YOUR PLAN: The buffalo jump, an ancient hunting technique, took advantage of the cliffs that commonly border creeks and rivers in the plains, as here above the Grand River. To view what is left of the Shadehill Buffalo Jump, step out to look through the fence, on left, across the bay to the steepest cliffs above the lake. Thick juniper trees fill the near draws and on the other side of them are drop-off cliffs and the slump of earth below the buffalo jump.

Or to view the jump from across the lake, drive to the campground on the lake’s northside, noting the recent addition of historic signs. If you

Directions from Lemmon to Site 6:

- Drive 15.5 miles south of Lemmon, on Hwy 73 past the Summerville Store and Café.
- Turn right (west) on Hugh Glass Road, for about 1.5 miles and stop near the sign “Shadehill Dam and Reservoir, Shadehill Unit,” just before cattle guard. Park your vehicle facing the lake.

45 44 57.84N 102 11 58.39W

To view the buffalo jump from the north side of Shadehill Reservoir, return to Sommerville Café, then turn left, west, immediately north

(continued)
have time, include Sites 7 and 8 to your day’s tour or stay overnight in Hettinger, Lemmon or Bison or your selected campsite.

FOR THOUSANDS OF YEARS BEFORE THEY HAD HORSES

AND GUNS, Native Americans in the northern plains knew the secrets of the buffalo jump. Research shows that a Canadian buffalo jump near Lethbridge, just north of the border, was used for over 5,600 years. It is estimated that buffalo were hunted for 12,000 years.

The rugged, broken terrain of the northern plains was well suited to buffalo jumps. Grassy plateaus above steep, rocky cliffs often border rivers and creeks—as seen here along both the North and South Grand. Buffalo herds frequently grazed these plateaus. A carefully managed stampede could drive them over the edge.

Two layers of buffalo bones on the face of the cliff opposite were clearly visible and well known locally. Dorothy Durick Kroft of White Butte told us of going there on a grade school field trip during the 1920s to see the bones. Neighbors used buffalo skulls from the site to decorate their flower beds.

Archer Gilfillan, author of the classic book *Sheep*, described this cliff in 1939, before the dam and before the bones were mined during World War II:

South of Lemmon, SD, 13 miles to Shadehill and then three miles west on a scenic road along the Grand River, is what has become known as the mass buffalo burial. This is a mass of buffalo bones exposed in a steep bank on the south side of the river. The river bank at this point is about 150 feet high. The bones are in two layers. The first layer 12 feet thick, is about 25 feet below the top of the bank. Beneath this is a 4-foot layer of earth. Then comes a second 4-foot layer of bones, the bottom of which is still 100 feet above the bed of the river. The two layers of bones are exposed for approximately 100 feet up and down the river. Many of the bones
are well preserved, although not fossilized. Horns and teeth are intact and there are large masses of almost indestructible stomach contents.

Recently South Dakota’s Department of Interior, Bureau of Reclamation, identified this cliff as a buffalo jump. A sign in the campground north of Shadehill reservoir says, “Directly across the lake lies one of the most significant prehistoric finds in the area—a bison jump. American Indians drove the bison to the cliff, where they fell to their death. The hides, bones and meat were harvested and used throughout the year.”

During World War II there was great demand for bones, used in making explosives. People on the home front did what they could to help the war effort, and this is what happened to the Shadehill buffalo bone site, according to a neighbor, Don Merriman, who lives near the dam. In the early 1940s the land owner bulldozed off the top of the hill, uncovering the top layer of bones. He then scraped out that layer and the next, loaded and shipped them by railroad to munitions factories on the West Coast.

This was called mining bones. “Many buffalo jump sites were vigorously mined. . . to the end of WWII,” says a Canadian source. “Much of the natural phosphorus extracted from the bones went for the manufacture of munitions.”

The earthen dam, at the far right, was completed in 1951, damming up the combined waters of the North and South Grand. The only bones remaining apparently lie deep under water, likely disintegrated over the years.

A successful jump depended on having a large number of animals. It was impossible to stampede a small herd of buffalo over a jump-off, explain Marcel Kornfeld, George Frison and Mary Lou Larson in Prehistoric Hunter-Gatherers of the High Plains and Rockies. The leaders would see the danger and turn back or dodge off to the side.

When Indian scouts found a sizeable herd grazing on a flat above a cliff—and the wind was right—they made plans to stampede them. The herd had to be prevented from stampeding at the wrong moment, or all was lost. The entire herd could escape.

No one knew their prey better than did these seasoned hunters of the plains. They sensed the best way to direct each hunt—how to entice
curious buffalo closer to the edge, when to drive hard and how to hide safely as they plunged over.

