

Buffalo, Early Range Users

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Long before the American pioneers laid eyes on the mountains and plains of North America, there were "cattle" on our western ranges. Bison roamed the hills, migrating from winter to summer grazing areas, making seasonal use of these lands much as our domestic livestock do today. The bison and the domestic cow belong to the same family (Bovidae) and are genetically similar (they can interbreed and produce fertile offspring). They are also very similar in their grazing habits and preferences.

Ancient bison were larger than the modern "buffalo" and co-existed with other giants of their day like the woolly mammoth. We're not sure when woolly mammoth became extinct or when the ancient bison changed to smaller form. In 1971 archaeologists discovered the remains of a prehistoric man's meal at a site 18 miles west of Idaho Falls, Idaho, which consisted of bones from a woolly mammoth and a bison. Carbon dating showed that the elephant leg bone was 12,250 years old. The bison bones are presumed to be the same age.

This discovery gave a clearer idea about the evolutionary progress of modern bison and supported the theory that bison continually lived (and were hunted by prehistoric men) in the upper Snake River country of Idaho for many thousands of years. Earlier discoveries had already unearthed 8,000-year old buffalo bones at other sites in Idaho. But the 12,250-year-old bones gave even stronger evidence that the ancient giant buffalo did not become extinct, but merely fluctuated in herd numbers and body size (due to climate changes and food availability) and gradually changed into our modern, smaller type of buffalo.

One archaeologist's theory, after studying the bones of other animals that competed with the bison for food, was that bison may have become smaller in body size and in numbers at a time when North America was hotter and drier, after the Ice Age, when there wasn't much grass. Many large herbivores died off. The bison herds dwindled, and evolution created a smaller animal—better able to survive with less feed. Starvation and natural selection worked together to produce a smaller buffalo. The giants died off more readily or their nutritional state made it more difficult for them to reproduce, and eventually the body size of the whole species was reduced as Mother Nature ruthlessly culled the herds. When the climate became more like the present, bison populations increased again, but the animals are still genetically smaller in size than their early giant ancestors.

One type of buffalo that roamed the Northwest until the

1800's has become extinct. The buffalo west of the Continental Divide were called mountain buffalo (*Bison bison athabasca*). These were smaller, more active, more timid, with lighter and silkier hair than the bison of the plains (*Bison bison bison*). The plains buffalo were more numerous and had a much wider range.

Mountain buffalo lived in an area which is now Idaho, Oregon, and Washington, and migrated north and south somewhat with the seasons. In southwestern Idaho there were also some plains buffalo, but most of the buffalo in the Pacific Northwest were the smaller variety, the mountain buffalo.



Photo by Michael Thomas

Buffalo horn shells.

Many old buffalo bones, skulls, horn shells, etc., have been found in the Northwest, especially in areas where the Indians killed large numbers. In southwestern Idaho between the Snake and Owyhee rivers there are two sites where the Indians herded the animals off rocky cliffs to their deaths. Other "buffalo jumps" have been found in Lemhi County and Custer County in Idaho and in other locations in the Northwest.

Buffalo jumps usually consist of rimrock terrain with steep cliffs, where the cornered bison were forced to leap from high ledges and were killed or injured on the rocks below. At one site in Owyhee County, stone fences were built at the outer edges of the ridge to keep the stampeding buffalo from escaping, directing them to the cliff's edge. When the leaders got to the edge they could not stop, forced on over by the stampeding herd behind them. Carbon dating of weapons used during the hunts showed the arrows and spear points to be 4,000 years old.

A buffalo jump near Challis, Idaho, was confirmed by archaeologists as having been used by Indians between 1,500 A.D. and 1,750. Buffalo jumps were not used after

the Indians acquired horses. Western tribes obtained horses from the Spaniards in the Southwest, beginning about 1680. Raiding and trading from tribe to tribe resulted in spread of horses northward until most of the Indians were mounted by the time the American explorers entered the West in the early 1800's. After becoming mounted, the Indians hunted buffalo from horseback and there was no need to use the jumps. The use of horses in hunting these animals made the hunting much easier, and contributed to near extinction of the buffalo.

