



# DOI Bison Report

## *Looking Forward*

Natural Resource Report NPS/NRSS/BRMD/NRR—2014/821



**ON THE COVER**

Bison bull at southeastern Utah's Henry Mountains  
Photograph by Utah Division of Wildlife Resources

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## *Looking Forward*

Natural Resource Report NPS/NRSS/BRMD/NRR—2014/821

Prepared by the Department of the Interior Bison Leadership Team and Working Group

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado, publishes a range of reports that address natural resource topics. These reports are of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

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This report received informal peer review by subject-matter experts who were not directly involved in the collection, analysis, or reporting of the data. Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols.

As a product of the Department of the Interior's (DOI's) Bison Leadership Team and Working Group, in collaboration with the NPS Natural Resource Stewardship and Science Office, this report is intended to provide sound scientific information regarding DOI's bison conservation programs, and identify numerous tools available to DOI and its partners in achieving the goals set out in the 2008 Bison Conservation Initiative. However, the views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

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## **Acknowledgements**

The North American bison has been, and will continue to be, a communal wildlife resource. This report serves as the first to compile and summarize bison stewardship across the Department of the Interior within the context of the Department's Bison Conservation Initiative that focuses on increasing the overall extent of "shared stewardship" of this iconic resource. This report was prepared with support and information provided by dozens of employees from field units, regional and area offices, and national programs of the National Park Service, Bureau of Indian Affairs, United States Geological Survey, Bureau of Land Management, and United States Fish and Wildlife Service. Numerous individuals from the American Bison Society, the IUCN North American Bison Species Specialist Group, InterTribal Buffalo Council, individual American Indian tribes, and state wildlife agencies provided additional informal discussion and feedback. The departmental Bison Leadership Team and Bison Working Group strove to accomplish new levels of inter-agency cooperation in preparing this report. On behalf of this community, the report was championed by Rachel Jacobson, Principal Deputy Assistant Secretary for Fish and Wildlife and Parks, and Jorge Silva-Bañuelos, Special Assistant to the Assistant Secretary for Fish and Wildlife and Parks.

## Synopsis

Over the course of the past century, the American bison was saved from extinction and set upon a path to conservation and recovery. The Department of the Interior (DOI) has contributed significantly to bison conservation and will continue to do so during the 21<sup>st</sup> century. DOI lands currently support 17 bison herds in 12 states, for a total of approximately 10,000 bison over 4.6 million acres of DOI and adjacent lands. DOI bison resources, whose total population accounts for one third of all bison managed for conservation in North America, are crucial to the long-term preservation of the species. While bison are no longer threatened by extinction, substantial work remains to more fully restore the species to its ecological and cultural role on appropriate landscapes within its historical range. Many American Indian tribes have strong cultural ties with the buffalo, and this report describes DOI's recent efforts to collaborate with tribes and tribal organizations to promote bison restoration on both public and tribal lands. This report also discusses the latest developments in brucellosis quarantine as a way for Yellowstone bison to be available for conservation; and provides an overview of all existing DOI bison resources, and also where bison conservation planning involving DOI lands is currently under consideration in Arizona, Colorado, Nebraska, New Mexico, and South Dakota. Indeed, the most important avenue available to DOI to realize bison restoration is through collaboration. Looking forward from this overview report, DOI proposes that innovative collaboration amongst tribes, states, landowners, conservation groups, commercial bison producers, agricultural interests and others interested in bison, will be crucial to build partnerships amidst larger landscapes suitable for ranging bison, while concurrently generating and maintaining sustainable local and regional economies and communities.

