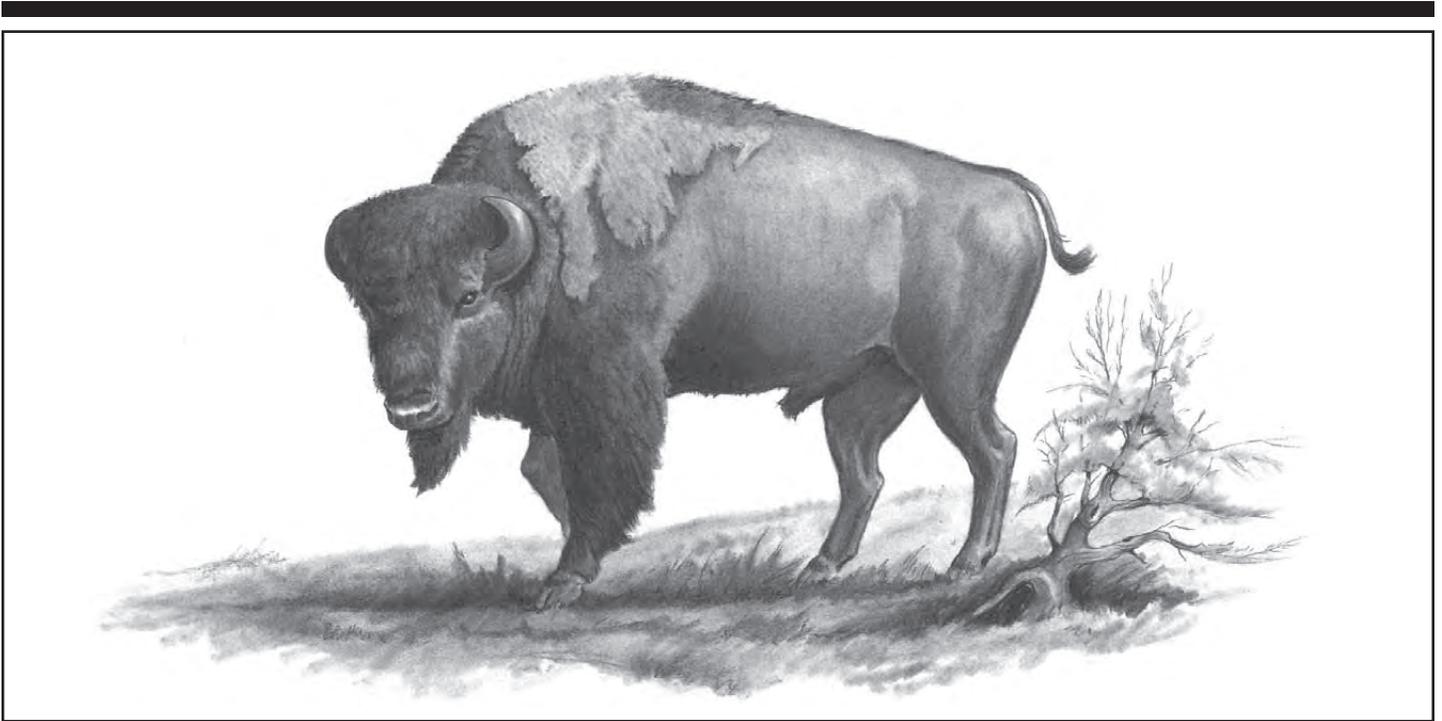


American Bison

(*Bison bison*)



In August 2008 and January 2009, the Utah Division of Wildlife Resources (UDWR) and its partners set a huge milestone in bison management; they reintroduced 44 bison onto public lands in the Book Cliffs of northeastern Utah. The last public lands release in Utah was in 1941. The Book Cliffs project took over 30 years to plan and complete.

For many, bison are synonymous with the American Wild West, a mystic icon of strength, majesty and wild, open spaces. Surprisingly, explorers first encountered them in the east. They once roamed from the Great Lakes to Florida, the Appalachian Mountains in the east to the Sierra Nevada Mountains in the west, from northern Mexico to the seashores of the Norton Sound (Alaska) and the Beaufort Sea (Canada).

Description

Bison, popularly known also as buffalo, are the largest native land mammals in the Americas. Big mature bulls can weigh in around 2,000 pounds and stand up to 6 ½ feet at the shoulder. Females weigh half as much and stand roughly 5 ½ feet. Bison have massive, wedge shaped heads covered in a cape of long, curly, dark-brown or black hair that extends over their humped shoulder and down their front legs. Their hind-quarters in contrast, are covered with shorter, lighter brown-colored hair. Both males and females have short, curved

pointed black horns. Those of the bulls are proportionately wider than those of females (cows).

