

Old Faithful Geyser

YELLOWSTONE A WORLD APART

Second Edition

RICHARD HALLIBURTON

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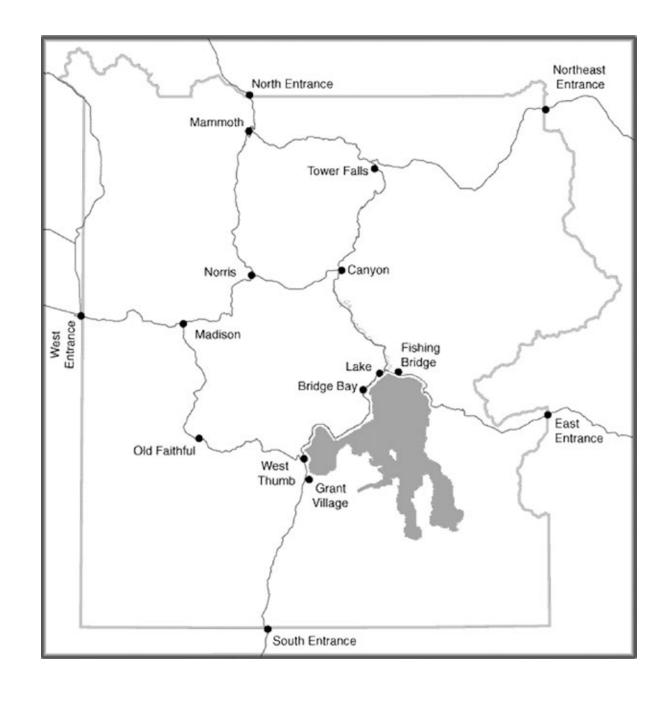
Yellowstone: A World Apart

Second Edition First Printing March, 2021 For Andrew, XanXan, and Chubs.

Eventually, we will be able to take you to Yellowstone!

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Map courtesy of National Park Service

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the tract of land in the Territories of Montana and Wyoming, lying near the head-waters of the Yellowstone River, and described as follows...is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people...

Yellowstone National Park Act, 1872

INTRODUCTION

The morning after my high school graduation ceremony I left my home in the Midwest and drove to Yellowstone National Park with a stranger who would become a lifelong friend. Approaching Yellowstone, we drove through Grand Teton National Park—an astonishing sight to a midwesterner who had never been west of Kansas City. As we entered Yellowstone, I marveled at the Lewis River Canyon, still with patches of snow in late May. I began to realize that this was a world like nothing I had ever seen before.

Eventually we arrived at Old Faithful Inn, my employer and home for the next four and a half months. It was not love at first sight. The weather was cold and rainy; I had no friends and felt depressed. After a week, I was on the verge of quitting my job and going home.

Then the sun came out.

As the weather cleared, I explored the geyser basins and trails of Yellowstone. I began to understand the idea of wilderness and why it matters. I discovered photography.

Warren, my driving companion, suggested I get a camera to record my experiences in the park. I bought a Kodak Instamatic, the state-of-the-art point and shoot camera of the time. My first attempts were disappointing, but I began to see the power of photography. By the end of that first summer in Yellowstone, I owned my first 35mm camera and had begun experimenting with black and white. (That first Instamatic still occupies a place of honor in my study.)

Ultimately, I worked at Old Faithful Inn for three summers, before summer school and career goals took precedence. Since those years, I have returned dozens of times, whenever I could get away for a few days. Yellowstone is addictive. People work menial jobs for absurdly low wages, just so they can be in the park. It is truly "A World Apart" (the slogan of the Yellowstone Park Company in the 1960s).

As my photography matured, I became more serious about black and white. Eventually, I bought a 4 × 5 field camera and built my first darkroom. Today, I still use a view camera, though not exclusively.

The pictures in this book reflect my decades-long fascination with Yellowstone and with black and white photography. About half of the images were made with a view camera, the remainder with a mid-range digital camera.

Richard Halliburton February, 2021 This entire country is seemingly under a constant and active internal pressure from volcanic forces, which seek relief through the numberless springs, jets, volcanoes and geysers exhibited on its surface, and which but for these vents might burst forth in one terrific eruption and form a volcano of vast dimensions.

