How has the plan affected the bison population?

Bison move to low elevation winter ranges in response to accumulating snow and crusting of the snow pack, matching the movement patterns of other large Rocky Mountain herbivores. The proportion of Yellowstone bison that move to winter ranges outside the park varies from 3 to 30% annually. The mortalities that result from risk management actions (hazing, capture, and removals) have been high during some years. However, the reproductive capability of Yellowstone bison is high. The population recovered quickly from high mortality that occurred during the mid-1990s. From 1997 to 2005, the annual population growth rate averaged 11.5%.

In 2006, 87 live, test-negative calves were removed from the population for consignment to a quarantine feasibility study conducted by partner agencies.

Population estimates and management actions, September–June 2002–2006

	2002–03	2003–04	2004–05	2005–06
Late winter count/population estimate	**3,100**	**3,620**	**4,063**	**3,430**
Management actions				
Capture and testing				
Bison captured and tested at park boundary	16	425	214	98
Bison released after testing negative	8	207	83	0
Lethal removals				
Tested bison sent to slaughter	8	217	110	11
Untested bison sent to slaughter	235	59	1	888
Bison shot because they could not be hazed	1	4	1	9
Total bison removed from population	**244**	**280**	**112**	**1,003**
Summer count/population estimate	**4,070**	**4,240**	**4,879**	**3,905**

Why has Yellowstone agreed to a plan that permits killing bison?

The National Park Service was established in 1916 to manage the parks so as to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This does not mean that Yellowstone National Park can preserve the life of every *individual* wild animal, whether inside or outside the park. The priority is to preserve native animal *populations* of sufficient size in their natural habitat so that each species will be present in the park for the long term.

Ideally, wildlife in the park is intensively managed only when necessary to protect human life or property, or to help in the survival of threatened or endangered species. Realistically, we know that wildlife do not recognize the park's boundaries, and the surrounding states bear the primary responsibility for regulating wildlife outside the park where unlimited bison population growth cannot be accepted. Although the U.S. Forest Service is required by federal laws to provide habitat for bison and other native species, its mandate to provide for "multiple use" includes providing range for domestic livestock that graze under federal permits.

To try to prevent all bison departures by the use of hazing or fences would be detrimental to bison and other wild animals. By helping to prevent the commingling of bison and cattle, the plan allows some bison to range freely outside the park, reduces the number of bison that must be killed, and helps preserve a viable bison population.

The U.S. Department of Agriculture and the state of Montana have initiated a study to determine the feasibility of identifying disease-free Yellowstone bison. If feasible, a quarantine procedure would provide a method for the translocation of bison testing negative for brucellosis that would otherwise be sent to slaughter. As a species conservation measure, these bison would be sent to locations with small bison populations or to help establish new populations.

Free-roaming bison in Yellowstone

The number of bison leaving the park each year is affected by herd size and winter conditions. During the severe winter of 1996–97, which began with a population of about 3,400 bison, hundreds died of natural causes and, because of an interim bison management plan then in effect, more than 1,000 were killed when they attempted to leave the park. During the mild winter of 2000–01, when the population was estimated to be 2,870, fewer than 50 bison left the park and only six were killed.

Since the time when hunting for profit threatened to eliminate all big game animals and their predators in the West, a view of wildlife has evolved that enables many species to thrive on both public and private lands. It may be necessary to limit the presence of wild bison outside of places like Yellowstone National Park, but with adequate safeguards in place, the preservation of the species and the environmental processes that shape an ecosystem over time.

Yellowstone
When Bison Leave the Park

National Park Service
U.S. Department of the Interior

Most animals in Yellowstone are subject to different management goals when they leave the park. Bison require special attention because many have been exposed to the bacteria that causes brucellosis, a disease that also infects domestic cattle. Yellowstone has worked with the state of Montana and other federal agencies to develop a plan for managing the bison population in a way that protects both its wild and free-roaming characteristics and the health of Montana cattle.

