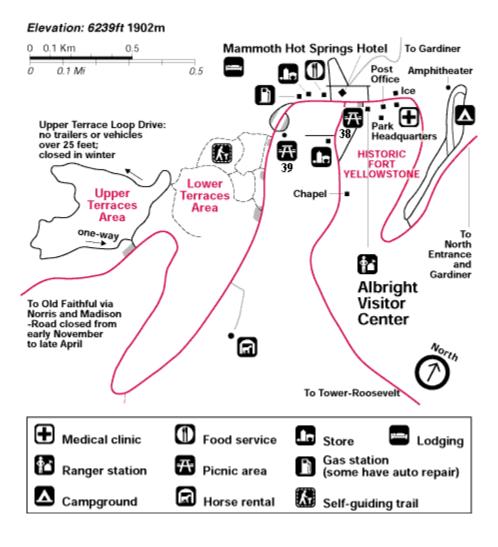
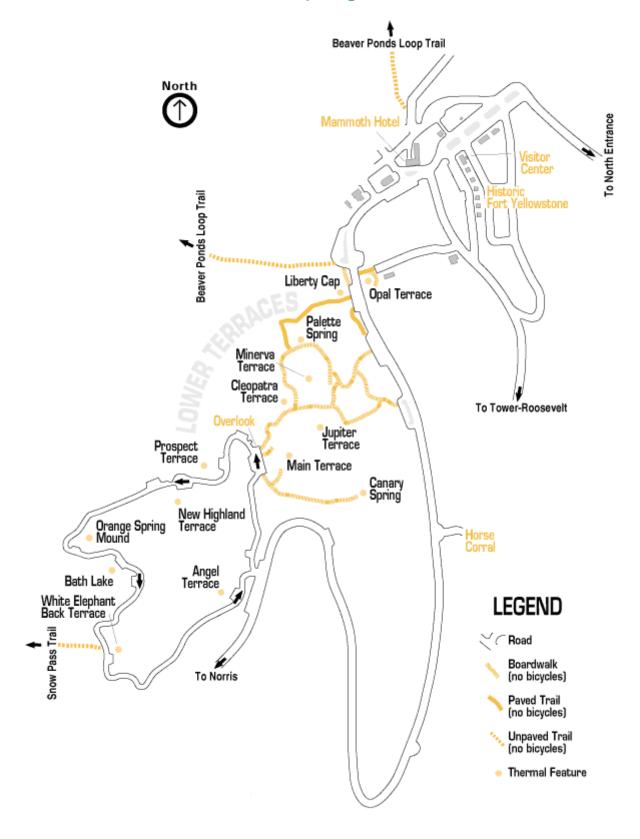
# **MAMMOTH HOT SPRINGS MAP**



# **Mammoth Hot Spring Terraces Tour**



# **Mammoth Hot Spring Terrraces Tour Introduction**

Several key ingredients combine to make the Mammoth Hot Springs Terraces: heat, water, limestone, and a rock fracture system through which hot water can reach the earth's surface.

Today's geothermal activity is a link to past volcanism. A partially molten magma chamber, remnant of a cataclysmic volcanic explosion 600,000 years ago in central Yellowstone, supplies one of the ingredients, heat.

Hot water is the creative force of the terraces. Without it, terrace growth ceases and color vanishes. The source of the water flowing out of Yellowstone's geothermal features is rain and snow. Falling high on the slopes in and around Yellowstone, water seeps deep into the earth. This cold ground water is warmed by heat radiating from the magma chamber before rising back to the surface.

Hot water must be able to reach the earth's surface in relatively large volumes to erupt as a geyser or flow as a hot spring. In Yellowstone, many conduits remain from the collapse of the giant caldera; frequent earthquakes keep this underground "plumbing" system open. Even though Mammoth lies north of the caldera ring-fracture system, a fault trending north from Norris Geyser Basin, 21 miles (34 km) away, may connect Mammoth to the hot water of that system. A system of small fissures carries water upward to create approximately 50 hot springs in the Mammoth Hot Springs area.