Nathaniel Pitt Langford
The Discovery of Yellowstone Park



Norris Geyser Basin





Ghost Trees



Frost and Runoff, West Thumb Geyser Basin

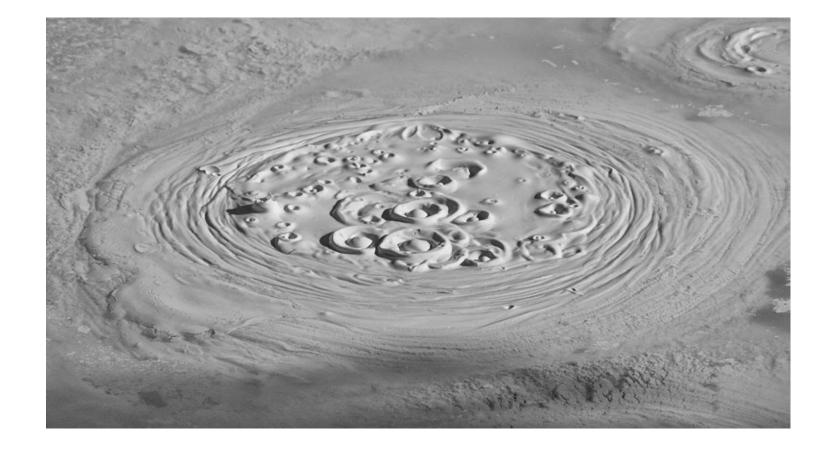


Stream, Near Madison Junction



Echinus Geyser





Fountain Paint Pot Mud Pots

Late the next afternoon we had our first close view of the enchanted land, when our party came upon the Mammoth Hot Springs. We were, so far as records show, the first white men ever to see those bubbling caldrons of nature, and I found myself excited by the knowledge that next day I was to photograph them for the first time.