## Looking Forward

Since the late 19<sup>th</sup> century, the Department of the Interior (DOI) has served as the primary national conservation steward of North American plains bison (*Bison bison bison*). At that time, the species – whose population was once estimated at upwards of 40 million – neared extinction. However, through the efforts of private individuals and organizations, American Indian tribes, states and the U.S. Government, the species was saved from extinction, including at places like Yellowstone National Park, where the last wild, free-roaming bison herd in the United States was protected. Over the course of the 20<sup>th</sup> century, DOI's bison management focused on stabilizing the bison population and protecting and promoting its remaining genetic diversity. Overall this goal has been successful. For example, the Yellowstone bison population has rebounded and regained its place as a key species in the Greater Yellowstone Ecosystem. Including Yellowstone National Park, DOI lands support 17 bison herds in 12 states, whose total population accounts for one third of all bison managed for conservation purposes in North America. But while the species is no longer threatened by extinction, in most cases bison managed on DOI lands play only a limited ecological role on the landscape, save for a few locations such as Yellowstone National Park. Fenced herds, which constitute the majority of DOI bison holdings, face limitations for scaling up towards the long-term conservation of the full array of bison ecological processes. And the bison herds on DOI lands of the Greater Yellowstone Area will also continue to face constraints on distribution and abundance due to brucellosis and other management challenges.

Recognizing these limitations, DOI chartered the Bison Conservation Initiative in 2008 which set the goal of restoring bison herds to their ecological and cultural role on appropriate landscapes within the species' historical range. The Bison Conservation Initiative aimed to achieve improved conservation management of the species by strengthening existing and building new partnerships with States, Native American tribes, landowners, agricultural interests, conservationists and others interested in bison. In other words, to achieve ecological restoration of bison across large landscapes, we cannot rely solely on DOI lands. Instead, we need to build partnerships with other landowners to weave together landscapes large enough to cultivate the full interplay between bison and the surrounding ecology, which would also help promote biological diversity of other plant and wildlife species. A recent example of this approach exists in the Book Cliffs of Utah where the state took the lead to work closely with DOI to establish a wide-ranging and huntable bison herd on Bureau of Land Management (BLM) and adjacent lands in Utah.

Looking ahead, we must first recognize that existing DOI bison resources are crucial to the long-term conservation of the species, and the Department has an obligation to maintain the conservation status and value of the approximately 10,000 bison supported on 4.6 million acres of DOI and adjacent lands. To this end, the report provides a first ever overview of all DOI bison resources from which we look forward towards new approaches to 21<sup>st</sup> century bison conservation. It also evaluates DOI lands that could accommodate the establishment of bison herds in the future. Planning by DOI bureaus for bison conservation on and adjacent to DOI lands is currently underway in Arizona, Colorado, Nebraska, New Mexico, and South Dakota.

Recognizing the strong tribal cultural values associated with the buffalo, as it is commonly referred to in Indian Country, the Department must also remain committed to consulting and collaborating with American Indian tribes for the restoration of the species on both public and tribal lands. In section 2, the report describes efforts on which DOI has collaborated with American Indian tribes and tribal organizations to promote the restoration of buffalo to Indian lands for the benefit and use of tribal members. It also highlights the results of various tribal consultations that discussed bison restoration and management.

And finally, section 3 of the report, which satisfies the Secretary's May 2012 Directive on the Placement of Yellowstone Bison, discusses opportunities and challenges associated with placing Yellowstone bison through a brucellosis quarantine protocol. Currently, Yellowstone bison are not allowed to move beyond specific conservation zones immediately adjacent to Yellowstone National Park due to concerns over potential transmission of brucellosis to domestic cattle in other areas. After undergoing brucellosis quarantine, Yellowstone bison that are determined to be free of brucellosis could be transported outside the Greater Yellowstone Area. Brucellosis quarantine, therefore, presents the Department with the opportunity to once again use Yellowstone bison to contribute to DOI's broader bison conservation goals for the first time in over a half century. The report describes the results of the brucellosis quarantine feasibility study (QFS) undertaken by the state of Montana beginning in 2005, and provides considerations for operating a long-term brucellosis quarantine program. Operational quarantine could be beneficial as a supplemental population management tool while also providing brucellosis-free Yellowstone bison for conservation purposes outside of the Greater Yellowstone Area on a continuing basis. Finally, the section evaluates the suitability of DOI lands for the placement of quarantined Yellowstone bison. The findings showed that out of the 27 locations that were analyzed, 20 DOI units may be suitable for the placement of quarantined bison with varying degrees of complexity in terms of implementation and management.

