



# Lessons Learned from Bison Restoration Efforts in Utah<sup>i</sup> on Western Rangelands

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## On the Ground

- Bison are considered the keystone species of the Great Plains but widespread slaughter led to their near extinction.
- Utah has two wild, free-ranging herds on public lands managed as wildlife though hunting. Both herds are descended from animals reintroduced to the Henry Mountains in the 1940s and more recently the Book Cliffs in 2008.
- Key elements for the successful ecological restoration of bison include:
  - Legal designation of bison as wildlife in the state
  - Genetically-pure, disease-free source
  - Large expanses of habitat—they take a lot of room
  - Potential conflicts must be identified and addressed in a transparent manner
  - Mutual purpose and trust with all affected stakeholders is essential; i.e., ask, How can we have both sustainable livestock grazing and a viable bison herd on the unit?
  - Active management to address changing situations and maintain herd size at a sustainable level

**Keywords:** bison, wildlife restoration, Utah, collaboration, public land, trust.

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When Lewis and Clark first crossed the continental divide, the plains bison (*Bison bison*) numbered around 30 million animals and was considered the dominant keystone species of the Great Plains grasslands.<sup>1,2</sup> However, widespread slaughter led to the near extinction of the species. Over a century later, Cahalane<sup>3</sup> stated that there were about 5000 bison remaining in the United States, and all of these animals were behind fences except those in Yellowstone National Park.

Currently, there are an estimated 500,000 bison in the United States. Unfortunately, the vast majority is maintained in private herds as domestic livestock.<sup>4</sup> Less than 11,000 are found on public lands and held as public trust animals.<sup>5</sup> This has spurred numerous efforts to reintroduce new bison herds. In spite of a nationwide effort led by the Department of Interior,<sup>5</sup> the ecological restoration of bison in the United States has proven difficult. Several issues have been identified as impediments including cattle gene introgression, the potential spread of brucellosis, the nomadic behavior of wild herds, and legal jurisdiction.<sup>5</sup> Restoration efforts initiated by private conservation groups and Native American tribes<sup>4,5</sup> have been successful in restoring genetically-pure and disease-free herds in eastern Montana and on the Blackfeet Reservation, but these herds are not free-ranging and are not managed as public wildlife.

In 2016, there were six free-ranging bison herds in the United States comprising approximately 6500 animals (Table 1).<sup>4</sup> Three herds are managed by the National Park Service in the Grand Canyon, Grand Tetons, and Yellowstone national parks, and three are managed by state wildlife agencies in Utah and Alaska. Of those, 5500 bison in the Yellowstone and Grand Teton herds are considered genetically pure (i.e., showing no signs of cattle gene introgression) and free ranging, but are not disease-free. About 500 bison occur in the Book Cliffs and Grand Canyon herds that are disease free and free ranging, but not genetically pure. The remaining 500 bison found in the Henry Mountains and Copper River herds are considered disease free, free ranging, and genetically pure. There are two additional public trust herds in Utah and South Dakota at Antelope Island and Custer state parks, respectively, but both herds may have some cattle gene introgression and are managed through an annual culling process.

<sup>i</sup> The 70th Annual Society of Range Management Annual Meeting will be held in St. George, Utah January 29 – February 2, 2017. This article highlights Utah range science and management. For more information on SRM Red Rock & Rangelands 2017 see <http://rangelands.org/srm17/>.

**Table 1. Free-ranging bison herds found on public lands in the United States, 2016**

Herd	Lead agency	Fenced or ranging	Disease	Genetic status	Herd size	Acres of habitat
Book Cliffs	UDWR	Ranging	Disease free	Some introgression	200	1,400,000
Chitina/Cooper River	Alaska Fish and Game	Ranging	Disease free	No introgression detected	110	100,000
Grand Canyon	NPS	Ranging	Disease free	Some introgression	300	23,000
Grand Teton	NPS	Ranging	Brucellosis positive	No introgression detected	900	360,000
Henry Mountains	UDWR	Ranging	Disease free	No introgression detected	325	325,000
Yellowstone	NPS	Ranging	Brucellosis positive	No introgression detected	4600	2,200,000

Abbreviations: NPS, National Park Service; UDWR, Utah Division of Wildlife Resources.