Evolution

Fossil evidence indicates bison date back over two million years and have evolved through several forms. Bison originated in Asia and one species, an extinct long-horned bison known as *Bison priscus*, likely crossed from Siberia to Alaska and the Yukon at least twice during the ice ages.

Ancestors of bison that made the first crossing moved south as the ice sheets retreated and evolved first into an even larger animal known as *Bison latifrons*, noted for its horn span of over two meters. As the ice ages continued, this bison species gradually became smaller and eventually evolved into today's plains bison, *Bison bison bison*. The plains bison roamed from southern Canada to northern Mexico and most of the 48 states.

The second group of ancestral bison crossed during a later ice age and through a series of its own evolutions, became the wood bison, *Bison bison athabascae*. Wood bison inhabited northwestern Canada and Alaska. It is probable ancestors of the two modern-day bison species hybridized when ice conditions allowed, which is why they are so closely related.

History

Journals kept by explorers, trappers, and early settlers tell of herds covering the plains, stretching out for miles or took days to finally pass through. Exactly how many bison existed back in the fifteenth century will never be known. Conservative estimates run around 30 million and high estimates up to 90 million. Regardless, by the early 1890s naturalist Ernest Thompson Seton estimated their numbers had fallen from 60 million to mere hundreds.

Numerous factors combined to bring down this amazing animal. Its decline took place over a period of about one hundred years. Only the final, massive slaughter took place within a few short years.

The decline of the bison began as horses, escaped or stolen from Spanish conquerors and settlements, became part of the lives of the Plains Indians. Horses allowed the Indians to run with the herds, follow migrations and take more bison than they needed for their own survival. Beaver became scarce around the same time and fashion trends placed premium prices on bison hides for robes. Bison tongue and other exotic meats became delicacies in eastern restaurants as well.

A war had also ended, leaving soldiers with new, more powerful rifles and a yearning for a new life. Gold miners and settlers moved West, and great herds of cattle and sheep spread across the landscape.

Additionally, railroad companies, building lines across the Great Plains, hired hunters to feed the workers. Later the railroad companies marketed opportunities to ride the lines in comfort and kill wildlife for entertainment.

An army, frustrated and embarrassed because it failed to chase down and confine the Plains Indians, also encouraged commercial hunting. They also promoted shooting for sport by providing guns and ammunition. The relentless killing of the bison served to eliminate this vital Indian source of food, clothing and shelter. Exotic diseases, habitat destruction, a drought, and competition with domestic and feral livestock further increased pressure on the species.

By 1866, when workers began building the Union Pacific Railway from Omaha, bison were being killed faster than they could reproduce. The challenge of getting bison hides and meat to market slowed some of the take, but the railway changed this. The new line divided the bison into northern and southern herds. The railroad not only provided a better way to get bison products to the eastern markets, it opened the floodgates to slaughter. In four short years, between 1871 and 1875, the entire southern herd was eliminated. Pressure then moved to the northern herd, which was decimated in less than 8 years.

The bison's own highly developed social-behavioral system also contributed to its demise. Journals kept by those involved in the bison slaughter often referred to bison as being stupid. Bison were not stupid, but ironically, died because they respected their elders.

Bison travel in bands where the oldest bison leads and makes almost all of the decisions. Bands consist of males or closely related females. Female bands usually consist of a lead female, her daughters, granddaughters, great granddaughters, etc., and immature males and females.

Bison hunters took advantage of the bison's social system to kill large numbers of them at a time. When a band of bison was located, a hunter would approach so he was within shooting range but not so close as to alarm the bison. After watching the band to identify the lead bison, usually the largest and oldest animal, the hunter would kill that animal first.

Newer, stronger and more accurate, rifles could usually kill the lead bison with the first shot. The younger bison of the band would hear the shot and see the resulting puff of smoke but did not associate the event with danger. Instead, they looked for a reaction from the lead bison. If the lead bison didn't run because it was dead or dying, then the other band members ignored the danger. If one did start to react, the hunter would shoot it next.

A hunter could kill an entire band within a few minutes as the younger bison waited on their elders to recognize danger and lead them to safety. Once the band was down, the hunter moved in and began skinning animals.

When the hunters ran out of bison on the easily accessible plains, they moved into the mountains where the bison were much more difficult to find and approach. Because of their behavior and a slight difference in their look, many felt the mountain bison were another subspecies.

With the high prices paid for a hide, bison hunting was extremely profitable. Ignoring new laws to protect the bison, hunters first, and then poachers, continued killing bison until there were almost none left. By 1890, the great herds were just a memory, accented by bleached bones and mountains of skulls.

Life History

Bison are grazing animals that make use of open rangeland habitats that support the various grasses they prefer to eat. When grasses are not available they will also eat sedges and even brushy plants. In winter, bison are able to reach plants buried beneath several feet of snow. They do so by digging through the snow with their hooves and pushing

it aside by swinging their large heads back and forth. When snows get too deep in open areas, bison will forage in forested areas.