There are many opportunities to chart a course for a robust bison conservation strategy over the next century. It will need to be based on developing innovative partnerships with landowners, tribes, states, conservation groups, commercial bison producers and others, continuing strong tribal relations surrounding bison restoration, and taking advantage of all tools in our toolkit, like brucellosis quarantine and strategies to promote genetic diversity. Policy makers will need to make decisions regarding many of these topics, such as whether to pursue a long term brucellosis quarantine program, which DOI lands should be prioritized for bison restoration projects, how to increase support to tribes for bison-related projects, and how to promote partnerships that achieve mutually beneficial goals. It is our hope that this report helps to inform the decision making process on these important issues.

## **DOI Bison Resources & Future Planning**

DOI lands currently support 17 bison herds in 12 states (11 fenced and 6 ranging) for a total of approximately 10,000 bison across 4,600,000 acres that includes adjacent lands for ranging bison (see Table 1 and Appendix A). Fenced National Park Service (NPS) and U.S. Fish and Wildlife Service (FWS) herds are under respective agency jurisdiction, and ranging herds that include NPS and FWS lands are managed through a variety of formal and informal partnerships across multiple jurisdictions. BLM lands in Utah support two ranging bison herds in close cooperation with the state, which retains jurisdiction over these bison. Regardless of fenced or ranging, all three land management bureaus work closely with key federal, state, tribal, and non-government partners for bison conservation.

As identified in the DOI Bison Conservation Initiative, bureaus are to utilize prevailing authorities to plan and implement collaborative bison conservation and to ensure involvement by tribal, state, and local governments and the public; and adhere to all prevailing and applicable legal and policy mandates, including but not limited to the National Environmental Policy Act (NEPA), Federal Land Policy and Management Act (FLPMA), Endangered Species Act (ESA), and National Historic Preservation Act (NHPA), and an array of agency-specific legal and policy mandates.

Both historically and presently, states, tribes, and other federal agencies have played an important role in bison conservation and restoration. The Department is committed to continue working closely with states, including state veterinarians and wildlife officials, tribal governments, and federal agencies such as the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and U.S. Forest Service (USFS), in this regard.

As an example of DOI's work with states, FWS coordinated with state agriculture and wildlife agencies to relocate bison from the National Bison Range in Montana to the Rocky Mountain Arsenal National Wildlife Refuge in Colorado. More recently, in order to prepare a statewide bison management plan, Montana Fish, Wildlife & Parks has moved forward with the development of a programmatic planning effort to address the potential for bison restoration in Montana (<http://fwp.mt.gov/fishAndWildlife/management/bison/>). DOI will work closely with the state of Montana through this process if DOI lands are proposed for bison restoration.

### **Agency-Specific Bison Conservation Planning and Management**

#### ***U.S. Fish and Wildlife Service***

FWS approaches bison conservation planning and management on all FWS lands, except the National Elk Refuge (due to endemic brucellosis), according to a FWS meta-population with primary emphasis on conservation genetics and health management. Within the meta-population, comprising 6 refuges in 6 states, bison can be relocated among the participating FWS refuges as needed, and the combined number of animals is sufficient to maintain the greatest level of genetic diversity across all herds while managing them as a closed population—one that is generally closed to outside animal introductions.

In general, it is FWS policy not to pursue additional captive, fenced bison herds. Bison management on a specific FWS unit occurs through the unit's Comprehensive Conservation Plan (CCP) or other management plans authorized under the Refuge Improvement Act of 1997. The National Wildlife Refuge Administration Act of 1966 also guides FWS bison planning.

### **National Park Service**

Bison stewardship by NPS began with the creation of Yellowstone National Park in 1872, and the agency's bison conservation history is summarized by Plumb and Sucec (2006) and now includes Action 26 of the 2010 NPS Call to Action, "*Return the American bison, one of the nation's iconic species, to our country's landscape. To achieve this we will restore and sustain three wild bison populations across the central and western United States in collaboration with tribes, private landowners, and other public land management agencies.*" Each NPS unit with bison or considering establishing a bison herd engages in planning under its enabling legislation and subsequent statutes and guidance. Within such authorities, parks may develop and implement a bison management plan in accordance with NPS Management Policies 2006 that directs bison conservation management to integrate evolved ecological scales and processes, internal and external partnerships, genetics, population dynamics, and restoration.