Another necessary ingredient for terrace growth is the mineral calcium carbonate. Thick layers of sedimentary limestone, deposited millions of years ago by vast seas, lie beneath the Mammoth area. As ground water seeps slowly downward and laterally, it comes in contact with hot gases charged with carbon dioxide rising from the magma chamber. Some carbon dioxide is readily dissolved in the hot water to form a weak carbonic acid solution. This hot, acidic solution dissolves great quantities of limestone as it works up through the rock layers to the surface hot springs. Once exposed to the open air, some of the carbon dioxide escapes from solution. As this happens, limestone can no longer remain in solution. A solid mineral reforms and is deposited as the travertine that forms the terraces.

Terrace features can change rapidly in appearance. Don't be surprised to find that some of these features look very different if you visit in person.

## **Lower Terraces**

## **Opal Terrace**



Opal Spring flows from the base of Capitol Hill, which is across the road from Liberty Cap. After years of dormancy, this spring became active in 1926 and began depositing up to one foot (0.3m) of travertine per year. In 1947, a tennis court was removed to allow natural expansion of the terrace. Further growth threatens the historic home next to Opal Terrace. Designed by Robert Reamer and built in 1908, the house is an example of Prairie Style architecture. Among Reamer's other designs are the Old Faithful Inn and the Roosevelt Arch at Yellowstone's North Entrance. Today sandbags and an earthen wall protect the house. The National Park Service strives to protect both historic and natural resources. At Opal Terrace both types of resources must be considered.

## **Liberty Cap**



This 37-foot (11-m) hot spring cone marks the northern portion of Mammoth Hot Springs. Liberty Cap was named in 1871 by the Hayden Survey party because of its marked resemblance to the peaked caps worn during the French Revolution. Its unusual formation was created by a hot spring whose plumbing remained open and in one location for a long time. Its internal pressure was sufficient to raise the water to a great height, allowing mineral deposits to build continuously for perhaps hundreds of years.

## **Palette Spring**



Water flows from a flat area and then down a steep ridge, creating a colorful hillside palette of brown, green, and orange (the colors are due to the presence of different heat-tolerant bacteria). This effect is much the same as an artist would achieve by allowing wet paint to run down a vertical surface.

### Minerva Terrace



Minerva Spring is a favorite not only because of its wide range of bright colors but also for its ornate travertine formations. Since the 1890s, when records were first kept on the activity of Mammoth Hot Springs, Minerva has gone through both active and inactive periods. For several years in the early 1900s, it was completely dry, but by 1951 reports state that Minerva was again active.

During some cycles of activity, water discharge and mineral deposition have been so great that boardwalks have been buried beneath mounds of newly deposited travertine. Consequently, an elevated and movable boardwalk now spans the hill in the vicinity of Minerva. In recent years, hot spring activity has shifted dramatically from Minerva to other features on the Lower Terraces, and back again.

## Cleopatra Terrace



Due to confusion related to the intermittent nature of many of the springs in the Mammoth Area, the name Cleopatra Spring has been given to at least three different springs over the years. As the confusion developed the original Cleopatra Spring came to be called Minerva Spring.

### **Jupiter Terrace**



Jupiter Terrace displays cycles of activity. In the 1980s Jupiter Terrace flowed so heavily that it overtook boardwalks several times. It has been dry since 1992, but when active, its color and intricate terraces make Jupiter an appealing spring.

#### **Main Terrace**



This photo offers a view of the Main Terrace as well as Mt. Everts. Main Terrace is constantly changing as new springs show up and others become inactive. Mt. Everts, seen in the distance, is made up of distinctly layered sandstones and shales--sedimentary rocks deposited when this area was covered by a shallow inland sea, 70 to 140 million years ago.

## **Canary Spring**



So named for its bright yellow color, Canary owes its brilliance to sulfur dependent filamentous bacteria. The colors blend here in delicate tints on the creamy rock face.

### **Overlook**



From the Overlook visitors have a great view of the Main Terrace and the surrounding mountains.