William Henry Jackson
Time Exposure



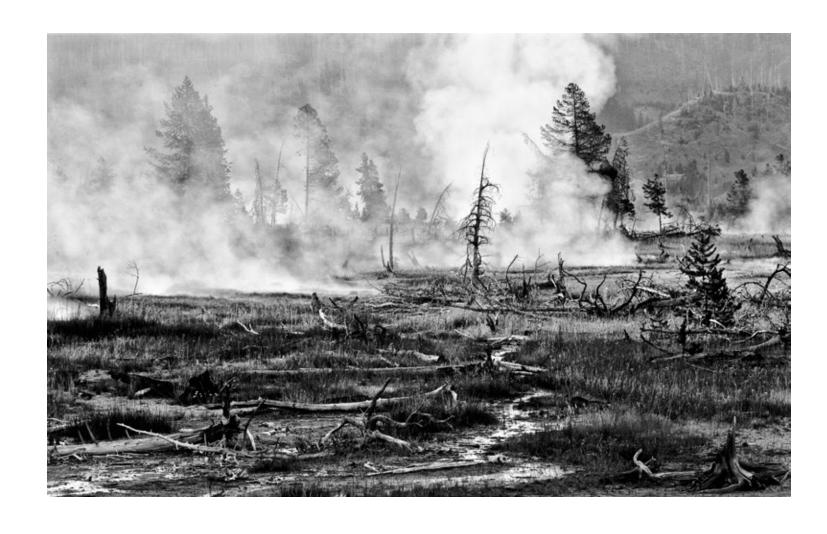
Canary Spring, Mammoth Hot Springs

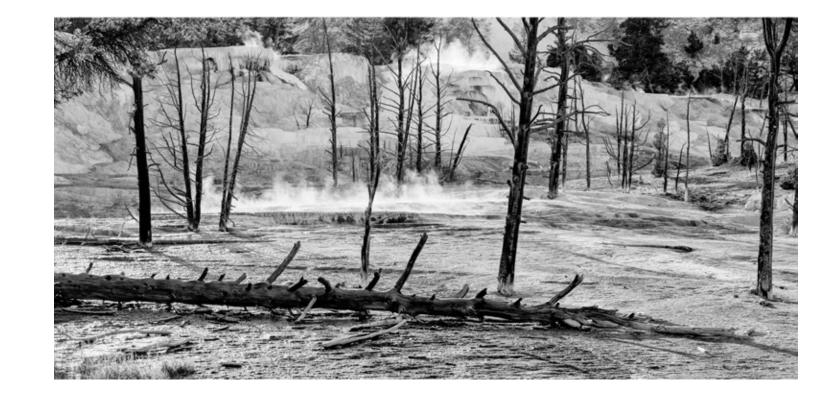


Minerva Terraces



Dead Trees and Terraces





Meadow, Near Midway Geyser Basin

Angel Terrace



Tree Trunks and Shadows



Snag in Snow



Tree Trunks, Canary Spring



Hot Spring and Yellowstone Lake, Sunrise



Fumaroles



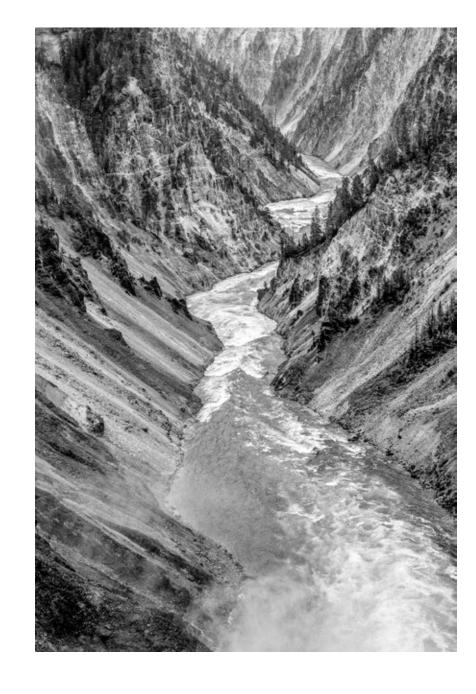


Morning Walk

Rapids, Firehole Canyon

The immense cañon or gorge of rocks through which the river descends, perhaps more than the falls, is calculated to fill the observer with feelings of mingled awe and terror.

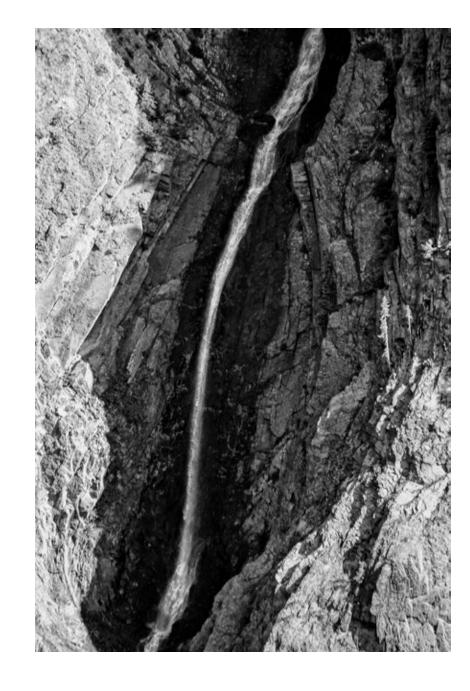
Nathaniel Pitt Langford
The Discovery of Yellowstone Park



Grand Canyon of the Yellowstone



Canyon Wall



Silver Cord Cascade





Snow Forms Pool, Twin Geysers



Beehive Geyser



Meadow and National Park Mountain



Burnt Stump and Forest



Cottonwood, Lamar Valley



Burnt Trees and Yellowstone Lake

Truman Everts was a member of the Washburn-Langford-Doane expedition to Yellowstone in 1870. On September 9 he became separated from his party near Yellowstone Lake and was lost, alone in the wilderness with nothing but the clothes on his back, two knives (which he lost), and a small pair of binoculars. He wandered for 37 days, experiencing snow storms, a forest fire, and multiple burns; he was stalked and treed by a mountain lion, and was scalded in a steaming pool when the ground under him collapsed. He was finally rescued near the Mammoth Hot Springs area on October 16, delerious, emaciated, burned, barefoot, and paralyzed in one arm. He had subsisted primarily on the roots of a thistle, supplemented occasionally by insects. This plant is now called the Everts Thistle (*Cirsium scariosum*).

Everts fully recovered from his ordeal, and lived for thirty more years. He died in 1901.