### **Bureau of Land Management**

Under the Secretary's May 2012 directive, BLM is directed to evaluate the feasibility and explore options to relocate bison as wildlife onto public lands. On public lands managed by BLM, primary authority and responsibility for management of fish and resident wildlife rests with the states (43 CFR 24.4(c)). If public lands are proposed for bison restoration, BLM will work closely with affected states through BLM's established planning processes. Any consideration of placing bison on BLM lands would also include full involvement by tribal and local governments as well as the public.

### **Future Planning**

Formal and informal discussions regarding bison conservation on DOI lands are occurring or have recently occurred at the following locations. All DOI actions will adhere to prevailing and applicable legal and policy mandates as described above, including involvement by states, tribes, and the public.

#### Arizona

- Grand Canyon National Park: conducting an Environmental Impact Statement (EIS), in cooperation with the state of Arizona, USFS and BLM to develop a long-term bison management plan.

#### Colorado

- Baca National Wildlife Refuge: developing a CCP which will explore options for bison conservation on the refuge.
- Great Sand Dunes National Park and Preserve: developing an EIS for long-term elk and bison management, including potential bison restoration on NPS lands.

## Montana

- Formal bison restoration planning underway led by the state of Montana that may include DOI lands.

## Nebraska

- Agate Fossil Beds National Monument: discussing potential for bison reintroduction.

## New Mexico

- Río Mora National Wildlife Refuge: evaluating options for the bison herd pre-dating the establishment of this new wildlife refuge.

## South Dakota

- Badlands National Park: in discussion with the Oglala Sioux Tribe to restore buffalo on the park's South Unit on the Pine Ridge Reservation.
- Wind Cave National Park: potential bison pasture expansion using 5,000-acre park addition.

## Yellowstone National Park (ID, MT, WY)

- Recently completed an EIS on remote brucellosis vaccination of bison, with the selection of the alternative that continues vaccination of young bison captured near the park boundary under brucellosis risk-management, and decides to not conduct remote vaccination of bison across the park.
- Cooperating with the state of Montana to prepare a new bison conservation plan for the park and Montana.
- Discussing the potential for an operational brucellosis quarantine program.

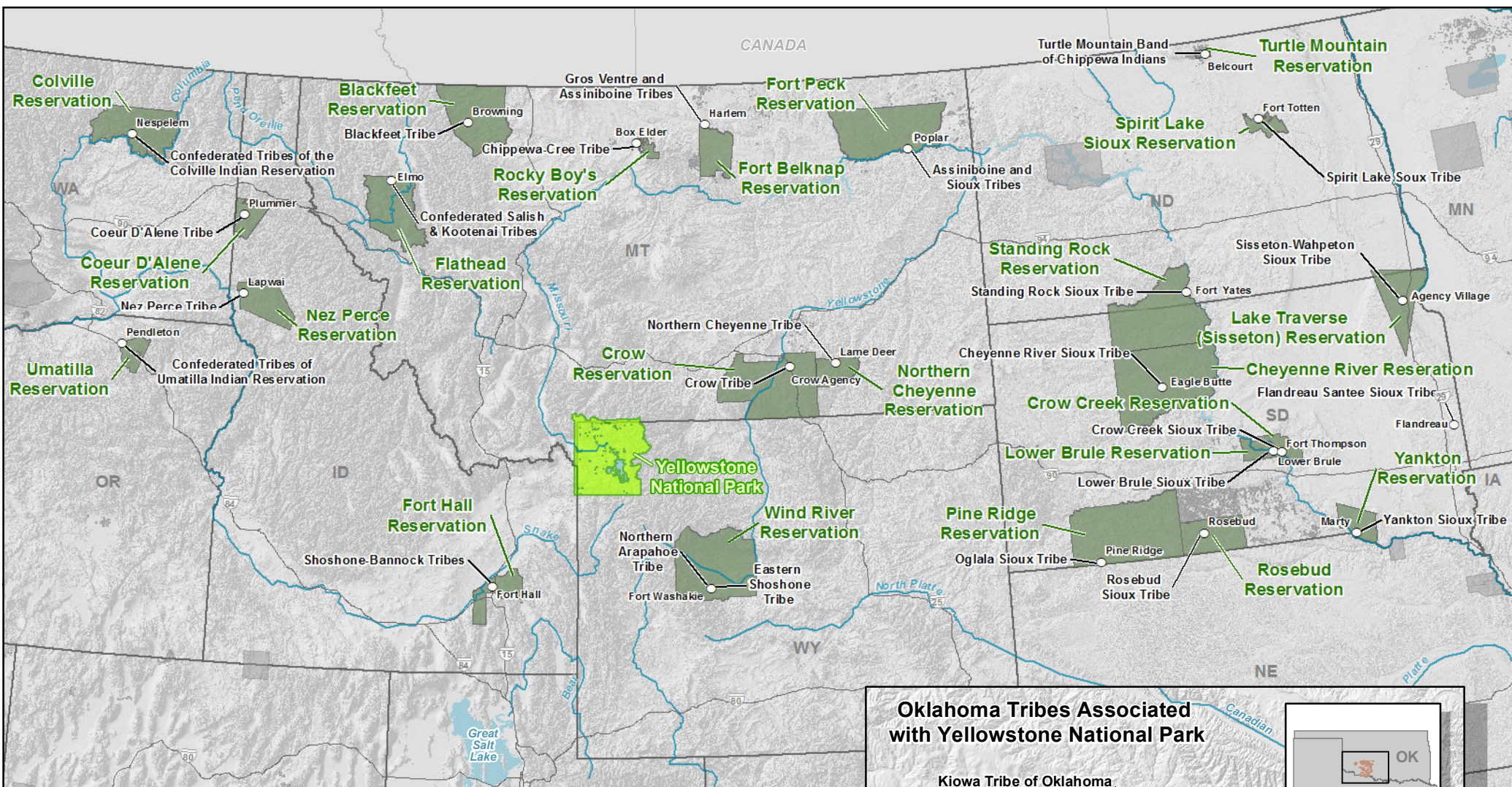
**Table 1.** Department of the Interior lands that currently support bison (see Appendix A for additional jurisdiction and management details).

