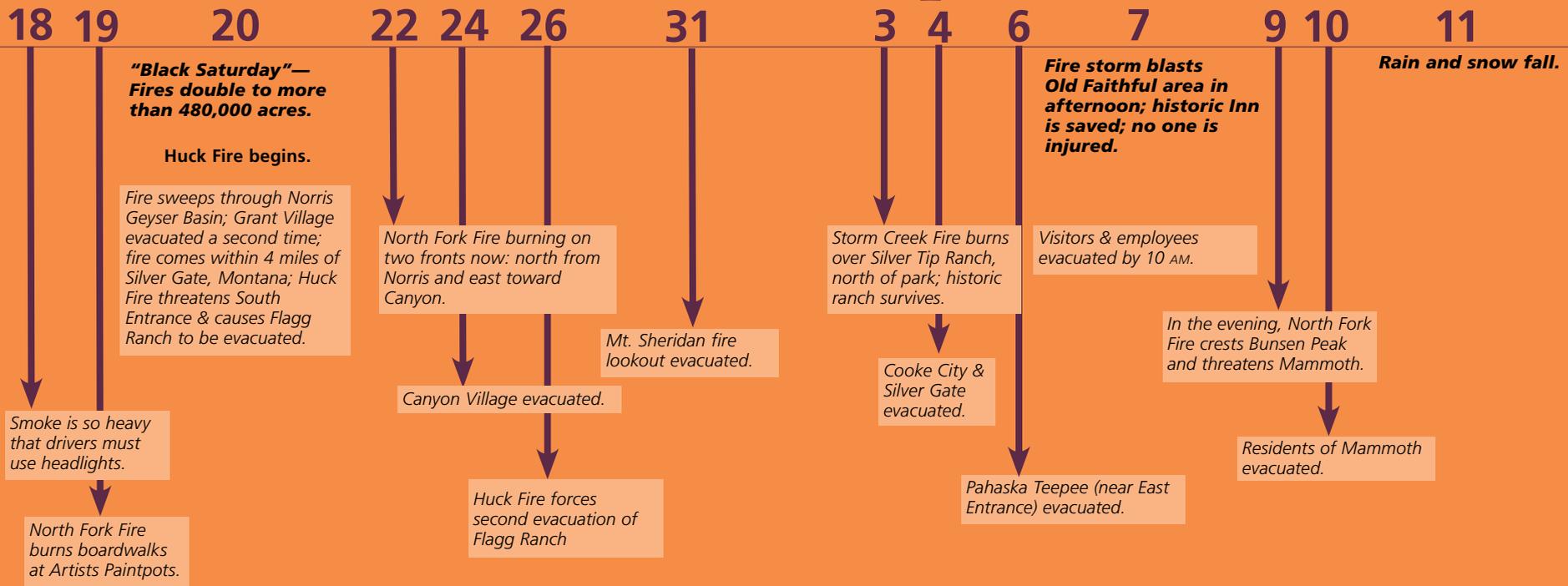
open but headlights are required. . . . The Madison, Norris, and Pebble Creek campgrounds are closed until further notice. The Norris Geyser Basin is open although this may change later today. . . .

August 20: The weather forecast for today calls for warm and windy conditions. That means fighting fire will be difficult at least. . . .

August 22: The 4th Battalion of the 23rd Infantry of the 111th Field Artillery from Fort Lewis, WA, arrives today . . . to work the Clover-Mist Fire. A second group will come Tuesday. Both will relieve weary firefighters. . . . As new helicopters arrive for fire service, they will all be military ones. Don't be surprised to see green helicopters with white stars flying overhead.



September



August 25: Most of the fires within Yellowstone were fairly active yesterday. . . . Canyon Village was evacuated in an orderly manner. . . . Fuel reduction around West Yellowstone is taking place to help protect the town.

August 26: Superintendent Bob Barbee declares that Yellowstone will not charge entrance fees because park facilities and travel around the park have been restricted by the fires.

August 29: Canyon Visitor Center reopens. . . . Clover-Mist Fire within one-quarter mile of US 212 [the road from the Northeast Entrance through Silver Gate and Cooke City, Montana].

August 30: Two escaped convicts tried to rent their stolen truck to the fire crew. Rangers arrested them. . . . Bison have been rubbing parked helicopters overnight;

fencing has been ordered to protect the helicopters.

August 31: An arm of the North Fork Fire is 5 miles from Old Faithful. If winds increase, the fire could threaten Old Faithful in a few days.

September 2: Crews are preparing to defend Silver Gate and Cooke City.