Everts Thistle



Burnt Trees, Norris Geyser Basin



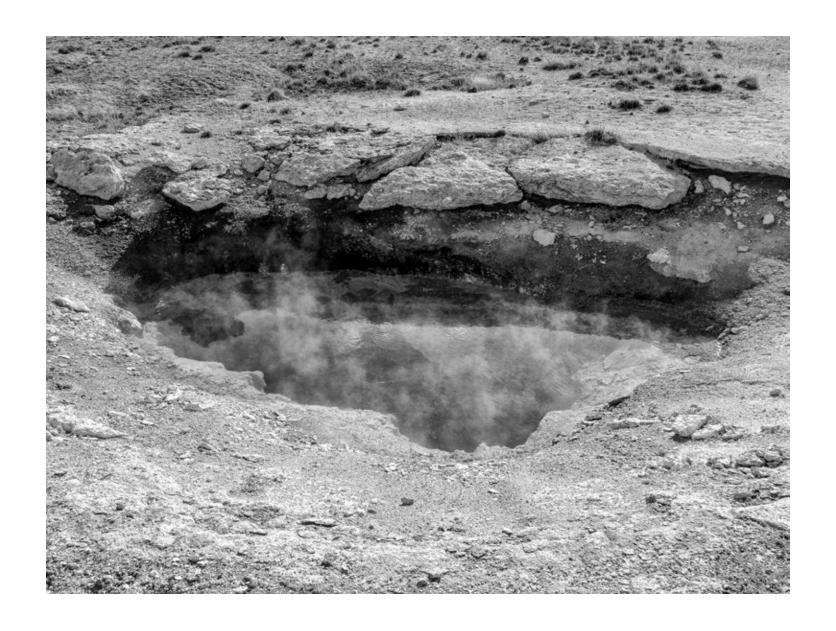
Floating Island Lake



Winter Trees



Hot Spring, West Thumb Geyser Basin



Collapsing Pool





From Lamar Valley New Blue Spring





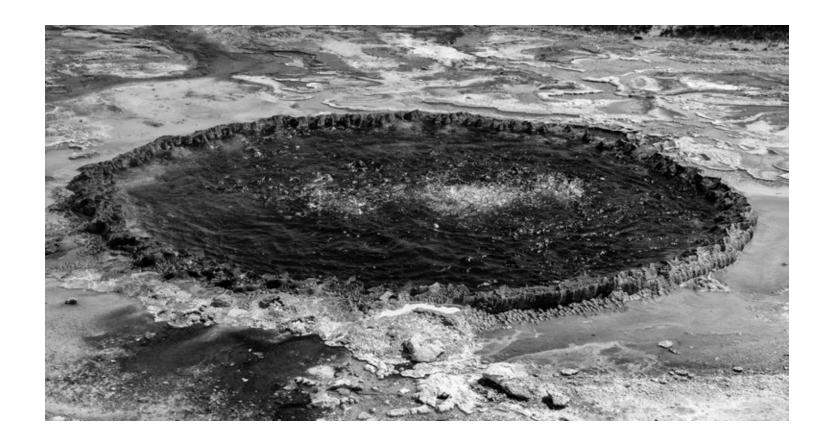
Norris Geyser Basin Canary Spring (2)

Come with me to the Yellowstone next summer and I'll show you peetrified trees a-growing with peetrified birds on 'em a-singing peetrified songs.

Jim Bridger Quoted in Haines, The Yellowstone Story, Vol. 1



Petrified Stump, Specimen Ridge



Queen's Laundry Knots



Pinnacle, Grand Canyon of the Yellowstone



Trout Creek

Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop off like autumn leaves.

John Muir The Yellowstone National Park



Lamar Valley



Lodgepole Pines

Burnt Hillside





Travertine Deposits, Mammoth Hot Springs



Pool, Upper Geyser Basin



Norris Geyser Basin

I wonder what would happen (what will happen, really, for it someday must) if Old Faithful either stopped erupting entirely or became so infrequent that it lost its power to draw people. Would there be a stage of some years' duration, as happened after the fires, when people would come to see what was now gone, and stand there on the boardwalks as at a wake? Would the huge crescent of pavement and construction that now half-encircles the cone of Old Faithful finally look silly enough to us—permanence of structure surrounding a great monument to the impermanence of nature—that we would dismantle some of it, or would the wonder of other nearby geysers, so long under the shadow of The Geyser, emerge to compensate for and justify all the architecture? Would the very name "Old Faithful" take on a new meaning in our culture, becoming eventually an ironic sarcasm for something sadly short of fidelity?

Paul Schullery
Searching for Yellowstone



Old Faithful Geyser

We routinely insist that our descendants serve as our consciences. In our attempts to justify our positions in the debates over Yellowstone's management, we invoke the needs of future generations, because we see our care of this place as a great trust. We are saving these things for them, and they'll never forgive us if we mess up.

Paul Schullery
Searching for Yellowstone

AFTERWORD

I have been going to Yellowstone since the 1960s. Many things have changed. There are more people, more cars, more regulations, more crime, more junk in the gift shops.

There are fewer roads, but more trails and more backcountry campsites. There are more wolves and more grizzly bears.

The Yellowstone National Park Act of 1872 preserved the region and set it apart as a "pleasuring-ground for the benefit and enjoyment of the people." Passage of the act was in large part due to the scientific reports of geologist Ferdinand Hayden, the watercolors and sketches of Thomas Moran, and the photographs of William Henry Jackson. This may have been the most important collaboration between science and art in the history of either.

