

Bison: National Treasure or Pernicious Vector?

A brief history of Bison in the GYE

- Yellowstone herd - genetically and behaviorally unique - the only herd with continuously wild ancestry from the days when 50 million bison migrated freely across the Great Plains.
- At the end of the 19th century, after tens of millions had been slaughtered, only 23 wild bison survived. Taking refuge in Yellowstone's remote Pelican Valley, this remnant herd ensured the survival of the species in the wild.
- Today there are a little more than 3,000 bison living in and around Yellowstone, comprising America's only free-roaming and unfenced population.

Bison



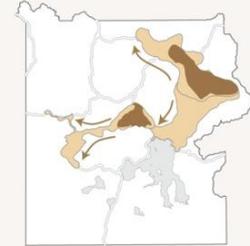
Expansion of Bison Range in Yellowstone National Park, 1970-1995

■ Breeding Range (July-Aug) ■ Fall-Winter Range (Sept-May) → Bison movement from breeding areas to winter range

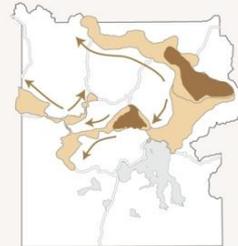
1970-1979



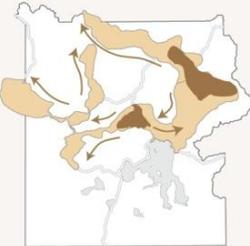
1982-1986



1987-1991



1992-1995

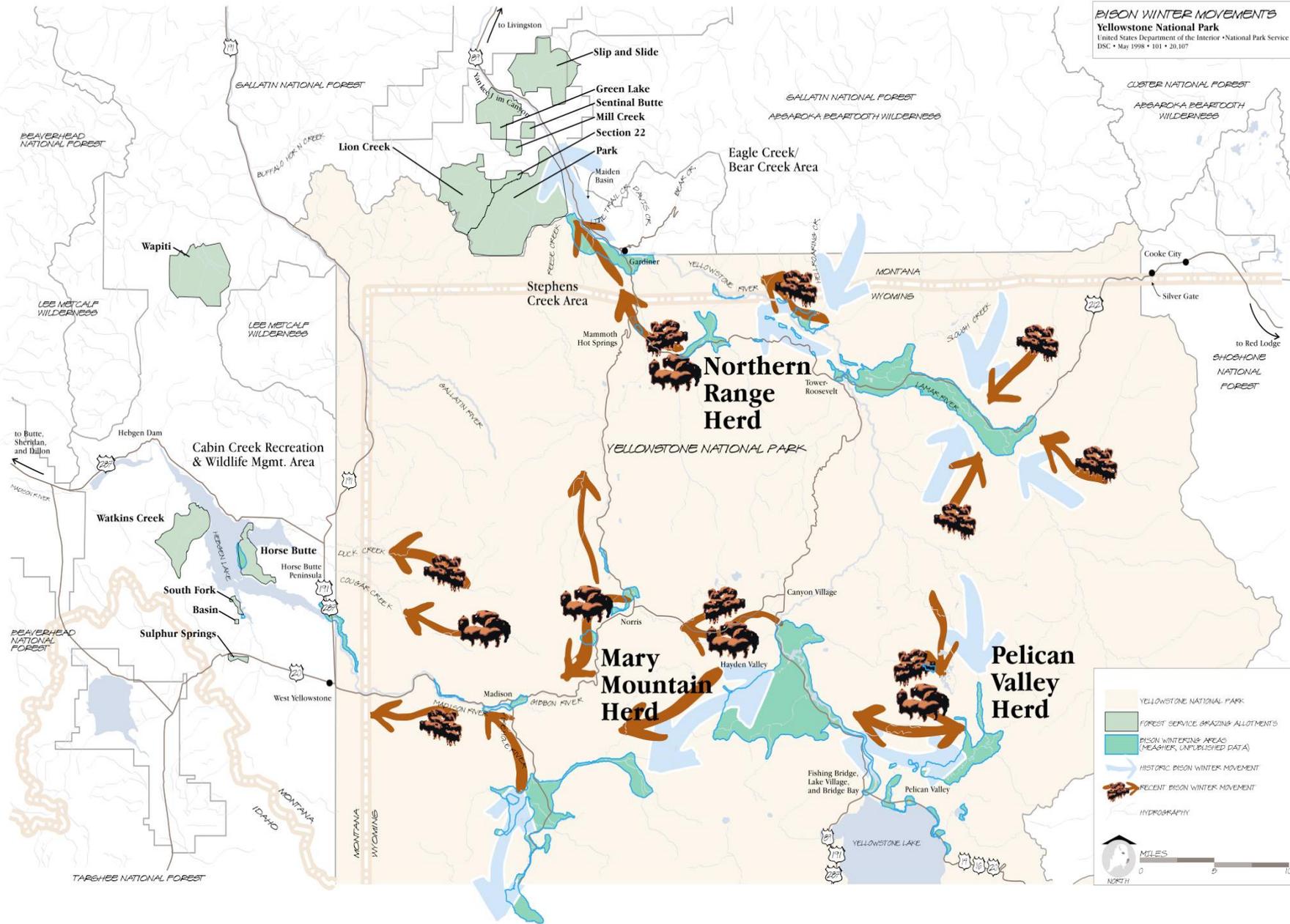


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Atlas of Yellowstone (in production)



- Winter - portion of the Yellowstone population migrates across Park boundaries to traditional winter range following the Yellowstone River valley.
- Buffalo also move from geothermal habitats into the Madison River corridor in search of wintering range and spring calving grounds.
- Nomadic migrations by wild buffalo in Yellowstone originally stretched across the Gallatin River valley and into the Snake River Plain.





So, what's the dilemma?



War On The Range



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Bison are infected with Brucellosis (*Brucella abortus*), a disease that may affect domestic cattle and cause undulant fever in humans.



The Issue

About half of Yellowstone's bison test positive for exposure to brucellosis, a disease that can cause bison and domestic cattle to abort their first calf. Because Yellowstone bison migrate into Montana, their exposure to brucellosis concerns the state's cattle industry.

History/Background

(See also timeline on pages 168–169)

- Bison probably contracted brucellosis from cattle raised in the park to provide milk and meat for park visitors in the early 1900s.
- Brucellosis has little impact on the growth of the bison population.
- The disease may be contracted by contact with infected tissue and birth fluids of infectious cattle or bison that are shed at the end of pregnancy.
- The human form of the disease, called undulant fever, is no longer a public health threat in the U.S.
- A vaccine used in cattle, RB51, is being used for Yellowstone bison.
- Bison have not been known to transmit brucellosis to cattle under natural conditions although transmission has occurred in

captivity.

- The state of Montana, like other states, has spent much time, effort, and money attempting to eradicate brucellosis in cattle.
- Elk in the greater Yellowstone area also carry brucellosis.