September 3: The North Fork Fire is 1.25 miles from West Yellowstone; bulldozer lines are in to protect the town.

September 4: There's one bit of bright news in all this soot: a meadow south of Grant Village that burned in July is now sprouting green grass.

September 5: Visibilities this morning around the park ranged from 300 feet at West Yellowstone to one-quarter mile at Mammoth.

September 6: Old Faithful employees have been contacted about the possibility of

evacuation; there's a meeting at Lake today for all employees to discuss possible evacuation plans. . . . At Norris, green grass is sprouting just two weeks after fire went through the area.

September 7: Officials declared a state of emergency yesterday in Cooke City. Martial law has been imposed. This means the remaining residents can be forced to leave. . . . The Montana governor has issued an order banning all nonessential outdoor activity beyond cities, towns, and settlements in Montana. The order includes all outdoor recreation such as hiking, hunting, picnicking, and camping.

September 8: The only park road currently open is North Entrance to Swan Lake Flats. . . . Embers hit the roof of the Old Faithful Inn but firefighters put them out. . . . [outside

Cooke City] several summer homes were lost. . . and a number of homes and trailers. A strategy meeting was held this morning on contingency plans for the protection of Mammoth. . . .

September 9: All park roads are closed except North Entrance to Mammoth; North Fork Fire is five miles south of Mammoth.

September 10: Evacuation ordered for Mammoth residents and employees. . . . Lake evacuated too.

September 11: SNOW!

September 13: Cool weather continues to aid in the fire-fighting effort.

September 14: Campgrounds re-open, no fees charged. . . . Governor of Montana lifted his order closing the state to recreational uses. . . . and the Marines have landed (to help mop up the fires).

September 23:

This is the last briefing for this most incredible summer. . . . It has been my privilege to report to you the historic events we've all lived through.

—Jack de Golia

A storm of media blew into Yellowstone in July and stayed through September. The park's superintendent, Bob Barbee (facing camera, below), spent many hours talking with reporters to help them understand the fire-fighting strategy.





After the fires ended, Yellowstone Park staff began planning new trails and exhibits to help visitors understand the historic fires. The trail at right still exists, on the road between Norris and Canyon.



Looking at the Fires Closely

Fire is part of Yellowstone

Fire has been a natural force operating in the Yellowstone ecosystem for thousands of years. The vegetation here is adapted to survive fire and in some cases is dependent on it. For example, lodgepole pines produce some cones that open only with intense heat (photo above). Some plant communities depend on the light that reaches the forest floor after a fire has killed the thickly-spaced trees that shade a mature forest. Cavity-nesting birds, such as bluebirds and woodpeckers, move in after a burn to make their nests and homes in the dead trees.

Nevertheless, fire scares most people—and that’s a big reason why wild fires make such news and why much misinformation is spread. Here are some facts about the 1988 fires and what we’ve learned in the last 20 years.

Facts about the 1988 fires

- ◆ 9 fires caused by humans; 42 caused by lightning.
- ◆ Fires begun outside of the park burned 63 percent or approximately 500,000 acres of the total acreage.
- ◆ In Yellowstone National Park itself, the fires affected—but did not “devastate”—793,880 acres or 36 percent of total park acreage.
- ◆ About 300 large mammals perished as a direct result of the fires: 246 elk, 9 bison, 4 mule deer, 2 moose.
- ◆ The 1988 fires comprised the largest fire-fighting effort in the United States up to that time:
 - \$120 million spent fighting the fires.
 - 25,000 people involved in these efforts.
- ◆ After July 21, park managers ordered that all fires be fought, including natural fires that had been allowed to burn.
- ◆ Firefighters saved human life and property, but they could do little to control or stop the fires because weather and drought made the fires behave in unusual ways.
- ◆ Contrary to what was feared, the fires of 1988 did not deter visitors. In 1989, more than 2,600,000 people came to Yellowstone—the highest annual vistration of the 1980s.

