



Y E L L O W S T O N E

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# DISCOVERY

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## Are Yellowstone's Hot Springs DRYING UP?

Minerva Terrace shown here in 1963 once flowed and gurgled with waters the colors of rainbow now sit dry and dull. Photo: NPS

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**A**s the crowds along its boardwalks attest, Mammoth Hot Springs is one of Yellowstone's most popular year-round attractions. Mammoth's breathtakingly beautiful terraces—"stair-step" formations—flow with steaming, colorful hot springs that visitors from all over the world have admired since the park's inception in 1872.

Although many people think Yellowstone is a national park because of its abundant and

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- SALES ASSOCIATES NEEDED FOR UPCOMING 2008 SUMMER SEASON

glorious wildlife and spectacular scenery, Yellowstone was set aside to protect and preserve its treasure of geothermal features—over 10,000 of them! Geysers are the most famous of these features—half of the world's 700 geysers are located in Yellowstone. However, the park also boasts fumaroles (steam vents), mudpots, and the geothermal feature that makes the Mammoth area so popular—hot springs.

Minerva Terrace is perhaps the best known of the hot spring terraces. Named for the Roman goddess of artists and sculptors, Minerva has enchanted visitors

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to Yellowstone for more than 100 years. Minerva has a colorful history. According to *Yellowstone Place Names*, by park historian Lee Whittlesey, as early as 1886 Minerva was called the “Coating Terraces,” because people used its abundant water for coating specimens with travertine. One enterprising pioneer named Ole Anderson actually established a tent store at Mammoth Hot Springs to sell “coated specimens.” Customers brought coins, bottles, horseshoes, or other items for Anderson to “preserve.” Many were no doubt disappointed to find that the travertine coating they had paid for turned to powder during the bumpy, arduous trip home.

The 1958 *Haynes Guide: Handbook to Yellowstone National Park* includes a photograph of a group of visitors standing wide-eyed next to a vibrant Minerva as a park ranger extols the wonders of Mammoth Hot Springs. Minerva was so well recognized and admired that the National Park Service brochure for Yellowstone featured a wrap-around

panoramic view of Minerva Terrace in all its glory. Minerva’s waters flowed so abundantly at times that the travertine deposits literally buried boardwalks, resulting in the construction of an elevated and movable boardwalk that is still in use.

Today Minerva sits as “mammoth” and imposing as ever, but dry. Visitors walking the Lower Terraces boardwalk as part of a ranger-led talk might hear something like this as they pass by Minerva: “Minerva used to be a main attraction here at Mammoth Hot Springs. She’s been pretty much dormant now for the past few years.”

For visitors making their first return to the park since seeing Minerva in its glory days, it is startling—and disappointing—to see that the terraces that once flowed and gurgled with waters the colors of a rainbow are now dry and dull. The scene invariably prompts the question: “Are Mammoth Hot Springs drying up?”

## YELLOWSTONE’S CONSTANTLY CHANGING GEOTHERMAL FEATURES

No, the hot springs are not drying up. Yellowstone is a living geological laboratory. At Mammoth, things are constantly changing. Often when one spring closes, another opens. The overall volume of water in the Mammoth Hot Springs remains relatively constant.

Questions about the future of Yellowstone’s geothermal features are not new. In 1908, Dr. Roland Dwight Grant wrote in an article entitled *Changes in the Yellowstone Park*: “Numerous items have come to my attention referring to the changes in the Yellowstone Park. The claim is made that there is a decline in the forces that constitute the park what it is...Some even urge us to see the Park quickly, for fear these wonders cease.” Grant goes on to reassure his readers: “I surely urge all to see the Park and live, rather than ‘Naples and die.’ This is not because the Park is dying but because men may die before they see it.”

By “forces that constitute the park,” Grant was referring to forces that lie deep beneath the surface of Yellowstone, forces that power all of Yellowstone’s amazing thermal activities. More than 600,000 years ago a supervolcano roared to life in Yellowstone, spewing 8,000 times the ash and lava ejected by Mount St. Helens in 1980. (Farquhar, *The Yellowstone Caldera*, 2006.) The depleted eruption area collapsed upon itself, creating the Yellowstone Caldera. The same magmatic force that powered the supervolcano still lies beneath that caldera, providing the heat that powers the park’s geothermal features, including its hot springs.

Hot springs need three critical elements to form. The first is water. For Yellowstone’s hot springs, water is supplied by rain and snow that fall on the surrounding hills and mountains and then seep deep into the earth. There it encounters the second element: heat. The 35-mile-wide, 50-mile-long partially molten magma chamber that lies 10 miles below the surface—a remnant

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## YELLOWSTONE ASSOCIATION

### THE MISSION OF THE YELLOWSTONE ASSOCIATION

The Yellowstone Association, in partnership with the National Park Service, fosters the public’s understanding, appreciation and enjoyment of Yellowstone National Park and its surrounding ecosystem

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