From the beginning, the conflict between preservation and enjoyment has frustrated park managers. In the early days, vandalism and poaching were the main problems. Today, with several million visitors each year, the park is in danger of being enjoyed to death.

In part because of problems in Yellowstone, the National Park Service was established in 1916, with a mandate to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Again, the conflict between preservation and enjoyment appears. How is the park service to cope with millions of visitors each year without them trampling the vegetation, harassing the wildlife, collecting souvenirs, and throwing an unimaginable variety of things into the thermal features?

During its first five years as a national park, only a few hundred people visited Yellowstone each year, traveling on horseback or by stagecoach. Numbers grew slowly until 1915, when automobiles were allowed in the park. Then visitation increased rapidly, and after World War II it skyrocketed. Numbers reached one million in 1948 and more than four million in 2016 during the centennial celebration of the National Park Service.

This massive influx of tourists has necessitated constant repair and development (some say overdevelopment) of roads and facilities, and led to increases in visitor-animal conflicts, damage to natural and cultural resources, traffic accidents, air pollution, overcrowding at main attractions and on trails, violent interactions between visitors, sanitation problems, and crime.

Between 2000 and 2018 the number of visitors to Yellowstone increased by about 46 percent, while the number of full-time park service employees remained relatively constant at about 550. With more than four million visitors a year, park rangers and employees have an impossible job of serving and protecting the public, while at the same time enforcing regulations to protect park resources.

The park service has made efforts to ameliorate some of these problems. It is studying alternative means of controlling visitor use, such as shuttle systems, altered traffic flow, or reservation requirements at high use sites. Currently it has no plan to limit the number of visitors. If numbers continue to increase, I think the park service will sooner or later have to limit visitation in some way. Unless it does, the park's natural and cultural resources may be degraded and the visitor experience impaired, weakening public support for the National Park System.

The first directive of the National Park Service Act is to "conserve the scenery and the natural and historic objects and the wild life therein ..." In 1963, a report of the Advisory Committee to the National Park Service, the Leopold Report, recommended that park ecosystems be maintained in as natural a state as practical, with minimal human influence on wildlife populations. The problem is we don't know what is natural. How many elk or wolves or grizzly bears are natural? We have very little data about the park before 1872. This has led to controversies over wildlife management and other ecological issues.

Humans have always feared and hated wolves. The mythology and literature of many cultures are full of horror stories featuring wolves, for example, Little Red Riding Hood and legends of werewolves. Some claim this fear and hatred of wolves is in the Bible. Perhaps it is a deep evolutionary fear inherited from our defenseless ancestors on the Eurasian steppes. Regardless of source it has resulted in many human cultures indiscriminately killing wolves.

Wolves once ranged throughout much of the western United States, but by the early 1900s they had been extirpated throughout most of their range, including Yellowstone. In the 1970s increasing interest in environmental issues led to proposals to reintroduce wolves to Yellowstone, in the belief that without wolves the Yellowstone ecosystem was unnatural and incomplete. These proposals were controversial: Ranchers argued that wolves would leave the park and prey on cattle and sheep. Hunters feared that wolves would kill "their" deer and elk. After many years of political back and forth, the Department of the Interior eventually authorized the reintroduction of wolves.

From 1995 to 1997, 41 wolves were released in Yellowstone National Park. The results have been dramatic. Initially, the population grew rapidly, reaching a high of 171 in 2007. Since then the population has declined but remained relatively stable, ranging between 83 and 108, with at least 94 in 2020.

One of the most obvious effects of wolf reintroduction has been on the elk populations in and around Yellowstone. Before the wolves were reintroduced, there was some concern that there were too many elk, and that they were overgrazing their range, especially in the northern areas of the park. Since wolves were reintroduced, the elk populations have decreased significantly due to direct and indirect effects of wolf predation. Indirect effects include behavioral adaptations. Browsing elk are more vigilant when wolves are nearby. They spend more time scanning the area for signs of wolves and moving from grasslands into nearby wooded areas for protection. Here they feed on less nutritious woody vegetation, ultimately resulting in lower reproductive rates and possible effects on grasses and willows.

Wolves also have indirect effects on other predators such as bears, coyotes, and eagles, which affect other herbivore populations and behavior, and which in turn affect the composition and distribution of plant communities. This is an example of what ecologists call trophic cascades, in which a change in a single predator population has multiple effects up and down the food chain, and on the web of interactions throughout the ecosystem. Consensus among wildlife biologists is that the Yellowstone ecosystem is closer to its natural (pre-European) state since the wolves were reintroduced.