What scientists have learned

- ◆ Temperatures high enough to kill deep roots occurred in less than one-tenth of one percent of the park, where conditions allowed the fire to burn slowly for several hours. If water was available, new plant growth began within a few days.
- ◆ Plant growth was unusually lush in the first years after the fires because ash was rich in minerals and more sunlight reached the forest floors.
- ◆ About one-third of the aspen in the northern range burned in the 1988 fires—but the aspen stands were not destroyed. Fire stimulated the growth of suckers from the aspen’s underground root system and left behind bare mineral soil that provided good conditions for aspen seedlings.
- ◆ Aspen seedlings also appeared throughout the park’s burned areas, becoming established where aspen had not been before.
- ◆ Burned pine bark provided nutritious food for elk in the first years following the fires.
- ◆ Many of the forests that burned in 1988 were mature lodgepole stands, and this species is recolonizing most burned areas. Other species—such as Engelmann spruce, subalpine fir, and Douglas-fir—have also emerged.
- ◆ About 24 percent of the park’s whitebark pine forest burned in 1988. To study what would happen after the fires, scientists set up 275 study plots. By 1995, whitebark pine seedlings had emerged in all the plots.
- ◆ The fires had no discernible impact on the number of grizzly bears in greater Yellowstone.
- ◆ In a study from 1989–92, bears were found grazing more frequently at burned than unburned sites, especially on



Yellowstone's park photographer chose specific locations to photograph in 1988 and subsequent years. This set was taken 3 miles east of the West Entrance in 1988 (left) and 1998 (right).



clover and fireweed.

- ◆ Fires burned through areas surrounding Yellowstone and Lewis lakes, but scientists found no significant changes in fish growth in streams and rivers flowing into or out of these lakes.
- ◆ The moose population has dropped in Yellowstone, in part because of the loss of old growth forest during the 1988 fires.

What you could see then, and can see now

- ◆ In the first few years, fireweed and other wildflowers flourished in the newly sunny and enriched soils, and grasslands returned to their pre-fire appearance.
- ◆ Within five years, new lodgepole pines became visible among the burned remains of the previous forest.
- ◆ After ten years, hikers learned to be careful as they walked through forests burned in 1988 because the dead trees were beginning to fall, especially on windy days.
- ◆ After 20 years, views opened up by the fires of 1988 are beginning to disappear as the lodgepole pine forests grow thick and tall again.

Inspired by the fires

- ◆ New boardwalks and exhibits began appearing in 1989. In the photo on page 4, top right, visitors walk into an area on the road between Norris and Canyon that had burned extra hot because many trees had been blown down in a wind-storm a few summers before.
- ◆ Donations from children helped inspire “The Children’s Fire Trail,” which looped through a burned patch of lodgepole between Mammoth Hot Springs and Tower Junction. Because the trees grew back so quickly and strongly, the trail was transformed in 2003 to tell the story of “The Forces of the Northern Range.”
- ◆ New wayside exhibits were installed around the park to explain aspects of the historic fires. Look along the West Entrance Road, in the Lewis River Canyon, across from Bunsen Peak near Mammoth, and on the road near Tower

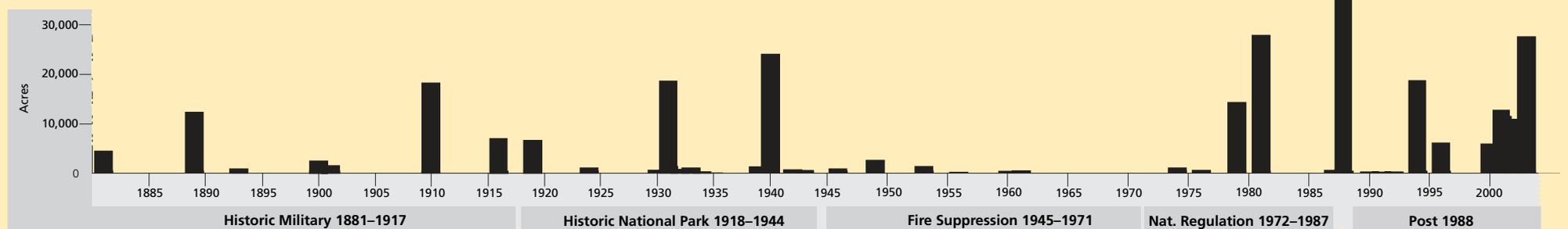
Junction; they are being updated in 2008.

- ◆ Grant Village was threatened by the fires for much of the summer, and it was evacuated twice. So this visitor center was the logical location for a new exhibit about fire ecology, management, and history in Yellowstone. Stop by the Grant Visitor Center today to see this exhibit and the film.
- ◆ Months before the fires started in 1988, the staff of Yellowstone National Park had decided to begin a new program to encourage students to express themselves in art and writing. They hadn’t decided on a theme for the first year, but the amazing fires of that summer made the choice easy. Hundreds of students from around the country submitted poems, paintings, sculptures, and other art forms. “Imagine! Yellowstone” was a huge success in its first year, and continued to inspire creativity in children for the next decade.