Religious rites, traditional dancing and prayers played an important part in the hunts. These were people without horses or guns. They prayed for courage, skill and teamwork as well as cooperation from the buffalo.

Women, children and dogs hid behind rock and brush piles at intervals on both sides of a wide drive line funneling toward the cliff, ready to leap out waving blankets at the right moment. Drive lines were important in manipulating the herd and keeping it on the predetermined path. Evidence shows they extended as far as a mile and a half to the cliff. Hunters unobtrusively formed a semicircle behind the herd.

Often the buffalo could be teased to the very edge of a cliff by the medicine man. Dressed fancifully, perhaps in wolf skins, he attracted their attention and excited curiosity by prancing and bowing, alternately appearing and disappearing. The closest buffalo began to watch and approach. Then they began to chase him, eventually stampeding toward the brink.

George Bird Grinnell wrote that the medicine man who brought the buffalo to the drop-off zigzagged this way and that, always attempting to lead, never to drive. “The driving began only after the herd had passed the outer rock piles, and the people had begun to rise up and frighten them,” he said.

Panicked, the buffalo stampeded toward the precipice in a great mad
run, charging blindly after their leaders, gaining speed, faster and faster. With the mass of huge horned animals ramming against them from behind, the leaders lost the power to stop. Too late they saw the danger—and plunged over the precipice, landing in a fatal pile-up on the rocks below.

Scrambling down the cliff, hunters with sharp spears, stone knives and clubs finished off any crippled animals below and began the work of skinning and butchering.

Experts today are looking more closely at other natural features, in addition to cliffs, that smaller groups of hunters could use for slaughtering buffalo. One is the dry gulch buffalo trap, called *arroyo trap* by southwestern archaeologists.

An example of this type of terrain can be seen at Site 5 in a steep draw that drops abruptly from the plateau down to the South Grand River below. At the top is a natural trap with high steep sides.

If buffalo moved up this gulch, tempted by the well-watered grasses, they’d turn around at the top when they came against the steep walls. Except—when well-armed hunters attacked from behind and above, firing arrows and spears, piling up dead animals to quickly block their exit.

Evidence of such buffalo traps are found not far off in the Powder River area in eastern Wyoming and Montana. Drive lines show the buffalo were hazed for some distance below to bring them into the gulch itself. With skilled hunters stationed along the drive line, alternately pressing and holding back, the buffalo were likely turned up the gulch before they realized the trap.

Only high steep sides could hold the agile buffalo, who have been described as capable of leaping six feet straight up and rapidly plunging through rugged canyons, despite their great size and heavy gait.

Although research has focused on big community hunts, non-community buffalo hunting such as these traps is beginning to tell its own story, say Kornfeld, Frison and Larson. They speculate that more buffalo were probably killed this way than by large buffalo jumps.

*(For more information see Chapter 7: Way of the Hunt in the companion book Buffalo Hoofbeats across the Plains.)*
Side Trips

Shadehill Recreation Area

Just 14 miles south of Lemmon is Shadehill Recreation Area, which includes most of the land surrounding Shadehill Reservoir. While enjoying this 5,000 acre lake you can swim, fish, water ski, sail, canoe, hike, view and photograph wildlife and waterfowl, or just lie back on the sandy beaches and take in the sun. The area offers a treat for history buffs as well. Well maintained campgrounds, rental cabins, boat ramps, swimming areas and numerous picnic spots are along the beautiful shoreline. A number of signs give historic information, including the buffalo jump. For reservations contact SD Game, Fish and Parks hot line (800-710-2267); Shadehill office direct (605-374-5114) or register online (campsd.com).

GPS: 45 45 50.77N 102 14 01.72W

Hugh Glass monument and Grand River Scenic Route

- Drive across the cattle guard at the sign “Shadehill Dam and Reservoir, Shadehill Unit” into the pasture.
- Continue on Hugh Glass Road about 2.5 more miles to the Hugh Glass Monument (total of 4 miles from highway). Then return, or continue on the Grand River Scenic Route for 10 miles above the lake and through the grasslands.

GPS: 45 44 26.32N 102 13 55.83W

A monument marks the place where legendary mountain man Hugh Glass was attacked by a grizzly bear and left to die by his companions. While he came up the Grand River with a party of trappers in 1823, the Arikara Indians attacked twice and killed a number of their men. Shortly after their second assault, Glass was attacked by a grizzly bear while scouting near the forks of the North and South Grand in a heavily wooded area, now under water. The grizzly slashed and clawed him so badly that he lost consciousness and hovered near death. Two men left to guard him—and bury him after his death—grew increasingly anxious to get out of Arikara territory and rejoin their party. After several days, certain of his imminent death, they took his gun and knife and left.