Neither wolves nor elk recognize political boundaries, and both leave the park at will. Wolves, especially, have very large home ranges. Outside the park, they are frequently shot, legally or illegally. Protection of wolves has varied. They have been the subject of numerous lawsuits, and have been on and off the endangered species list several times. Currently, limited hunting of wolves is allowed in the states surrounding Yellowstone.

Although the reintroduction of wolves to the park remains controversial, all evidence indicates that it has been a huge success, both ecologically and with the public. Today, many Yellowstone tourists thrill to the sight of wolves in Lamar Valley, a sight undreamed of a few decades ago.

Grizzly bears, like wolves, once ranged widely throughout the western United States but have been nearly exterminated due to human activities. Native Americans honored and preserved the grizzly, but in the mid to late 1800s trappers and settlers from the East, fearing attacks on themselves and their livestock, killed many bears. Grizzly populations plummeted. By the early 1960s, estimates of grizzly populations in the Greater Yellowstone Ecosystem (GYE) were about 220 to 360 individuals, spread over about five million acres. Most were in or near the park.

Unlike wolves, grizzly bears have never been absent from Yellowstone Park, although we have no early data on their numbers. Within a few years of the establishment of the park, tourists gathered to watch the bears, both black and grizzly, feed in the garbage dumps in and near the park. The National Park Service

even provided bleachers and ranger talks! I recall, while working in the park in the mid-1960s, watching the grizzlies rummage through garbage at the dump outside West Yellowstone. We would shine headlights and spotlights on them, honk horns, and yell, completely oblivious to any danger. To my knowledge, no one was ever hurt.

Because bears learned to associate humans with food sources, human-bear conflicts intensified over the years as visitation increased. After several people were killed by grizzly bears in the early 1960s, the park service, following the Leopold Report, established a management plan with the goal of minimizing human interaction with grizzlies.

The first steps, beginning in 1968, were to close the garbage dumps in and around the parks, and to enforce regulations against feeding the bears. The short-term effects were that bears habituated to human food sources began rummaging in developed areas and campgrounds, causing injuries and property damage in the park and surrounding areas. In the park, repeat offenders were killed by park personnel or given to zoos. Outside the park bears were shot by landowners and hunters. This culling, combined with the removal of an important food supply (the garbage dumps), led to a decline in the grizzly bear population in the Yellowstone region from already low numbers to estimates from as many as 250 to a minimum of about 136 by 1975.

In 1975 the grizzly bear was listed as a threatened species, affording some protection outside the park. Over time, the bears became less habituated to humans and the park service has minimized killing of problem bears by relocating them to remote regions. The population has gradually increased, with current estimates of about 728 in the Greater Yellowstone Ecosystem, and about 150 having home ranges at least partially within the park. Numbers have remained relatively stable over the last few years, and wildlife biologists think the population is near its carrying capacity.

It appears that the GYE population is in no immediate danger of extinction, provided protective measures remain in place. But what about its long-term prospects? One key to long-term survival is genetic variation, which provides a reservoir for adaptive evolution. When populations go through a bottleneck (severe reduction in population size), they can lose genetic variation, reducing future evolutionary adaptability. Studies suggest that the GYE population has not suffered significant loss of genetic variation in the short term, so this doesn't seem to be an immediate issue. However, the GYE population is geographically and genetically isolated from grizzly populations in Northern Montana and Canada, so there is no immigration to counteract the long-term loss of variation due to a random process known as genetic drift.

Populations can also become extinct due to non-genetic causes such as habitat destruction and disease outbreaks. Small populations are much more vulnerable to these random events than large ones. Some theoretical studies suggest that a population size necessary to minimize the probability of extinction due to random events is, for a large vertebrate like the grizzly bear, at least 500 individuals. This number is controversial; some experts think it is too low. But assuming this number is reasonable, and if the GYE population of grizzlies is isolated from other populations, then it may be at significant long-term risk.

Yellowstone is one of the few places in the lower forty-eight states where grizzly bears still exist in a relatively undisturbed habitat. We humans hike the trails of Yellowstone knowing that we are potentially prey, rather than predators. That knowledge gives us a completely different perspective on evolution than we would otherwise have. Unfortunately, scientific studies suggest that the long-term future of grizzlies in Yellowstone is uncertain.