Current Status

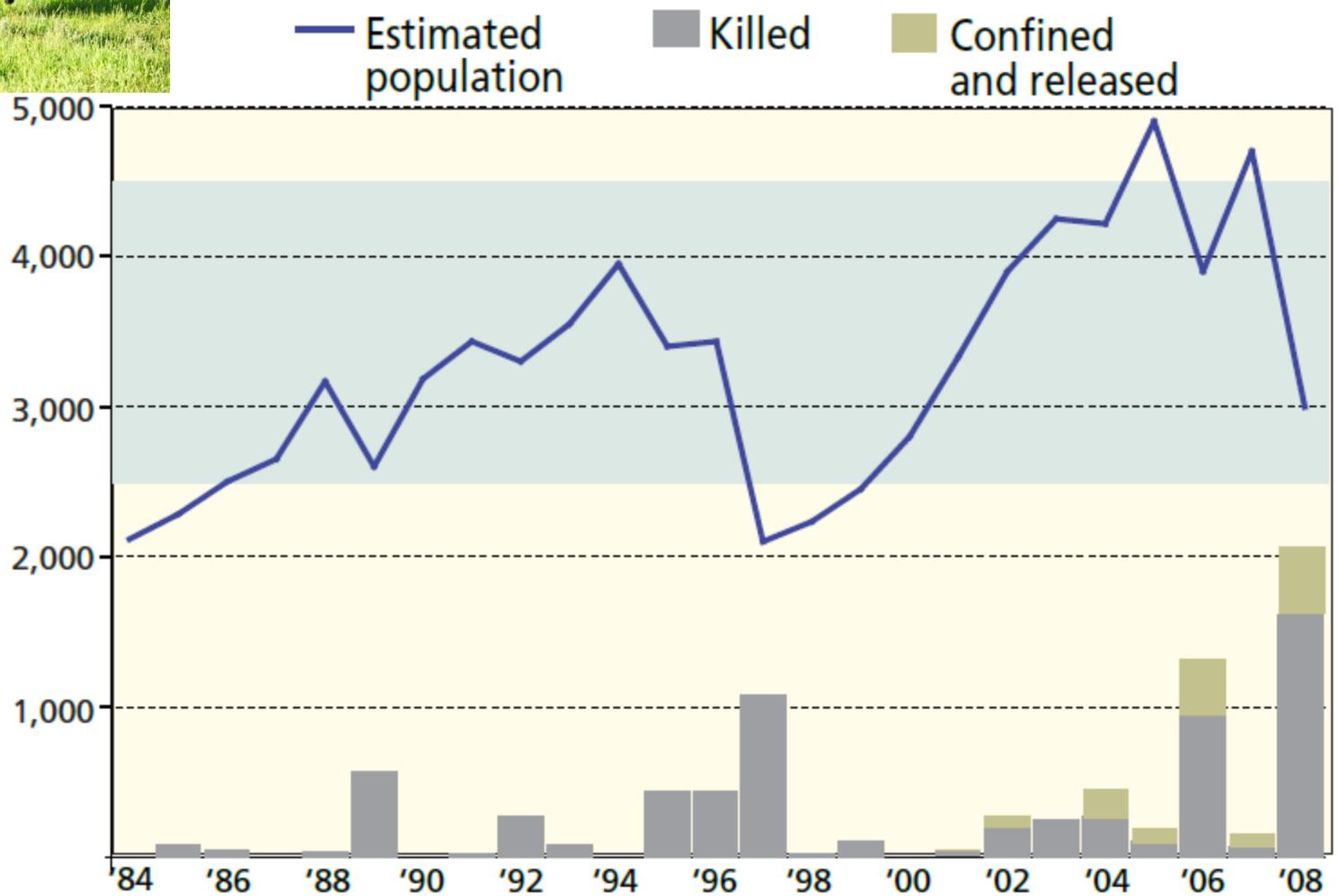
- A bison management plan has been in effect since December 2000.
- A few adaptive management changes have been made: vaccinating bison and cattle, state-regulated hunting, allowing some bison into small management areas outside the park during winter.
- A few tribes are conducting bison hunts north of Yellowstone according to their 1855 treaties with the United States.

Agencies Involved

National Park Service (NPS)
Animal Plant Health Inspection Service (APHIS)
U.S. Forest Service (USFS)
Montana Department of Livestock (DOL)
Montana Department of Fish, Wildlife & Parks (FWP)

What is brucellosis?

- A bacterial disease that affects livestock and wildlife, sometimes causing cattle to abort their first calf post-infection.
- While abortions have been documented in wild buffalo, such incidents are rare, and the impact of the disease on Yellowstone buffalo and elk is insignificant.
- Brucellosis, which originated in European livestock, was first detected in Yellowstone's buffalo in 1917 after some buffalo were fed milk from infected cows.