Bison also use forested areas in the summer for shade and to escape insects. During the heat of the day, they rest or dust bathe in large depressions, or wallows, they create. Though they may seem large and cumbersome, bison can gallop at speeds of over 30 miles per hour. Predators of bison include wolves and grizzly bears. In some places people are allowed to hunt them as well.

Bison are grazers similar to their bovine cousins, domestic cattle. New research indicates bison are a critical component to keeping plains habitats healthy. The bison's preference for grasses increases the diversity of plants and animals on ranges they graze compared to those which are grazed by cattle.

Bison breed or rut in July and August. Congregating in large herds, the males bellow, push, shove and bash heads to establish their dominance. The strongest bulls win the right to court the females and breed. The rust-colored calves are born in May after a 285-day gestation period. Within several hours of being born, they are able to follow their mothers around. By five days of age they are able to graze on their own. They remain in large groups with their sisters, mothers, cousins and aunts until they mature at age two. The males then leave, generally joining smaller bands of young males awaiting their chance to breed when they reach about 6 years of age. Bison can live 15 to 20 years in the wild.

Conservation and Management

Plains bison are native to Utah. In 1776-77, Escalante recorded hunting bison during his expedition through the Uinta Basin near Vernal. Ogden, who led

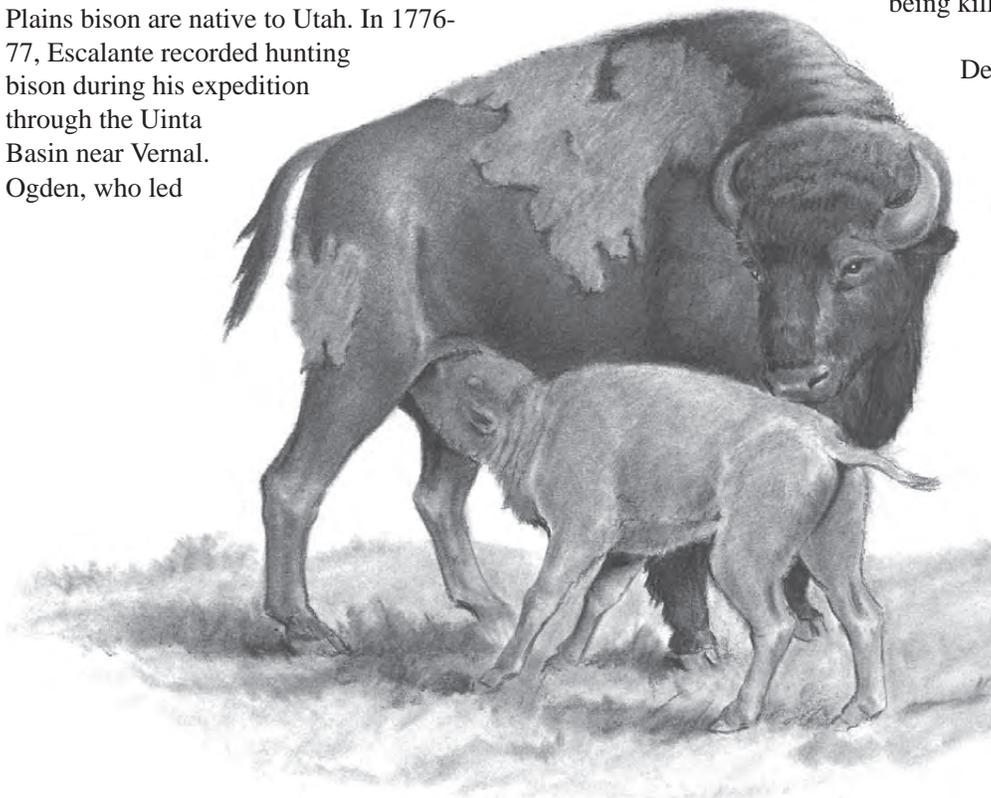
trapping expeditions into Northern Utah in the 1820s, wrote about finding "fine plains covered in buffaloes." The Ashley expedition in 1825 was "Well supplied with buffalo, elk, bear, antelope and mountain sheep." Rock art, journals, skulls and other evidence indicate bison once roamed across almost all of Utah.

With the addition of the Book Cliffs, Utah will have three large (300+), free roaming public herds—more than any other state. The Henry Mountain herd, originally reintroduced into the San Rafael Desert in 1941, grew from three bulls and fifteen cows captured in Yellowstone National Park. The Antelope Island herd existed on the Island when it became a State Park. This herd began with twelve animals purchased from a Utah rancher in 1893. His stock originally came from a private herd in Texas.