But Glass did not die. Alone and defenseless he revived and in a nearly unbelievable feat of endurance, his leg badly maimed, he began to crawl back the way he had come. Wary of the vengeful Arikara, he travelled at night. Starving and without the means to procure food, he chased wolves away from a carcass, occasionally caught small animals and birds and finally reached Fort Kiowa, near Chamberlain, 200 miles away. Legend has it that Hugh Glass swore revenge against the two men who deserted him, but forgave them when he met them again.

Below the monument and off to the right (facing the lake) is what remains of the buffalo jump. “The steep bank just below this hill was the site of a large buffalo jump,” notes a Forest Service map on the Grand River and Cedar River National Grasslands.

Also, on a high slope nearby, are the large now-faint letters US7th marked by a
7th Calvary detachment in 1891 on their way to protect settlers during an uprising scare following the death of Sitting Bull.

**Prairie dog town**

- Go south of Lemmon 10 miles on SD Highway 73
- Turn east (left) about 5.25 miles on Lemon Lake Road. Large prairie dog towns are on both sides of the road with preferred parking areas for viewing or hunting.

GPS: 45 48 16.10N  102 03 56.10W

Endlessly fascinating, the highly social prairie dogs entertain children and adults alike. They raise the alarm, chatter and “kiss” by touching noses. Your family may find getting acquainted with these cute little animals is irresistible.

As you approach, the nearest sentinels cry out a warning.

“Eeeka! Eeeka!”

They stretch up tall on their hind legs, in their great excitement sometimes flinging themselves in the air.

Run for your holes! is the message they send, and their listeners do just that. They drop what they’re doing—whether socializing at a friend’s mound or enjoying a stem of new grass in a nearby draw—and run for the safety of home. There they pause to check you out.

As you come closer the first sentinels disappear down their holes, while others take up the cry. Everyone in the town is watching now, yipping and calling, stretching high on their dirt mounds, which give them a higher vantage point or, closer up, peering out of their holes with round black eyes.

When you advance they disappear. But if you wait quietly, in a few minutes they all begin poking up their heads to see if you are still there, scolding from a safe distance, eyeing you warily. Then they return to nibbling, chattering and socializing.

The young are born in spring. Often when they are old enough, you’ll see
whole families standing up together on their mound—two or three tiny slim bodies stretched tall beside the adults, all alert against marauding coyotes—or a human.

Over a dozen prairie dog towns, large and small, inhabit the Grand River grasslands pastures. We’ve included this easy-to-reach dog town on our tour, and you will likely see others as you drive around the government pastures. Watch for an open area with grass nibbled short, heavily pock-marked with fresh dirt mounds and golden tan little animals racing here and there, short tails flipping. Listen and you might hear their chatter and cries in the distance.

Hunting is encouraged to keep a balance of numbers and available food. As with other wildlife—elk, buffalo and even wild horses—prairie dog numbers can quickly get out of hand in the ideal conditions of wildlife refuges. Hunting requires a South Dakota varmint or other hunting license, hunting open year round. If interested, contact South Dakota Game, Fish & Parks (605-223-7660, www.gfp.sd.gov) or the Forest Service Ranger District for locations (605-374-3592).

Petrified Forest in Lemmon

- Turn north off Hwy 12 for five blocks, at Lemmon’s Main Street.

GPS: 45 56 23.23N 102 09 33.28W

Lemmon’s unique Petrified Forest, the largest of its kind in the world, covers an entire city block with castles, spires, pillars, walls, fountains, a grotto and a two museums, all built of petrified wood, along with pyramids of sandstone cannonballs. Beautiful specimens reveal in full color the tree rings, precise holes and delicate swirls where branches once grew from these stone trees—a geologist’s mecca.

Primarily built between 1930 and 1932 it is a product of earlier times, when much of the rock was hauled in by horse and wagon. In 1989, for South Dakota’s Centennial celebration, a $60,000 addition was built, including a waterfall that honors the citizens who constructed the original park.

From these fossils and more, we know that once this country was part of a vast swampy inland sea. Large trees grew 12 feet in diameter and over 100 feet tall. Petrified trees from this area include Cypress, Dawn Redwood, Ginkgo, Maple, Sycamore, Palm, Cedar, Poplar, Walnut, Box Elder, Elm and Sequoia. Most of the petrified wood here comes from the Paleocene era, 55 to 67 million years ago, when vast swamps and forested floodplains covered the land. Some from the Hell Creek Formation dates back to the older Cretaceous period 145 million years ago when Tyrannosaurus Rex, Triceratops and other dinosaurs stalked this land. Dinosaur fossils and dinosaur clawed stones, including nearly complete specimens excavated locally, are exhibited in area museums here in Lemmon, and in Bowman, Dickinson, Bismarck, ND, and Rapid City at the South Dakota School of Mines & Technology.