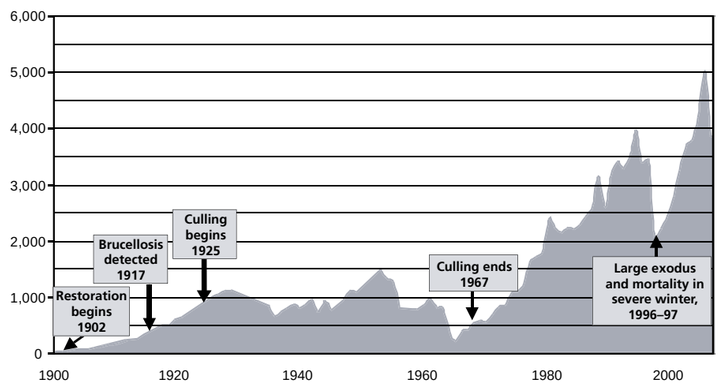
Changing views of the American bison

The current interagency bison management plan is another step in a long history of changing ideas about bison conservation. Although regarded as an icon of American wildlife, for most of the last 150 years the bison has been subjected to efforts to remove it from Western ranges or manage it as domestic livestock. Congressional efforts to halt the slaughter taking place across the West in the 19th century were opposed by those who hoped that elimination of both bison and nomadic American Indians would hasten settlement by homesteaders with livestock.

By the 1890s, most American Indians were on reservations and Yellowstone was the last refuge for wild bison, but it lacked the means to protect bison from poachers. In 1902, with the herd down to 23 bison, the park purchased 21 bison from privately owned herds. To help ensure population growth, these animals were fed and bred in Lamar Valley at what became known as the Buffalo Ranch.

As the herd increased, the captive bison were released to join the park's increasing herd of free-roaming bison. But starting in 1925, concerns about brucellosis and how many bison Yellowstone could support led to periodic culling. During the next 40 years, park staff also reduced the elk herds in order to limit winter mortality and maintain a presumed "balance" between bison, elk, and their forage. However, by the 1960s, public opposition and evolving views of wildlife management brought herd reductions to an end. Instead of focusing on individual plants and animals, park managers now try to preserve the environmental processes that shape an ecosystem over time.

Bison population, 1900–2006



The goals for managing the bison population

The primary goals of the Interagency Bison Management Plan (IBMP) are to:

- Preserve a population of more than 2,300 free-roaming bison (late winter count).
- Maintain Montana's brucellosis-free status by reducing the risk of bison transmitting brucellosis to cattle.

The plan was agreed to by the state of Montana, the National Park Service, the U.S. Forest Service, and the Department of Agriculture in December 2000. To achieve the plan's goals, some bison that leave the park may be killed each year. However, in considering a range of alternatives, the agencies rejected those that would have an unacceptable impact on the overall population of bison, other wildlife, or ecological processes, or on the experience of park visitors, or that would not adequately safeguard livestock from brucellosis.

Montana has been designated brucellosis-free by the U.S. Department of Agriculture since 1985. This enables livestock owners to export their cattle without testing and restrictions. This plan is designed to assist the State in maintaining that status.

Why bison leave the park

Bison are often on the move across the landscape as they graze. Most bison remain in the park during the winter, living off stored fat as snow and ice make forage difficult to reach. But by early spring some bison usually leave the park following established routes in the Yellowstone and Madison river valleys leading them into Montana. Here, the elevation is lower, the snow and ice pack less, and the foraging easier. These areas are part of the bison's historic range, but they include public and private lands that are also used for cattle grazing in summer. Although bison outside the park usually return by late spring, the interagency plan is designed to ensure that they are not on summer cattle ranges when cattle arrive.

What happens to bison outside the park?