Estimated early winter bison population and boundary control operations, 1984–2008.





- Current Yellowstone Buffalo Management Plan designates the Montana Department of Livestock as the agency in charge of buffalo “management” operations outside the park.
- The National Park Service, the U.S. Forest Service, and the Montana Department of Fish, Wildlife and Parks are cooperating agencies that help shoot, haze, capture, and slaughter buffalo outside of the park. Inside Yellowstone, the National Park Service is the lead agency.

Does hazing disturb other wildlife?



- During a typical hazing operation, the MDOL and collaborating agencies ride snowmobiles, fly helicopters, run horses, and ride ATVs throughout sensitive habitat important to numerous wildlife species.

What's the cost?



- **U.S. Government Accountability Office
Estimated Bison Management Expenditures
(Unadjusted for Inflation)
Fiscal Years 2002-2007**

National Park Service:

\$7,258,013

Forest Service: \$639,428

*Animal and Plant Health

Inspection Service: \$7,526,576

Montana Department of

Livestock: \$128,977

Montana Fish, Wildlife and

Parks: \$379,295

Total: \$15,932,288

Are ranchers required to vaccinate their cattle?

- In January 2010 Montana begin requiring cattle vaccination in portions of Beaverhead, Gallatin, Madison and Park counties with Montana taxpayers picking up half the rancher's costs.
- The State of Montana did not require cattle vaccination until the new brucellosis rules were put into effect by Veterinary Services, a branch of USDA's Animal and Plant Health Inspection Service.
- The new federal rules have resulted in a net economic benefit of \$5.5 to \$11.5 million for Montana ranchers.

Are bison the only carriers of brucellosis?



- Elk also carry brucellosis but are not slaughtered
- Over 100,000 elk are allowed to roam freely in and around Yellowstone National Park's borders.
- Elk hunting is a tremendous source of revenue for the State of Montana



Elk Management

As of January 2008 . . .

Number in Yellowstone

- Summer: 10,000–20,000 elk in 6 to 7 different herds.
- Winter: Approximately 6,000–9,000
- Largest herds:
Northern: 6,000–9,000 in winter
Firehole–Madison: 150–200 year-round.

Where to see

Summer: Gibbon Meadows, Elk Park, and Lamar Valley.

Autumn, during “rut” or mating season: northern range, including Mammoth Hot Springs; Norris; Madison River.

Winter: migrate south to the Jackson Hole Elk Refuge in Jackson, Wyoming, or north to the northern range and around Gardiner, Montana; 150–200 along the Firehole and Madison rivers.