THE FUTURE OF FIRE IN YELLOWSTONE

Since 1988, fires have continued to burn in Yellowstone—more than 85,000 acres as of 2007. According to historic records, that’s to be expected. However, the average number of lightning-started fires has been increasing each year since the 1990s. The majority of scientists believe this increase is due, in part, to climate change. They say that, generally, the western United States will experience increasingly intense fires—fires similar to those of 1988.

In Yellowstone, though, some scientists think the story will be different. By examining charcoal from fires that burned 8,000 years ago, when temperature increases equal what we are now experiencing, they know those fires were more frequent but less intense than today. Whether this holds true for the future of fire in Yellowstone remains to be seen.



This graph compares fire acreage in Yellowstone from the time it became a park until 2003. The fires of 1988 covered so much ground that this arrow was longer than the graph could show. The graph is adapted from one appearing in Atlas of Yellowstone (in production) © University of Oregon.

To learn more about fire in Yellowstone, stop at fire waysides around the park, visit the Grant Visitor Center, look for books & DVDs in park stores, download a free podcast and find other fire information at www.nps.gov/yell, and visit www.GreaterYellowstoneScience.org.



Stories from the Fires

These first-hand accounts give you an idea of what it was like to live and work in and near Yellowstone National Park during the summer of 1988.

Jim Barrett, resident, Cooke City, Montana

Shortly after the Storm Creek Fire began, two friends and I drove up Daisy Pass to take a look at the fire off in the distance. We saw a man and a dog, with scorched clothing and fur, walking aimlessly through a meadow. We crammed the man and his dog in with us and started back to get them first aid. He said they had been camping and were completely taken by surprise by the fire. They were forced into a creek, where they stayed—the man holding his dog with him underwater as the fire storm blew over them. They spent the night huddled together until morning when they began hiking. I won't forget the image and the smell of two creatures who looked liked they had rolled around in a campfire.

Luke Miller, resident, Livingston, Montana

We lived up on the north hill here in town [50 miles north of Yellowstone]. Sometime in July, I remember looking down Paradise Valley and seeing the smoke cloud rolling up the valley. It got here in 3 hours.

Greg Dalling, Xanterra Parks & Resorts

I was driving a tour bus with a group and we were scheduled to stay at Grant Village for two nights. The smoke was thick, and many passengers were nervous about staying there. I let the passengers know that we had had smoky conditions on and off for a few weeks and they need not worry. . . . but the next morning our wake-up “knocks” were two hours early because we had to evacuate immediately. Most of the passengers beat me to the bus with luggage in hand—I think they must have slept with their clothes on! It was weird leaving the village with an entire tour group not knowing where we were going to stay that night.

Richard Parks, business owner, Gardiner, Montana

Mid-summer, I'm floating with my fly-fishing clients down the Yellowstone River. By lunch time, the mushroom clouds boiling up off the fires had us pretty well surrounded with the Fan Fire to our west, North Fork to the southwest, Lava to the southeast, and Clover-Mist

dominating the eastern horizon. It looked like somebody had decided “let's play tactical nuclear war.” Then the fish started to rise to the ash hatch as burnt pine needles fell out of the Fan Fire cloud.

Mike Dahms, resident, Livingston, Montana

We loaded up the family and drove down Gallatin Canyon [U.S. 191] to West Yellowstone. The smoke was so thick you couldn't see the trees; we were afraid for the kids breathing all that smoke, so we turned around and came home.

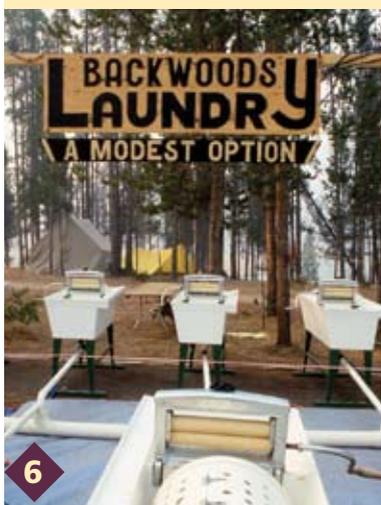
Carol Shively, interpretive ranger, Grant & West Thumb

For everyone involved in the Yellowstone fires, there is a particular day that stands out above the rest. For me, it was July 31st, the day the fire hit West Thumb. We headed into the geyser basin to clear visitors, but some were reluctant to leave—they were captivated by the mushroom-like cloud of smoke rising to the north, the helicopters dipping low to fill their water buckets in the lake, and the planes dropping red retar-

dant drops that streaked across the sky. And then it came. Tongues of fire whipped through the air and seemed to roll over the horizon toward us. With terrific force, the wall of flames approached the road, hesitated slightly, and then rushed up on the other side, even greater than before. The fire was crowning in the trees surrounding the geyser basin. I stood frozen in place, mesmerized by the sheer power before me.