# **Upper Terraces**

## **Prospect Terrace**



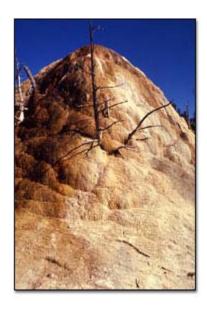
This terrace was referred to as the "Eleventh Terrace" by Dr. Peale in 1872. In the late 1880s a U.S Geological Service party led by Arnold Hague gave it the name Prospect Terrace. While the reason for its receiving this name is uncertain, it is likely that it was named simply because of the spectacular "prospective" views it affords.

## **New Highland Terrace**



Tree skeletons, engulfed by travertine, stand as monuments to a landscape created in the 1950s. In recent years, activity has shifted to other locations.

## **Orange Spring Mound**



Bacteria and algae create the streaks of color on Orange Spring Mound. It is noticeably different from many of the other terrace formations nearby. Its large mounded shape is the result of very slow water flow and mineral deposition.

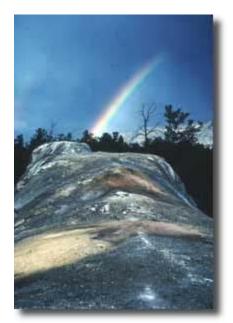
### **Bath Lake**



This Drawing Appeared in Yellowstone Illustrated with a Caption that Read: Bathing Pool at Mammoth - Cleanliness is Next to Godliness

At the bottom of a short but very steep hill lies Bath Lake, named by some of the local residents in the 1880s. Through the years, this "lake" has been empty as often as full. Though soldiers in the late 1880s once bathed in this pool, we now know that such activity destroys fragile formations and may cause dramatic changes in the behavior of thermal features. Bathing in any of Yellowstone's thermal features is unsafe and unlawful.

## **White Elephant Back Terrace**



Here, a long ridge replaces the terrace shape seen so frequently elsewhere in Mammoth. Water flowing from a rift in the earth's crust has built the mounded formation, which someone thought looked like the vertebral column of an elephant. Portions of the Upper Terraces beyond White Elephant Back are very old and have been inactive for hundreds of years.

### **Angel Terrace**



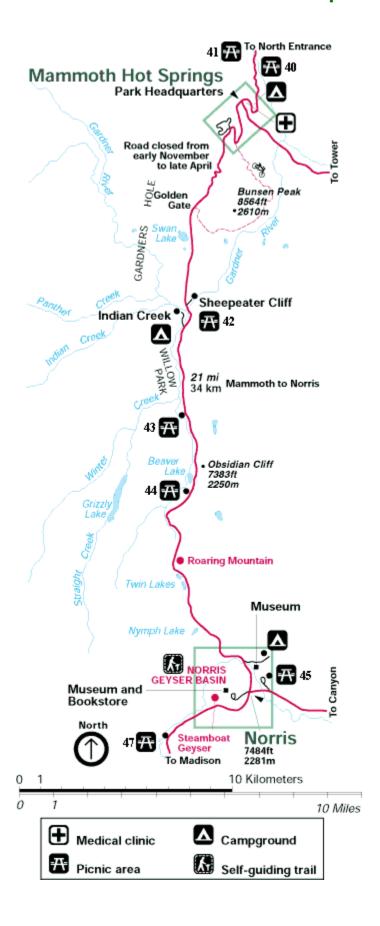
Known both for the pure white formations and colorful microorganisms of its active periods, Angel Terrace is one of the area's most unpredictable features. For decades it was dry and crumbling. More recently, hot springs have been intermittently active in parts of the formation.

## **This Concludes Your Tour of Mammoth Hot Spring Terraces**

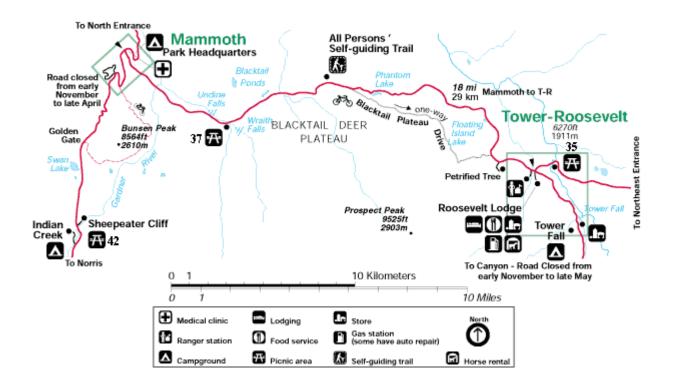


Thank you for joining us on this online tour of Mammoth Hot Springs. Years of observation of the hot spring activity at Mammoth indicate that while change is ongoing and sometimes takes place literally overnight, the overall level of activity and water discharge has remained relatively constant throughout the decades. If you've ever visited Mammoth Hot Springs in person you no doubt saw landscapes different from those pictured on this tour. Here, as in few other places on earth, geological activity can be appreciated on a human time scale.