Not all wildlife is as dramatic as wolves and grizzly bears. In 1965, microbiologist Thomas Brock isolated a bacterium from Mushroom Pool, near the Firehole Lake Drive. The scientific name for this organism is *Thermus aquaticus*. It was the first organism isolated from hot springs and has led to the study of thermophilic (heat-loving) bacteria. More importantly, it is the source of an enzyme called Taq polymerase that has made the polymerase chain reaction (PCR) one of the most important techniques in genetics, molecular biology, medicine, forensics, and many other areas. PCR has led to DNA fingerprinting, the identification of genes associated with cancer and other complex diseases, analysis of human and other genomes, improved approaches to conservation biology, and numerous other scientific and medical advances. Without the Yellowstone National Park Act of 1872, *Thermus aquaticus* might have gone extinct due to geothermal energy development, before it had been discovered.

The second directive of the National Park Service Act requires the park service to conserve the natural and scenic features "unimpaired for the enjoyment of future generations." Numerous economic and ecological threats, both immediate and long-term, make this a difficult assignment.

Yellowstone is under constant threats from outside interests. In 2015, two mining companies (one called Lucky Minerals!) submitted a proposal for exploratory drilling and plans for a 2500 acre gold mine just north of Yellowstone. This would produce air and water pollution, toxic runoff, disrupt wildlife habitat, threaten agriculture and tourism in the area, and contaminate the Yellowstone River, which provides water for communities downstream. After years of protest and lawsuits, the Yellowstone Gateway Protection Act was passed, protecting much of the region. However, mining claims still exist near the northern border of Yellowstone.

The extent of the underground plumbing feeding the geysers in the park is unknown but extends beyond the park boundaries. Geologists fear that geothermal energy development outside the park might affect features within the park. Results from other areas repeatedly confirm this possibility. For example, after a geothermal power plant was built near the Wairakei Basin in New Zealand nearly all the thermal features dried up. The thermal features within Yellowstone Park are protected, and geothermal energy development is prohibited on federal lands adjacent to the park. However, there are at least two areas of potential geothermal development on private lands near the park. Numerous proposals for development have been submitted, but so far, they have been blocked as a result of court cases and out of court settlements. But final protection remains to be achieved.

Invasive species are an increasing threat. Lake trout introduced to Yellowstone Lake have nearly decimated populations of cutthroat trout, a major food source for grizzly bears. Aquatic invasive species such as zebra mussels can form dense colonies, displacing native invertebrates and encrusting docks and clogging waterways. There are about 225 nonnative species of plants in Yellowstone, many of which are invasive. It is extraordinarily difficult to control these once they become established. They can outcompete native species, changing plant communities and thus affecting diets, grazing habits, and distributions of herbivores such as elk and bison.

Federal and state regulations can minimize external threats to the park, and the National Park Service has programs for prevention and control of ecological issues within the park. But the elephant in the room is, of course, climate change.

Climate change throughout the Greater Yellowstone Ecosystem is well documented. Since about 1895 average annual temperatures over the entire GYE have gradually risen by about 3°F. Since 1950 the growing season (number of days between the last spring freeze and first fall freeze) has increased by about 30 days in some areas. Snowfall and snowpack have decreased, but fast temperature rise in spring results in rapid runoff, flooding streams and rivers. Late summer stream flow throughout the central Rocky Mountains (including but not limited to the GYE), has decreased in 89 percent of sites with historical records in the period from 1950 to 2008, with the trend accelerating since about 2000.

Other examples abound. In general, warmer temperatures and increased aridity are affecting the distribution and abundance of numerous species of plants and animals throughout the region, sometimes with serious ecological consequences. Fire seasons are longer, and fires are more extreme.

We already see multiple changes in the park. Small ponds and lakes are drying up, affecting populations of amphibians and rare aquatic plants. Rapid spring runoff causes flooding and destruction of pelican nests

on islands in Yellowstone lake. Reduced summer stream flow affects native fish populations, including cutthroat trout. Decreased snowpack allows greater mobility of elk and deer, and can decrease wolf predation.

Whitebark pines, a high-altitude species whose seeds are an important food source for grizzly bears, are facing a dual threat. Warmer winter temperatures favor higher survival rates of the mountain pine beetle, a major pest of whitebark pines. The effect has been devastating; one study estimated 79 percent mortality of mature trees in the GYE. Moreover, increasing temperatures are reducing suitable habitat for whitebark pines, forcing retreat to higher elevations.