Histories such as these are not unusual since the bison existing in North America today are descendents of bison that came from only a few sources. Today's herds of plains bison, both public and private, trace back to Yellowstone or one of five private herds. The private herds usually came into being when a rancher rescued a few calves from the slaughter. Yellowstone's bison are a mix from two private herds and roughly twenty-two wild bison. The only reason those wild bison survived is because they lived in the remote center of the Park. The army, which had encouraged the slaughter of bison just a few years earlier then moved into the Park to instead protect them from poachers.

Wood bison are descendents from one source — roughly 250 bison that resided within the thick boreal forest of Wood Buffalo National Park in Canada and thus avoided being killed.

Descendants of the plains and wood bison now number over 500,000. They may appear to no longer face extinction because their numbers have increased significantly. Viewing numbers alone can however be misleading. Only about 20,000 bison exist on public lands or in conservation herds. The other 95 percent are private or Tribal herds usually commercially raised as ranch animals in place of cattle.



An even closer look reveals more serious problems. Research has shown that almost all of today's herds are not genetically pure and possess genes of cattle. Additionally, some of the herds, including those of Yellowstone and the Tetons, carry brucellosis and other exotic diseases.

Some ranchers who saved bison also tried to cross breed them with their cattle cousins. Such experiments did not produce the hybrid vigor they anticipated and some bison remained reproductively viable. Unfortunately, after a generation or two of rebreeding with bison, there was not a way to visually distinguish between a full-blooded bison and a hybrid. Herd managers' attempts to keep the genetic lines of bison strong by mixing animals from different herd sources, actually ended up causing the reverse. It created herds of hybrid bison.

The Henry Mountain herd is the only herd in Utah free of cattle genes. The Ute herd was formed from numerous bison sources including some that contained wood bison and cattle genes. The bison that formed the Antelope Island herd must have also had one or more cattle in their ancestry. The new herd in the Book Cliffs will also have cattle and wood bison genes due to the fact the herd shares range and genetics with the Ute herd.

It is not known when bison first contracted bovine diseases such as brucellosis and tuberculosis. Bison seem less affected by the diseases and so have remained productive and relatively healthy. This is good news for wildlife managers however, considerable time and money has been spent controlling these diseases in cattle. Ranchers do not want to see their herds reinfected. Controlling the movements of disease-infected herds has become a substantial and emotionally charged issue. Utah is fortunate all its public herds and another large herd, owned by the Ute Tribe are disease-free herds.

All of Utah's bison herds are also free-roaming. While they may be classified as free roaming, bison in these herds are not free to increase in size. Nor are the bison of these herds completely free to roam wherever they want. Bison need large, continuous ranges with summer and winter habitat. If populations were allowed to expand, they would need additional rangeland, which is in high demand for grazing cattle. To minimize competition, Utah's bison managers use a variety of strategies to control sizes of herds including sport hunting, management culling and capture for transfer to other conservation herds or private sales.



The Henry Mountain herd is mainly controlled by sport hunting. Because this herd tests disease-free and is genetically pure, it also is a prime source of bison that are transferred to other herds. The Book Cliffs herd is still building up in size. When it approaches management objectives, public hunting will be used to control this population as well. The size of the Antelope Island herd is maintained mainly through sales and transfers to other herds. Limited hunting is also used, targeting animals too old and ornery to gather up during the Park's yearly roundup.

Bison are big, have a will of their own and can be irritable and dangerous. Fences do not work well to control their movements, and watchers should not approach too closely.

What You Can Do

- Become informed about bison biology, management and various threats to bison survival, especially as they relate to bison ranges, genetic purity, population sizes and exotic diseases.
- Encourage local County Commissioners and state and federal land management agencies to support habitat projects and other management activities that benefit bison such as the acquisition and preservation of bison habitats around existing herds and future reintroduction sites.
- Join an organization that helps preserve western rangelands for wildlife habitat.

Additional Reading

- Boyd, D. *Conservation of North American Bison: Status and Recommendations*. MS Degree Project, University of Calgary, 2003.
- Flores, D. "Bison Ecology and Bison Diplomacy: The Southern Plains from 1800 to 1850." *The Journal of American History*, Vol. 78, No. 2, 1991.
- Freese, C., et al. "Second Chance for Plains Bison." *Biological Conservation*, Vol. 136, Issue 2, 2007.
- Gates, C., et al. *The Ecology of Bison Movements and Distribution In and Beyond Yellowstone National Park*. Review Paper, University of Calgary, 2005.
- Meagher, M. *The Bison of Yellowstone National Park*. National Park Service, Scientific Monograph Series, Government Printing Office, Washington D.C., 1973.

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Written by Ron Stewart, Conservation Outreach Manager,
Northeastern Region, Utah Division of Wildlife Resources;
Bison Artwork (pages 1 & 3): Allen Nielson

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