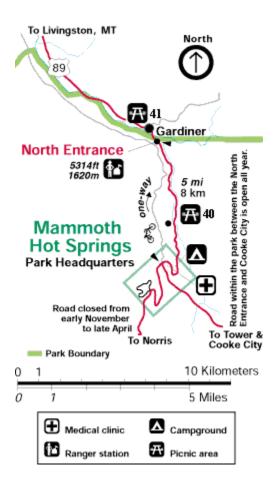
# **Mammoth to Norris Road Map**



# **Mammoth to Tower-Roosevelt Road Map**



# **Mammoth to the North Entrance Interactive Road Map**



# **Day Hikes Near Mammoth**

Begin your hike by stopping at a ranger station or visitor center for information. Trail conditions may change suddenly and unexpectedly. Bear activity, rain or snow storms, high water, and fires may temporarily close trails.

## **Beaver Ponds Loop Trail**

The trail follows the creek up Clematis Gulch, climbing 350 feet through Douglas-fir trees. The beaver ponds are reached after hiking 2.5 miles through open meadows of sagebrush and stands of aspen. Elk, mule deer, pronghorn, moose, beaver dams and lodges, and the occasional beaver and black bear may be sighted in the area. There are spectacular views as you wind your way back to Mammoth.

Trailhead: Clematis Gulch between Liberty Cap and the stone house (Judge's house)

Distance: 5 mile (8 km) loop Level of Difficulty: Moderate

#### **Bunsen Peak Trail**

This gradual 1,300 foot climb to the summit of Bunsen Peak provides a panoramic view of the Blacktail Plateau, Swan Lake Flats, Gallatin Mountain Range, and the Yellowstone River Valley. Return by the same route or take the trail down the back side to Osprey Falls trailhead (about 2 miles) and return via the Old Bunsen Peak Road Trail. Or visit Osprey Falls (an additional 2.8 miles, see below). Please plan for the additional mileage.

Trailhead: Entrance of the Old Bunsen Peak Road, five miles south of Mammoth toward Norris

Distance: 10 miles (16.1 km) roundtrip depending on side trips, 2 miles to the summit.

Level of Difficulty: Moderate

## **Osprey Falls Trail**

The trail follows the old roadbed for 2.5 miles through grassland and burnt forest. The Osprey Falls trail veers off the old road and follows the rim of Sheepeater Canyon before descending in a series of switchbacks to the bottom of Sheepeater Canyon. The Gardner River plunges over a 150-foot drop, forming Osprey Falls. Vertical cliffs rise 500 feet above you, making it one of the deepest canyons in Yellowstone.

Trailhead: 5 miles south of Mammoth on the Old Bunsen Peak Road Trail

Distance: 8 miles (12.9 km) roundtrip

Level of Difficulty: Difficult

#### Lava Creek Trail

This trail follows Lava Creek downstream past Undine Falls (50 feet), descending gradually. Lava Creek meets the Gardner River farther downstream. The trail crosses a foot bridge on the Gardner River, and there is one final ascent to a pullout on the North Entrance Road just north of the Mammoth Campground.

Trailhead: The bridge at Lava Creek picnic area on the Mammoth-Tower Road

Distance: 3.5 miles (5.6 km) one way; 7 miles (11.3 km) roundtrip

Level of Difficulty: Moderate

#### Rescue Creek Trail

This trail follows the Blacktail Deer Creek trail for the first 3/4 mile until meeting Rescue Creek trail. The trail climbs gradually through aspens and open meadows before beginning a 1,400 foot descent to the Gardner River. The trail crosses a foot bridge over the river and ends one mile south of the North Entrance Station.