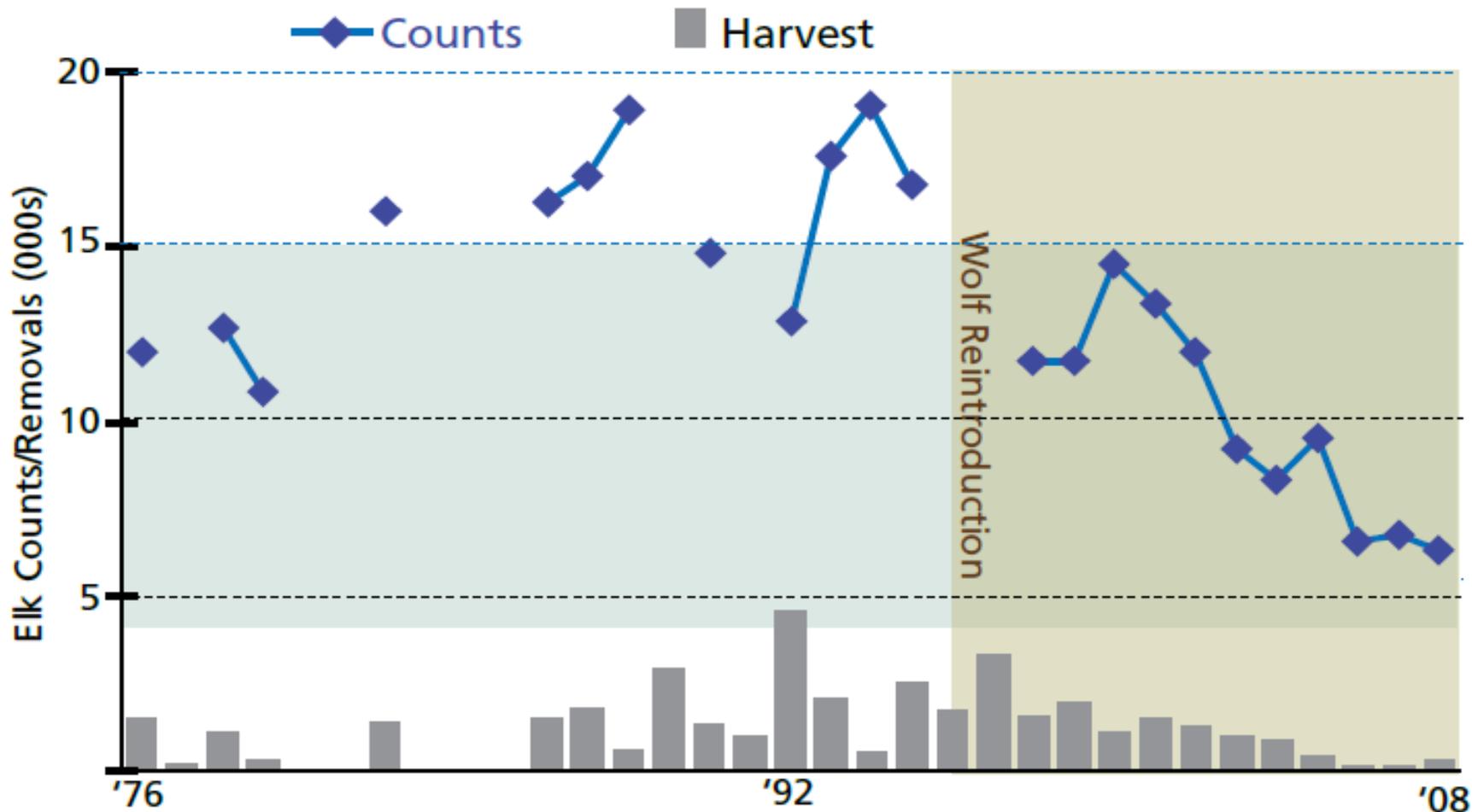
Behavior and Size

- Male (bull) weighs about 700 pounds and is about 5 feet high at the shoulder; female (cow) weighs about 500 pounds and is slightly shorter; calf is about 30 pounds at birth.
- Average life span: 13–18 years.
- Bulls have antlers, which begin growing in the spring and usually drop in March or April.
- Feed on grasses, sedges, other herbs and shrubs, bark of aspen trees, conifer needles, burned bark, aquatic plants.
- Mating season (rut) in September and October; calves born in May to late June.

See article on the northern range, Chapter 8.







Annual winter counts and hunting harvests of the northern elk herd in Yellowstone National Park and adjacent areas of Montana, 1976–2008, with reference condition (shaded horizontal band). Counts were not adjusted for sightability.

