American National Parks
Yellowstone

Englischer Filmkommentar

Steaming hot springs, bubbling mud pools and spouting geysers a landscape from the earth's ancient past ...
… abounding life, wide open prairies, lush forests, green river meadows and deep canyons.

Yellowstone, the oldest and largest national park in The United States.

Around 2 million years ago, between today's states of Idaho and Wyoming, a volcanic eruption of unimaginable force shook the continent. Some 2500 cubic kilometers of ash and stone covered nearly all of North America. And it was only the first – two more earth-shaking eruptions followed after relatively equal pauses.

The second eruption occured further to the northeast 700.000 years later. After another 650.000 years, a third eruption followed … it was that one that shaped Yellowstone's fascinating landscape in today's state of Wyoming.

No one knows how long that last eruption lasted. Weeks or months? But its effects were awesome: two entire mountain chains were literally blown to bits, glowing fountains of lava shot high into the sky – and the intense heat wiped out all life within hundreds of kilometers.

Today some 5000 hot springs and 200 geysers mark the site of those events – atop a 2000 meter high plateau inside a giant crater, a caldera, which was formed in the volcano's explosion.

The area is a productive research ground for volcanolgists. For over twenty years, Dr. Robert Smith, a geologist at the University of Utah, has been looking for clues what happened here in the past and to what might happen here in the future … Yellowstone is still a highly active volcanic area.

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Dr. Smith and his assistants regularly take the volcano's pulse. Using sensitive seismographs and GPS satellite-supported measurement systems accurate to the centimeter, they record the rises and falls of the earth's surface in Yellowstone. These fluctuations are caused by a heat source lying 200 kilometers below – a magma system known as the Yellowstone Hotspot.

If we could explore Yellowstone's network of vents, fissures and underground passageways, we'd find countless hollow spaces that continuously refill with water trickling down from above. The water is heated by the earth's hot magma deep below -- when it exceeds the boiling point and becomes superheated, pressurized steam shoots columns of water back up the vents. The results are geysers.

The magma system underneath the Yellowstone-Caldera is a gigantic mass of molten stone. If we could view Yellowstone's underworld in cross-section, we'd be able to see the magma system swell and contract. This 'breathing' raises and lowers the earth's crust above. Between 1923 and 1985, the surface of Yellowstone rose by about one meter. Now it's sinking at a rate of one and a half centimeters per year.

Owing to this geological movement, Yellowstone is the site of frequent earthquakes. Hundreds, indeed thousands of small scale tremors are recorded there daily.

Geologists like Robert Smith assume that another giant eruption is bound to occur. … and it's now been about 650.000 years since the last one.

The many tourists visiting the park take little notice of the danger. They come to marvel at Yellowstone's many different natural phenomena. Mineral formations at the hot springs and at the steam and sulphur vents give this volcanic landscape its fantastic forms and colors. Yet the smell of sulphuric steam and the hissing and rumbling of geysers make clear that the volcano is still very much alive.

A highlight in any Yellowstone visit is the spectacle presented by the geysers. At more or less regular intervals, their hot water fountains spout high into the air.

Other parts of Yellowstone are no less fascinating than the caldera. Yellowstone has one of the largest forests of North America.

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Melting snow and ice from the surrounding mountains, and countless springs fill Yellowstone's brooks and rivers – providing habitats for a rich variety of animals and plants. The region received federal protection in 1872 – becoming the first national park in The United States and …in the world. A natural paradise to be left untouched.

Where Yellowstone's famous waterfalls thunder into the deep, iron-rich stone forms the canyon walls. Native Americans named the place after the color: yellow stone.

Heavy thunder storms rip through the park every summer. In 1988 a flurry of lightning strikes and careless tourists touched off forest fires of a magnitude never before seen.

1988 was an exceptionally dry year. The forest fires raged out of control, burning everything in their paths. Efforts to stop them failed. More than a third of the park's forests were destroyed that year.

But, surprisingly, nature recovered quickly from that deceptively catastrophic event. Far fewer animals were killed than expected – and within a few years the forests were once again green.

The fires thinned out the forest's dense, lower layers – allowing new life to develop. Millions of seeds dormant in the ground sprouted into lush underbrush and grasslands.

Every fall Yellowstone becomes one of the largest gathering places for animals in the entire country. It's mating season for Wapiti. Some 40.000 of these large north American elk live in Yellowstone Park.

The rut calls and crashing battle sounds from the bucks attract animals of prey from far and wide – among them powerful grizzly bears. Some 350 grizzlies live in the park.

An amateur filmmaker captured this grizzly bear's attack on film – a unique documentation of the explosive speed and power that this seemingly lumbering animal can unleash in a second.

Grizzly bears need vast territories ... and Yellowstone has them. With its nearly 9000 square kilometers, this national park is nearly three and a half times the size of Germany's Saarland.

Parts of Yellowstone are over 3000 meters high. In winter, snow piles up over six meters deep and the temperature falls to minus 20 degrees celsius there.

Wapiti come down out of the mountains into the warmer valleys looking for food. They're not helped through the winter by feeding programs. Letting nature take its course is a strict principle of park and wildlife management.

One particular animal nearly lost its place in the park's ecosystem forever: the wolf … Yellowstone's wolf population found a new beginning with wolves brought in from Canada.

Like bears, wolves are at the top of the food chain. They help hold other animal populations in balance. This is especially important in parks where hunting is prohibited.

Wolves make do with one meal per week if their pack successfully brings down such large animals as wapiti or moose. But they shy away from people.

Reintroducing wolves to Yellowstone National Park has been a great success. The 30 wolves released in 1995 have become 160 within seven years. They roam the park in 14 separate packs.

Another animal has also returned to Yellowstone: the bison. In the mid 1800s there were an estimated 60 million bison in North America. For centuries they provided the very basis of life for many native American peoples. They were both hunted and honored.

In their conquest of the ‚wild west', white men shot and butchered bison by the thousands. Within only a few decades this majestic animal was on the brink of extinction.

But a small herd of 23 bison lived unnoticed for many years in Yellowstone's vast expanse. Their numbers have now increased to more than 2000 – the last wild bison herd in America.

As astonishing as it may sound, Yellowstone's hot springs are also teeming with life. Invisible to the naked eye, these newly discovered organisms are called archae bacteria – some scientists consider them to be the source of all life on the planet.

These microscopically small creatures have lived in the most extreme environments for at least 3 and a half billion years. How they manage to survive temperatures of more than 100 degrees celsius is as yet unknown. Scientists from all over the world come to Yellowstone looking for answers.

David War:
Everybody who comes to Yellowstone and looks at a hot spring sees very colorful patterns around the hot springs and they probably don't even realize that they're looking at micro-organisms. They grow in really hot water. Now, I can't hold my hand in that water very long and yet that's where these organisms prefer to live. These greenish and orangish ones are really just like little miniature trees, if you will. They have the same kind of photosynthesis that the trees have and, in fact, they're probably the first organisms to ever conduct this kind of photosynthesis and as a byproduct of it, they even produce the oxygen that we breathe. And in fact, if it weren't for the invention of photosynthesis by these bacteria, then the trees and the forest and all the other plants would have never evolved. We often call this kind of photosynthesis "plant type photosynthesis," but in fact it's these cyanobacteria that first invented it.

Yellowstone's hot springs have become a natural laboratory for earth scientists. And what they're finding out is helping people weigh the possibility of life on other planets.

Yellowstone National Park is a monument of nature's captivating beauty and fascinating phenomena. But the volcano that made it continues rumbling away deep beneath its surface.
… And no one knows just how much longer it will pretend to be asleep.