Trailhead: Blacktail Trailhead on the Mammoth-Tower Road, seven miles east of Mammoth

Distance: 8 miles (12.9 km) on way; 16 miles (25.7 km) roundtrip

Level of Difficulty: Moderate

## **Sepulcher Mountain Trail**

This trail follows the Beaver Ponds Trail to the Sepulcher Mountain Trail junction. This trail rises 3,400 feet through pine trees and open meadows until the 9,652 foot summit of Sepulcher is reached. To complete the loop, continue along the opposite side of the mountain through a broad open slope to the junction of the Snow Pass Trail. Continue down until you reach the junction with the Howard Eaton Trail. This will lead you west of the Mammoth Terraces and back to your original trailhead.

Trailhead: Clematis Gulch between Liberty Cap and the stone house

Distance: 11 mile (17.7 km) loop trail

Level of Difficulty: Strenuous

#### **Wraith Falls**

This short, easy hike through open sagebrush and Douglas-fir forest to the foot of Wraith Falls cascade on Lupine Creek.

Trailhead: Pullout 1/4 mile east of Lava Creek Picnic area on the Mammoth-Tower Road

Distance: 1 mile (1 km) round trip

Level of Difficulty: Easy

#### Blacktail Deer Creek-Yellowstone River Trail

This trail follows Blacktail Deer Creek as it descends 1,100 feet through rolling, grassy hills and Douglas-fir where it reaches the Yellowstone River. The trail continues across the Yellowstone River on a steel suspension bridge and joins the Yellowstone River Trail. The trail continues downriver, passing Knowles Falls and into arid terrain until it ends in Gardiner, Montana.

Trailhead: Blacktail Trailhead on the Mammoth-Tower Road, seven miles east of Mammoth

Distance: 12.5 miles (21 km) one way Level of Difficulty: Moderate due to length



#### Did You Know?

You cannot fish from Fishing Bridge. Until 1973 this was a very popular fishing location since the bridge crossed the Yellowstone River above a cutthroat trout spawning area. It is now a popular place to observe fish.

## **Mammoth Area Natural Highlights**



### **Mammoth Hot Springs**

Be sure to take our online tour of the hot springs.

Mammoth Hot Springs are the main attraction of the Mammoth District. These features are quite different from thermal areas elsewhere in the park. Travertine formations grow much more rapidly than sinter formations due to the softer nature of limestone. As hot water rises through limestone, large quantities of rock are dissolved by the hot water, and a white chalky mineral is deposited on the surface.

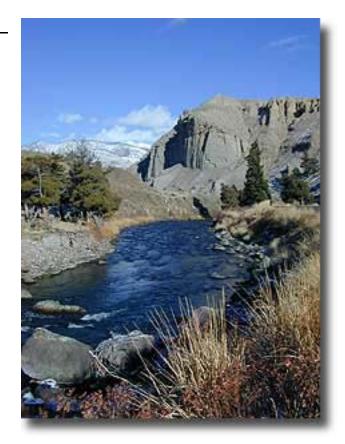
Although visitors are sometimes confused by the rapidly shifting activity of the hot springs and disappointed when a favorite spring appears to have

"died," it is important to realize that the location of springs and the rate of flow changes *daily*, that "on-again-off-again" is the rule, and that the overall volume of water discharged by all of the springs fluctuates little.

### The Gardner River and Gardner River Canyon

The North Entrance Road from Gardiner, Montana, to Mammoth Hot Springs, Wyoming, runs along the Gardner River. The road winds into the park, up the canyon, past crumbling walls of sandstone and ancient mudflows. The vegetation is much thicker in the canyon than on the open prairie down below, the common trees being Rocky Mountain juniper, cottonwood, and Douglas-fir. Lowgrowing willows also crowd the river's edge in the flatter, flood-prone sections of the canyon.

Watch for wildlife in season: eagles, osprey, dippers, and kingfishers along the river and bighorn sheep in the steeper parts of the canyon.