Various climate models attempt to predict future trends. These models are complex and vary in detail; however, the general results are straightforward: barring major economic and behavioral changes, the effects of climate change will accelerate. Recent data suggest that change is already occurring faster than earlier models predicted.

Current models predict continued rising temperatures, decreased snowfall and stream runoff, increased stream temperatures, and increased frequency and severity of forest fires. The highest elevations will be most severely affected. Over the next hundred years, whitebark pines will be restricted to only the highest elevations. The coniferous forests that currently dominate much of the park will shrink and be replaced by juniper and sagebrush communities with consequent major changes in animal populations. It is clear that if present trends continue, Yellowstone will be a very different place in the future.

This is not inevitable. These predictions are based on continuation of current trends. With economic and behavioral changes, we can slow these trends, and perhaps halt or even reverse them. The Park Service alone cannot prevent climate change, although it does its part to minimize its effects. Climate change is a global problem, and must be addressed internationally through a sustained worldwide effort over many years. We know what we must do. Above all, must reduce and eventually eliminate our dependence on fossil fuels.

In 1985, Richard Bartlett wrote:

It is a bit premature to write articles such as "Will the National Parks Survive?" ... More timely is the question of the quality of the wilderness with all those visitors passing through. The answer is that the park will still be worth seeing. It will not be as John Colter saw it in 1807 and 1808. It will be a semipristine land of forests and streams and lakes and geysers. Save for concessions at specified locations, it will lack commercial exploitation. (Yellowstone: A Wilderness Besieged)

Bartlett wrote before climate change was widely recognized as a major issue. One of his main concerns was the effect of too many people in the park. That remains a problem, but the park service will eventually find

a way to solve it. How—or if—we solve the climate change problem depends on all of us. If we find the courage to do what we must, the park will not become a land of juniper and sagebrush. It will remain, as Bartlett described it, "a semipristine land of forests and streams and lakes and geysers" far into the future. Someday my grandchildren will take their grandchildren to see this wonderful place, and perhaps they will compare what they see to my pictures of Yellowstone. There will be differences, of course, but I hope they will be due to natural processes in ecology and geology, and not to our failure to act on climate change.

Can you imagine trying to explain to your children and grandchildren how our nation was unable to protect something as rare, unique and beloved as the geysers of Yellowstone?

Orville E. Bach, Jr.

Tracking the Spirit of Yellowstone

ACKNOWLEDGMENTS

I salute the employees of the National Park Service, who have struggled heroically with their contradictory missions of serving the public and preserving the park's resources. They have succeeded beyond any reasonable expectation.

Don Shaner (RIP) goaded me to take a summer job in Yellowstone after I graduated from high school. I resisted, but eventually gave in. It was one of the best decisions of my life. Thank you Shane, wherever you are.

Paul Caponigro has provided encouragement and constructive criticism in my photography, as have many photographer friends and members of the Sacramento photography community.

Rebecca Gregg and Gene Kennedy helped with selection and sequencing of the photographs.

Ann Mason and Paul Schullery read the Afterword and made numerous suggestions that greatly improved it. Schullery set me straight on several important issues and saved me from public embarrassment.

Orville Bach, Paul Schullery, and the Yellowstone Association (now Yellowstone Forever) gave permission to quote from their books.

Several individuals of the National Park Service administration answered my questions promptly and informatively.

I am grateful to all of these individuals and institutions. I apologize if I have forgotten anyone.

Finally, the people who make it all worthwhile:

My Yellowstone friends—you know who you are. Thank you for many years of friendship.

Ansel and his family, who are busy with their own lives but make time for the older generation.

Last and most Meredith, who for more than fifty years has put up with a sometimes curmudgeonly academic and has, without complaint, humored my passion for photography.



Richard Halliburton is Emeritus Professor of Biology at Western Connecticut State University, where he taught and conducted research in genetics, evolutionary biology, and related subjects. He is the author of *Introduction to Population Genetics*, as well as research papers and general articles.

Halliburton has photographed the western landscape and national parks, especially Yellowstone, for many years. Since retiring, he spends most of his time on photography, wandering in search of truth in black and white. His favorite camera is still a folding wooden view camera little changed from those of the nineteenth century. He develops his film in a developer first formulated at the dawn of photography. Only recently has he been dragged, initially kicking and screaming, into the digital age.

Halliburton currently lives in a small town in the Central Valley of California. His photographs have been exhibited and published in a variety of venues.

Halliburton has no relationship to the infamous company of the same name, but he is related to the bestselling adventurer and travel writer of the 1930s.

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