The numbers of buffalo fluctuated, possibly due to climate, feed, and hunting pressures. When Lewis and Clark came through Idaho in August of 1805, they saw no buffalo and the local Shoshoni Indians were starving for lack of game, living on berries, roots, and what salmon they could catch along the river. At that time the Indians in the Lemhi Valley obtained buffalo meat for their winter food supply by making an annual fall hunt in eastern Montana where the plains buffalo were plentiful.

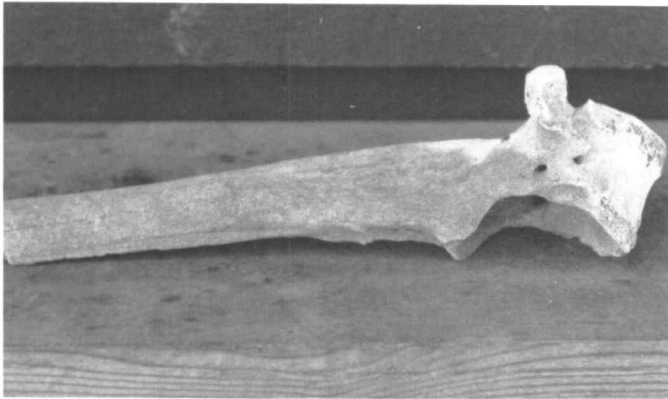


Photo by Michael Thomas

Buffalo "hump" vertebra. The vertebrae in the hump area have long spines.

A few years later, however, explorers and fur trappers found mountain buffalo in what is now eastern Idaho. In 1824 Alexander Ross led a party of fur trappers through the Big Hole basin in Montana, over Lemhi Pass into Idaho, going down the Lemhi River and up the Salmon. They reported seeing many buffalo along the way. One valley, possibly the Pahsimeroi Valley or Round Valley near Challis, had an estimated 10,000 buffalo in one herd.

In 1825 Peter Skene Ogden led the Hudson Bay Company expedition across Bannock Pass into Idaho in February and found buffalo by the hundreds. The buffalo were possibly wintering in the Lemhi Valley or may have been trapped there, unable to go to more southern ranges. Ogden reported very deep snow in the passes to the south. Ogden wanted to go south into better beaver country and in late March sent six men on horseback to explore one of the passes to find a way through. Over the last 12 miles, they drove about 600 head of buffalo in front of them to break trail through the deep snow.

There are few reports of mountain buffalo in the Northwest after the 1840's and 50's. It is believed that severe winters or disease (or both) and hunting pressure

by Indians and early trappers caused their decline and disappearance.

The buffalo were gone. These large herbivores had grazed the western rangelands for thousands of years. The ecology of these areas and the native vegetation and grasses had evolved under grazing by buffalo. These ponderous bovines had travelled all over the mountains, grazing the higher elevations and more northerly ranges in summer, migrating to lower valleys or going farther south for winter where deep snows did not cover the grass. In some places the deep trails made by migrating buffalo can still be seen. Even today a cowboy or hiker can occasionally run across a buffalo skull or a horn shell, evidence of mountain buffalo that roamed these hills.

The buffalo thrived, most years, eating the native grasses that had adapted to being continuously harvested by grazing animals. The buffalo grazed in herds, often covering an area in even greater numbers than our domestic livestock do today. But the buffalo didn't stay long in one place. They grazed out an area and then moved on. The way buffalo used the land was similar to one type of present-day range management method called short duration, high intensity grazing—using an area very thoroughly and then moving to another, giving the grazed portion time to regrow before grazing it again. This is often more healthy for the range than leaving a smaller number of animals in one area for too long a time.

The grazing animal has a unique relationship with the grass. He depends on it for food, and it depends on him for cultivation, better seed planting, and harvest. Grass can survive without being grazed, but it is never as healthy or vigorous as when periodically used by large herbivores. Grazing stimulates plants to greater growth and higher rate of reproduction and spreads the seeds over wide areas (some of the seeds that go through the bovine digestive tract remain viable). Grazing is the natural condition; this is the way the grasses have developed over the last several million years.