## 45th Parallel Bridge and Boiling River

A sign north of where the road crosses the Gardner River marks the 45th parallel of latitude. The 45th parallel is an imaginary line that circles the globe halfway between the equator and the North Pole. This same line passes through Minneapolis-St. Paul, Ottawa, Bordeaux, Venice, Belgrade, and the northern tip of the Japanese islands. It is, here in Yellowstone, roughly aligned with the Montana-Wyoming border.

A little distance south of the sign, a parking area on the east side of the road is used by bathers in the "Boiling River." Bathers must walk upstream about a half mile from the parking area to the place where the footpath reaches the river. This spot is also marked by large clouds of steam, especially in cold weather. Here, a large hot spring, known as Boiling River, enters the Gardner River. The hot and the cold water mix in pools along the river's edge. Bathers are allowed in the river during daylight hours only. Bathing suits are required, and no alcoholic beverages are allowed. Boiling River is closed in the springtime due to hazardous high water and often does not reopen until mid-summer.

The <u>Yellowstone Park Foundation</u> funded the Boiling River Trail Project. They are a non-profit organization whose mission is to fund projects and programs that protect, preserve and enhance Yellowstone National Park.

#### Mt. Everts

Mt. Everts was named for explorer Truman Everts of the 1870 Washburn Expedition who became separated from his camping buddies, lost his glasses, lost his horse, and spent the next 37 days starving and freezing and hallucinating as he made his way through the untracked and inhospitable wilderness. Upon rescue, he was, according to his rescuers, within but a few hours of death. Everts never made it quite as far as Mt. Everts. He was found near the "Cut" on the Blacktail Plateau Drive and was mistaken for a black bear and nearly shot. His story, which he later published in *Scribner's Monthly Magazine*, remains one of Yellowstone's best known, lost-in-the-wilderness stories. It has also been published in book form, edited by Yellowstone's archivist Lee Whittlesey under the name Lost in the Yellowstone.

Mt. Everts is made up of distinctly layered sandstones and shales--sedimentary rocks deposited when this area was covered by a shallow inland sea, 70 to 140 million years ago.

#### **Bunsen Peak**

Bunsen Peak and the "Bunsen burner" were both named for the German physicist, Robert Wilhelm Bunsen. Although most people are familiar with the "Bunsen burner," few people know why his students gave the burner that name. He was involved in pioneering research about geysers, and a "Bunsen burner" has a resemblance to a geyser. His theory on geysers was published in the 1800s, and it is still believed to be accurate.



Bunsen Peak is 8,564 feet high (2,612 meters) and may be climbed via a trail that starts at the Golden Gate. Another trail, the old Bunsen Peak road, skirts around the flank of the peak from the YCC camp to the Golden Gate. This old road may be used by hikers, mountain-bikers, and skiers in winter.

The peak is also interesting because it burned in the 1880s and then again in 1988. A series of old photos show the creep of trees up Bunsen following the 1880 fires, and the new patterns of open space created by the fires of 1988.



#### Did You Know?

Lake trout are an invasive species of fish that is decimating the native cutthroat trout population in Yellowstone Lake.

# **Mammoth Area Geologic Highlights**

## **Mammoth Hot Springs**

Mammoth Hot Springs are a surficial expression of the deep volcanic forces at work in Yellowstone. Although these springs lie outside the caldera boundary, their energy is attributed to the same magmatic system that fuels other Yellowstone thermal areas. Hot water flows from Norris to Mammoth along a fault line roughly associated with the Norris to Mammoth road. Shallow circulation along this corridor allows Norris' super-heated water to cool somewhat before surfacing at Mammoth, generally at about 170° F.

Thermal activity here is extensive both over time and distance. Terrace Mountain, northwest of Golden Gate, has a thick cap of travertine. The Mammoth



Terraces extend all the way from the hillside where we see them today, across the Parade Ground, and down to Boiling River. The Mammoth Hotel, as well as all of Fort Yellowstone, is built upon an old terrace formation known as Hotel Terrace. There was some concern when construction began in 1891 on the Fort site that the hollow ground would not support the weight of the buildings. Several large sink holes (fenced off) can be seen out on the Parade Ground. This area has been thermally active for several thousand years.