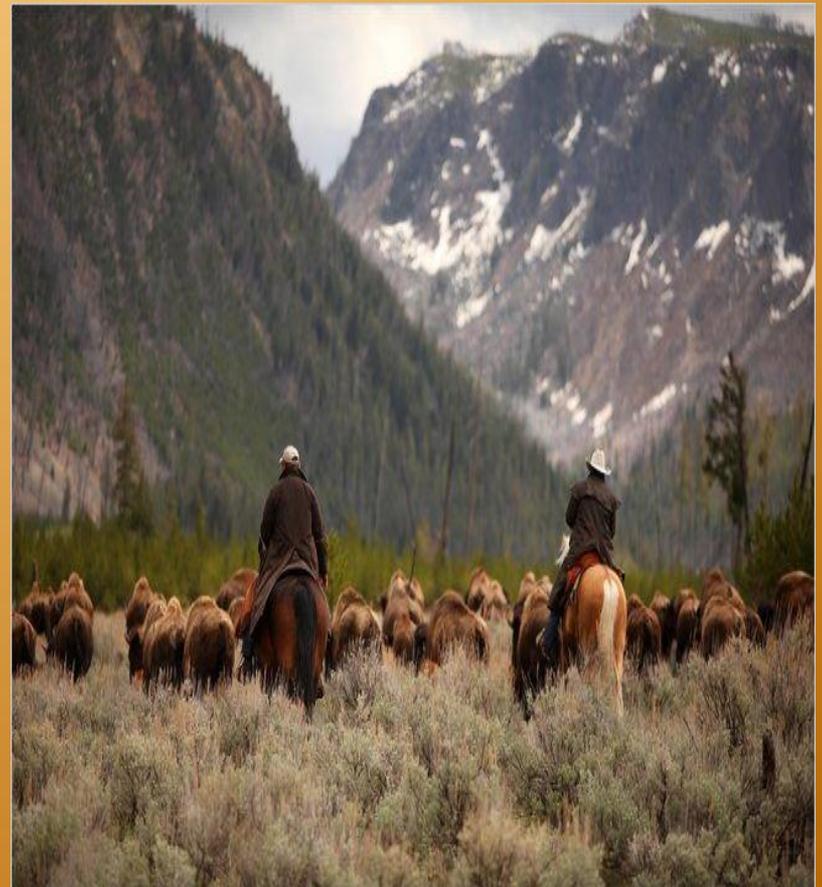
Tragedy of the Commons?

- Common property is an economic term that describes property that is owned by everyone and thus no one.
- Federal lands (NWRs, Wilderness areas, National Parks) are all commons
- Since wild bison are common property, who gets to decide their fate?



Stakeholders

- Native Americans
- Buffalo Field Campaign
- Ranchers
- National Park Service
- Tourists/U.S. Citizens



Native Americans

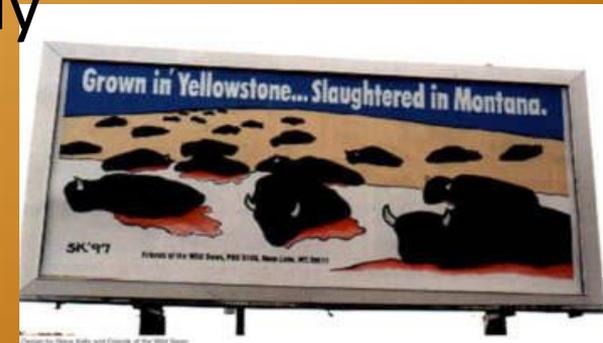
- Feel spiritual connection to the bison
- 26 tribes have a direct connection to Yellowstone and the Yellowstone bison
- Central part of their history, culture, and diet



Buffalo Field Campaign



- Cattle farming is not a sustainable plan for the area—too harsh on grasses, not enough water
- Bison are native to the area and should be allowed to roam freely



Ranchers



- States need “brucellosis class-free” status to export livestock without restrictions
- Brucellosis infections in two herds within the state downgrades class status
- If one cow is infected the entire herd is quarantined and usually slaughtered
- Brucellosis costs cattle ranchers money

National Park Service

- Must follow the laws placed on them; haze and kill bison



What should be done?

Sources

- <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2008/02/0027.xml>
- <http://www.buffalofieldcampaign.org/>
- <http://www.nps.gov/yell/index.htm>