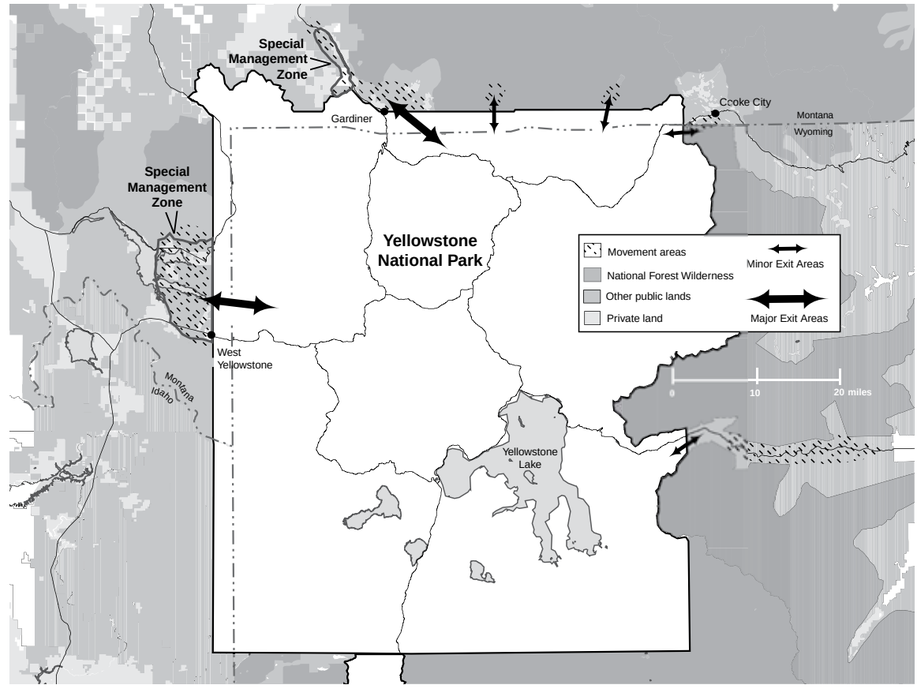
Under the interagency plan in effect since the winter of 2000–01, park staff and Montana state employees monitor the two main bison exit areas from November until June.

- Bison that cannot be hazed back into the park may be captured, tested for exposure to brucellosis, and sent to slaughter if they test positive. Bison that cannot be hazed into the capture facility may be shot.
- Bison that test negative may be released, but the number allowed to remain outside the park is limited to 100 in each of the two IBMP management zones (see map).
- If the population estimate exceeds 3,000 before the calving season, captured bison may be killed without being tested.
- If the population estimate drops below 2,300 during the winter, consideration will be given to increasing the use of non-lethal means of control at the boundary.
- After the bison vaccination program is fully implemented, some untested bison will be allowed to remain in the IBMP management zones.
- Bison are allowed to remain in some areas of national forest in Montana where overlapping use of range with livestock is very unlikely.

Wyoming permits up to 15 bison bulls beyond the park's east boundary on the Shoshone National Forest where cattle are not present. If any bison cows or more than 15 bulls remain there from July through January, hunting permits are issued to remove them.

The Montana Department of Fish, Wildlife and Parks is in charge of managing the limited public hunt for bison from the Yellowstone herd that enter Montana. For more information on the hunt, please visit <http://fwp.state.mt.us/hunting/bison.html>.

Where bison leave the park



How is brucellosis transmitted?

Brucellosis is caused by the bacteria *Brucella abortus*, which can infect both wild animals and domestic livestock. It is transmitted primarily through contact with the afterbirth residue from an infected cow. It is generally not sexually transmitted, so infected male animals are unlikely to pass it on. Human infection (from consuming unpasteurized dairy products from infected cows) was once a serious problem, but is now rare in the United States. Brucellosis was first detected in Yellowstone bison in 1917. It was probably transmitted by domestic cattle raised in the park in the early 1900s to provide meat and milk for visitors.

Based on testing conducted on part of the Yellowstone bison population, it is believed that about half of the animals have been exposed to the bacteria, and fewer than that develop an infectious reaction to it. Brucellosis may cause some pregnant bison to lose their calves, but over the long term it has not limited population size. There has been no known case in which wild bison have transmitted brucellosis to domestic cattle under natural conditions, but the possible consequences are too serious to permit bison that may be infected to commingle with cattle.

What can be done about brucellosis in bison?

To try to eliminate brucellosis in bison in Yellowstone by applying the same method as that used for livestock would require capturing and testing all the bison on an ongoing basis, slaughtering all bison that test positive for exposure to the bacteria, and shooting any bison that refused to be herded into the testing facility. This approach has been used with much smaller bison herds, but it would be neither feasible nor appropriate in Yellowstone National Park. The best available brucellosis vaccine can reduce the number of bison and cattle susceptible to infection by brucellosis, but it is not 100% effective.

Research is underway to develop a better vaccine for wild bison and a safe way to get it into non-captive animals. The National Park Service is committed to efforts to eliminate brucellosis from the ecosystem over the long term, but that is not possible with the currently available methods. The interagency plan is therefore designed to reduce the risk of bison transmitting the disease to cattle. *Brucella abortus* is also present in a small percentage of Yellowstone elk, but the risk of transmission is considered much lower because of when and where elk cows calve.