The Mammoth area exhibits much evidence of glacial activity from the Pinedale Glaciation. The summit of Terrace Mountain is covered with glacial till, thereby dating the travertine formation there to earlier than the end of the Pinedale Glaciation. Several thermal kames, including Capitol Hill and Dude Hill, are major features of the Mammoth Village area. Ice-marginal stream beds are in evidence in the small, narrow valleys where Floating Island Lake and Phantom Lake are found. In Gardner Canyon, one can see the old, sorted gravel bed of the Gardner River covered by unsorted glacial till.

Be sure to review our Mammoth Hot Springs Online Tour.

For other geological information, please see Natural Highlights of the Mammoth Area.



## Did You Know?

Some groups of Shoshone Indians, who adapted to a mountain existence, chose not to acquire the horse. These included the Sheep Eaters, or Tukudika, who used dogs to transport food, hides, and other provisions. The Sheep Eaters lived in many locations in Yellowstone.

# **Mammoth Area Historic Highlights**

Due to its year-round access and comparatively mild winters, Mammoth has always been the headquarters for the park. The hot springs were an early commercialized attraction for those seeking relief from ailments in the mineral waters. Two historic events taking place at Mammoth were the Nez Perce flight in 1877 and President Teddy Roosevelt's visit in 1903.



## **Archaeological Resources**

There are several wickiups in the vicinity as well as the Bannock Indian trail, roasting pits, and the Obsidian Cliff quarry site. In 1959, a Clovis point that was dated to more than 10,000 years ago was found at the site of the old Gardiner post office.

### Fort Yellowstone

We also have an <u>online tour of Fort Yellowstone</u> and a page that provides more detailed information concerning the <u>Fort Yellowstone - Mammoth Hot Springs Historic District</u>.

All of the red-roofed, many-chimneyed buildings in the Mammoth area are part of historic Fort Yellowstone.

Beginning in 1886, after 14 years of poor civilian management of the park, the Cavalry was called upon to manage the park's resources and visitors. Because the Cavalry only expected to be here a short while, they built a temporary post near the base of the Terraces called Camp Sheridan.

After five cold, harsh winters, they realized that their stay in



the park was going to be longer than expected, so they built Fort Yellowstone, a permanent post. In 1891, the first building to be constructed was the guard house because it directly coincided with the Cavalry's mission--protection and management. There were three stages of construction at Fort Yellowstone. The first set of clapboard buildings were built in 1891, the second set in 1897 as the Fort expanded to a two-troop fort, and, finally, the stone buildings were built in 1909 making the fort's capacity 400 men or four troops. By 1916, the National Park Service was established, and the Cavalry gave control of Yellowstone back to the civilians. After a short time away, the Cavalry returned in 1917 and finished their duty completely in 1918. Since that time, historic Fort Yellowstone has been Yellowstone's headquarters.



#### Roosevelt Arch

The first major entrance for Yellowstone was at the north boundary. Before 1903, trains would bring visitors to Cinnabar, Montana, which was a few miles northwest of Gardiner, Montana, and people would climb onto horse-drawn coaches there to enter the park. In 1903, the railway finally came to Gardiner, and people entered through an enormous stone archway. Robert Reamer, a famous architect in Yellowstone, designed the immense stone arch for coaches to travel through on their way into the park. At the time of the arch's construction, President Theodore Roosevelt was visiting the park. He consequently placed the cornerstone for the arch, which then took his name. The top of the Roosevelt Arch is inscribed with "For the benefit and enjoyment of the people," which is from the Organic Act of 1916.

Other Historic Sites

The list includes: the Engineer's office, designed in 1903 by Hiram Chittenden of the U.S. Army Corps of Engineers; Scottish Rite Chapel, 1913; Capitol Hill, former site of Superintendent Norris' headquarters blockhouse; Kite Hill cemetery, 1880s, containing graves of early settlers

and employees; Reamer House, designed in 1908 by well-known architect Robert Reamer, an example of Prairie-style architecture; Haynes Picture Shop, photographic studio used by the Haynes family; old roads, railroad beds, bridges; and historic structures in Gardiner.



#### Did You Know?

Prior to the establishment of the National Park Service, the U.S. Army protected Yellowstone between 1886 and 1918. Fort Yellowstone was established at Mammoth Hot Springs for that purpose.