Betsy Mitchell, resident and employee, Yellowstone National Park

On a day off, I drove to Madison to see what was happening out in the park. I was amazed at the scene of fly fishermen peacefully casting in the Madison River as flames were coming over the ridge from the south and helicopters dipped water buckets downstream from them. It was later that night that the North Fork Fire jumped the river and West Entrance Road and made a significant run through the Gibbon Canyon.





BLACK SATURDAY

Bill Berg, Yellowstone Park Service Stations

On a rare day off, my wife Colette (a park ranger) and I hiked up Washburn to hang out with Jim, the fire lookout. It was amazing up there. The Clover-Mist Fire to the east was throwing flames way above the tree tops. The Norris area fire was blowing up and roads were closing. On the park radio we heard chatter that Grant Village was being evacuated a second time. We soaked it all in, digested it, then jogged back down Washburn and drove back to Grant to help everyone evacuate. It was surreal and unforgettable.

Rich Jehle, interpretive ranger, West Yellowstone

After what seemed like weeks of hard work and no fun, I got a day off. So I got up early and headed north to a secret brook trout stream near Mammoth. Although it was pretty windy, the fishing was very good, and after going at it all day and into the early evening I started back toward Madison. But the roads were closed at Norris, and when I went back north

and tried to go around the Grand Loop, I was stopped at West Thumb too. After a half hour, a ranger led me and other vehicles over the pass to Old Faithful. I finally arrived home at midnight—where my boss sent me right back out to patrol the West entrance road. That night, the hillside south of the road was glowing with a million embers for as far as I could see up or down river. Later, I learned that my great day fishing, and the subsequent adventures, came to be called “Black Saturday,” the single most active fire day of the entire 1988 season!

Roger Anderson, interpretive ranger, Grant

The second evacuation of Grant came on August 20, a day that became known as Black Saturday. Rangers and visitors were stranded at the visitor center by downed trees. I cleared away the trees with the ax we normally used to split firewood for the campfire programs. As soon as visitors got out, we ran toward the lodging area where hundreds of other visitors and employees were eating lunch, unaware of the danger. We cleared the restaurant, the

employee dining room, and got the lodging staff to clear hotel and employee housing units. Then we commandeered firefighter buses to take employees to Fishing Bridge, a safe zone.

Michael Stuckey, interpretive ranger from Hawaii, brought in to fight fires

My memories of these weeks in Yellowstone are full of back breaking work, lots of frustration over lack of success in slowing the fires, and a few terrifying moments when the fire was literally in charge of our fate. August 20, “Black Saturday,” was especially notable since we spent most of a very long day in a safety zone trying to hold back 100-foot tall wind-driven flames that threatened to overcome our crew. This was only one of three separate incidents that safety zones were used and the last ditch fire shelters were ready to deploy. The Clover-Mist Fire will forever live in the memory of anyone who experienced it.

.....

Jerry Kahrs, business owner, Gardiner

In the last week of August, my friend Point and I went to Canyon to gather wood that the park had offered to locals. We borrowed a big truck and drove through the smoke and flames, seeing groups of yellow-vested firefighters and some military personnel dousing flames or digging trenches. Overhead was the constant clapping of helicopters and hum of flying water tankers dropping water and retardant on hot spots. When we reached Canyon we were delighted to help ourselves to several cords of wood and headed home. A few days later, glowing embers were blowing into town; my wife Christina and I had to move all that wood again, away from our neighbors and to the back of our lot overlooking the Yellowstone River. We set up sprinklers to dampen the roof, the parched yard, and the tinder-dry wood. Those trees

finally burned, but in the safety of my wood stove.

Julia Page, business owner, Gardiner

The night of September 9, the house was shaking from the wind, so I wondered what the fires were doing and went to the window. There was a red glow over Bunsen! I drove up toward Jardine to look. . . . Gradually the glow got brighter until finally I saw actual flame over the treetops to the left of the peak. After a while I could see balls of flame leaping across the treetops, dancing back and forth, and huge, high billows of flame leaping on the skyline. I went home and watched a while longer from the living room and then went to bed. The next day I drove to Grant Village to look through the fire records so I could begin writing up the story of the Snake River Complex for congressional oversight hearings.

As fires approached, towns on the park’s border were soaked with water to protect them. The towns were spared—although Cooke City’s perimeter was burned. The fires generated extra income for the towns as they fed famished firefighters, housed media crews, and sold fire-related souvenirs.