Two of the free-ranging herds are found in the state of Utah. Both are free ranging, occur on public land, and are managed as wildlife through hunter harvest. Both populations were initiated through transplants with the Henry Mountains bison herd started in the mid-20th century, and the Book Cliffs herd being started much more recently in the early 21st century. The purpose of this paper is to document the process that enabled these transplants to be successful and to suggest a model that may be used by other entities to restore free-ranging bison onto public lands in the future.

### Early Restoration Efforts

Bison are native to Utah<sup>6</sup> and are depicted on at least 19 Native American rock art panels scattered throughout the state. Additionally, early explorers reported observations of bison along the Green River and near Utah Lake, whereas early trappers reported bison throughout northern Utah. However, by 1841, mountain man Osborne Russell, noted that bison had left the Great Salt Lake Valley, only returning during times of winter. Mormon pioneers utilized bison on their westward trek as far west as the Sweetwater River in Wyoming and as late as 1857. William Clayton, who served as a scout for Brigham Young, reported signs of bison in the Salt Lake Valley in 1847. Jones reported finding two old bison skulls on the Manti National Forest in central Utah in the 1980s (D. Jones, personal communication, 2006).

Bison are believed to have been extirpated from Utah prior to statehood in 1896, as no further records were made of wild, free-ranging bison in the state. The species was mentioned in early wildlife laws passed by the Utah Territorial Legislature, but by 1919 bison were no longer classified as a game animal.<sup>7</sup>

In 1941, Dr. 'Buffalo Bill' William Goetzman, chairman of the Carbon-Emery Wildlife Federation, collaborated with the Utah State Department of Fish and Game (UFGD, currently Utah Division of Wildlife Resources [UDWR]), United States Division of Grazing, and local stockmen to move bison into the

state.<sup>8,9</sup> The Henry Mountains herd was started when 18 bison (3 bulls and 15 cows) were transplanted from Yellowstone National Park to the Robber's Roost Ranch north of the Dirty Devil River on the San Rafael Desert (Fig. 1).<sup>10</sup> Each animal was tested for brucellosis and inoculated with a vaccine for the disease. The majority of the animals established themselves near the release site, but a few bulls dispersed to areas north and west. One animal traveled as far away as the Strawberry Valley in northern Utah, a distance of about 135 miles. Another bison moved southwest toward the Arizona border. Because of the dispersal, the Henry Mountains herd was supplemented with 5 additional bulls the following year.<sup>11</sup> No other augmentations to this herd have been made since 1942. In 1942, the entire herd crossed the Dirty Devil River onto the Burr Desert. Bison used the Burr Desert as winter range and the Henry Mountains as summer range from that time until 1962.

By 1962, the population had grown to an estimated 71 animals. Blood samples were taken during a special hunt that year, and several animals tested positive for *Brucella* titers, indicating possible infection in the herd.<sup>8</sup> In 1963, 69 bison were captured in a corral and tested and inoculated for brucellosis. Animals suspected of brucellosis infection were marked, released, and harvested by sport hunters. Since the test and culling actions initiated by the UDWR, no further suspect or reactors have been detected in the several thousand blood samples collected through hunter-harvested animals from 1966 to the present (UDWR, unpublished data), indicating that those actions were successful in eradicating the disease from the herd or that it was never truly present. No attempt was made to isolate and confirm the disease from tissue samples,<sup>9</sup> leaving the possibility that the results may have been false positives.

An unanticipated result of the harassment from the capture operation was a change in the distribution of the bison. After the roundup, the bison moved south to the Henry Mountains, which they have been using year round since 1963.

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