## **Mammoth Area NPS Visitor Facilities**

## **Albright Visitor Center & Museum**

The Albright Visitor Center and Museum open seven days a week—will be closed on Saturday, November 11th for Veterans' Day and Thursday, November 23rd for Thanksgiving. The visitor center is located at Mammoth Hot Springs, five miles inside the North Entrance and at the northwest corner of the upper loop of the Grand Loop Road. The visitor center and all the red-roofed, many-chimneyed houses down the street from it were built by the U.S. Cavalry during a time when this was "Fort Yellowstone," an Army post dedicated to protecting the national park. Although the soldiers left after the Park Service was created in 1916, outwardly the old fort has changed little from



the time of Army residency. Fort Yellowstone, comprised mostly of this block and the two rows of buildings behind it, is one of the best remaining examples of a 1900-era cavalry post.

The visitor center (formerly bachelor officers' quarters) now houses a museum with its major theme being history: Native Americans (pre-1800), the mountain men (1807-1840), early exploration (1869-1871), the Army days, and early National Park Service. In early 1998, new exhibits with a predator-prey theme were installed upstairs.

Of special note are the Moran Gallery where fine reproductions of watercolor sketches by the painter and expeditioner Thomas Moran are displayed and the Jackson Gallery where original photographs by William Henry Jackson, also of the 1871 Hayden Survey, are exhibited.

There is a theater in the visitor center where Park Rangers show film and video presentations every half hour in summer and on request in winter. Films include **The Challenge of Yellowstone**(1979, 25 min) on the history of Yellowstone and the evolution of the national park idea and **Thomas "Yellowstone" Moran** (1997, 12 min) on Moran's contribution toward the establishment of Yellowstone National Park and are shown year-round.

The Yellowstone Association has a sales area near the information desk in the visitor center.

### **Backcountry Office**

The Division of Resource Management and Visitor Protection operates a backcountry office inside the visitor center during the summer months. This office issues backcountry camping permits, boating permits, fishing permits, and general information.

# **Frequently Asked Questions at Mammoth Hot Springs**

## Q. Are the springs drying up?

**A.** No, but they almost surely look different from the last time you saw them. Most of these springs are intermittent in their activity. The direction of flow down the hillside and the amount of water discharged by the springs changes all the time. Those of us who live here and are lucky enough to visit these springs often notice changes even on a day-to-day basis. We think that although individual springs dry up, there are at the same time new springs forming and other springs that become more active so that the overall volume of water discharged by all the springs remains fairly constant. Just because it doesn't look the same today as it did last time you were here doesn't mean that it won't look the way you remember again some day.

#### O. Are the elk outside the visitor center tame?

**A.** No, but they have, to some degree, lost their fear of humans. They are still unpredictable. During the rut or mating season, the bull elk are extremely aggressive and are agitated easily. In the fall of 1994, a couple of dozen vehicles were damaged by the bulls attacking the cars. In the spring, cows with calves can also be dangerous if approached too closely.

## Q. What were these old buildings?

**A.** The row of stone and wooden buildings facing the Mammoth Hotel were the officers' quarters for the U.S. Cavalry from 1891 to 1918. Take the <u>Fort Yellowstone Online Tour</u> for more information.

### Q. Can we swim in the hot springs?

**A.** It is illegal to swim in park thermal features (it damages the resource and is very unsafe), but you may swim in bodies of water fed by runoff from thermal features. An established spot is on the Gardner River two miles north of Mammoth on the North Entrance road; this spot is known as Boiling, or Hot, River. It is only open during daylight hours, and it temporarily closes during periods of high water.

## Q. What can we do at Mammoth in the winter?

**A.** You can try snowmobiling, snowcoach tours, cross-country skiing, snowshoeing, ice skating, hot tub rental, soaking in Boiling River, wildlife observation, self-guided tour of Fort Yellowstone and the Mammoth Terraces, ranger programs, Albright Visitor Center (museum and films), and/or drive to Cooke City.



#### **Did You Know?**

Lake trout are an invasive species of fish that is decimating the native cutthroat trout population in Yellowstone Lake.