Under natural conditions, the rangelands historically grew a wide variety of plants (grasses, forbs, shrubs) that support a variety of animals, both browsers and grazers. With a variety of animals using the vegetation, no one species or type of plant is overused or killed out. Without grazers, the grass crowds out the shrubs; without browsers the shrubs crowd out the grass. The mountain buffalo had an important ecological niche and was crucial to the health of the range. This niche needed to be filled, after we lost the buffalo. Today it has been filled by his close relative. With well-managed grazing by livestock, we can assure healthy rangelands for years to come, supporting the same native grasses or other plants that have thrived since prehistoric times, and supporting an important large herbivore that fits into the ecological picture very well, harvesting an annually renewable resource and converting it into human food.

We still have the native browsers—deer and antelope. The elk and bighorn sheep use some grass, but not to the extent the mountain buffalo did. We lost a very important

part of western ecosystem when we lost the buffalo. This would have put thousands of acres of rangeland into a stagnant and very unnatural situation except for one saving grace: we substituted domestic livestock for the buffalo.

Today our ranges are in better shape than they have been for a long time. Once again we are establishing a

balance between the grass and the grazer. Making seasonal use of the range (and rotating pastures, not staying overlong in any one area), with a reasonable number of livestock, we are simulating an earlier era when these lands were seasonally and rotationally grazed by the wandering herds of mountain buffalo.

Impact of Elk in Catron County, New Mexico

James M. Jackson

In 1909 the last Merriam's elk, native to the Gila Forest was reported killed by a commercial hunter, and that species of elk became extinct. In 1936 the first 25 head of exotic Rocky Mountain elk were introduced on the Gila National Forest (Marston, 1990). Since 1936 the elk herd has increased to levels that are now creating conflict over the concept of multiple use and could threaten the habitat. How many livestock and elk can the Gila National Forest and the adjoining BLM and private lands sustain?

A BLM news release states that "the improving trend in rangeland condition is reflected by the large increases in wildlife populations since 1960. Elk, for example, have increased almost 800 percent, from 18,278 in 1960 to 142,870 in 1988." (Zilicar, 1990). Estimates of the increase in the elk herd in the West, are from less than 100,000 in 1930 to about 600,000 in 1987 on all the Federal Lands (Thomas, 1990). The New Mexico Department of Game & Fish has increased elk hunting licenses on public lands by 47% from 9,500 to 14,000 over the past five years. "Given a chance, elk have done well..." (NM Dept. of Game & Fish, 1989).

The utilization of the forage by livestock and elk may differ, but they often eat the same grasses and browse. As a result, both have to be managed to protect the natural resources. A few years ago on the Yellowstone Park, it has been estimated that 25% or 3,125 elk starved to death (winter kill) out of about 12,500 animals (Lemke & Singer, 1989). Before those animals died, what negative impact did they have on their habitat and how long will it take the range to recover with the continued pressure of the remaining animals?

A study by the Colorado Division of Wildlife on the impact of elk winter grazing on livestock production over the past three years showed that "elk grazing during the winter influenced the performance of cattle during spring"

in direct relationship to various elk densities. "The birth weights of the calves of the cattle tended to decline relative to elk density," as well as effecting the conception rates of the cows (Hobbs & Baker, 1989). There can be no question that the density of elk impacts livestock.

Catron County consists of almost 4.5 million acres with about 2,800 people. Fifty percent of the land is controlled by the U.S. Forest Service; 13% by the BLM; 12% by the State of New Mexico; and only 25% private, much of that surrounded by Federal agencies. Because so much of the County is controlled by Federal agencies, the policies and management of the Federal lands has a tremendous effect on the economy and quality of life of the people. A Western New Mexico University study states that "much of the rural economy is dependent upon commodity production with a heavy dependence upon public resources....Elk hunting is very popular in Catron County; however recreation hunting is a nonbase industry with most of the economic benefits accruing outside the County. The total hunting impact on Catron County was approximately \$600,000 while statewide the impact was \$1.6 million for the 1988 Catron County elk hunt. The reason for the difference is that hunters and outdoor recreationists in general, purchase most of their supplies and equipment outside the County, mainly in the urban centers of New Mexico. The local impact in Catron County of cattle from public land ranches for 1988 was \$18.8 million" (Thal 1990).

Background and Procedure

For the past few years the ranchers of Catron County have noted an increase in elk numbers. There has been a noticeable increase in depredation by elk on improved and irrigated pastures on deeded acres. There have also been observations of much greater utilization of the public lands by elk, as well as expansion of their range. The intent of the survey was to create a data base from the livestock industry, that in conjunction with the elk herd