Unit	State	Bureau	Fenced or Ranging	Approximate Herd Size	Approximate Area Size (ac) <sup>1</sup>
Badlands National Park	SD	NPS	Fenced	650	64,000
Book Cliffs	UT	BLM	Ranging	450	1,400,000
Chickasaw National Recreation Area	OK	NPS	Fenced	10	80
Fort Niobrara National Wildlife Refuge	NE	FWS	Fenced	350	17,000
Grand Canyon National Park	AZ	NPS	Ranging	300+	23,000
Grand Teton National Park/ John D. Rockefeller, Jr. Memorial Parkway, National Elk Refuge	WY	NPS, FWS	Ranging	900	360,000
Henry Mountains	UT	BLM	Ranging	325	300,000
National Bison Range	MT	FWS	Fenced	380	19,000
Neal Smith National Wildlife Refuge	IA	FWS	Fenced	70	700
Rocky Mountain Arsenal National Wildlife Refuge	CO	FWS	Fenced	75	12,000
Sullys Hill National Game Preserve	ND	FWS	Fenced	25	540
Tallgrass Prairie National Preserve	KS	NPS	Fenced	20	1,100
Theodore Roosevelt National Park	ND	NPS	Fenced	500	71,000
Wichita Mountains National Wildlife Refuge	OK	FWS	Fenced	640	59,000
Wind Cave National Park	SD	NPS	Fenced	450	28,000
Wrangell-St. Elias National Park and Preserve	AK	NPS	Ranging	110	100,000
Yellowstone National Park	ID,MT, WY	NPS	Ranging	4,600	2,200,000

<sup>1</sup>Ranging herds may occur on DOI and adjacent lands.







## Tribes Associated with Yellowstone National Park



The map was created by  
 The Department of Interior  
 Bureau of Indian Affairs  
 Office of Trust Services  
 Division of Water and Power  
 Lakewood, CO  
 Plot Date: February 2013

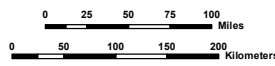


### Legend

- Reservations associated with Yellowstone National Park
- Reservations not associated with Yellowstone National Park
- Trust Land
- Yellowstone National Park
- City
- Interstate
- River



1 inch = 115 miles



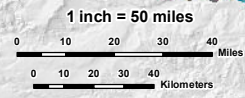
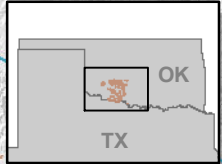
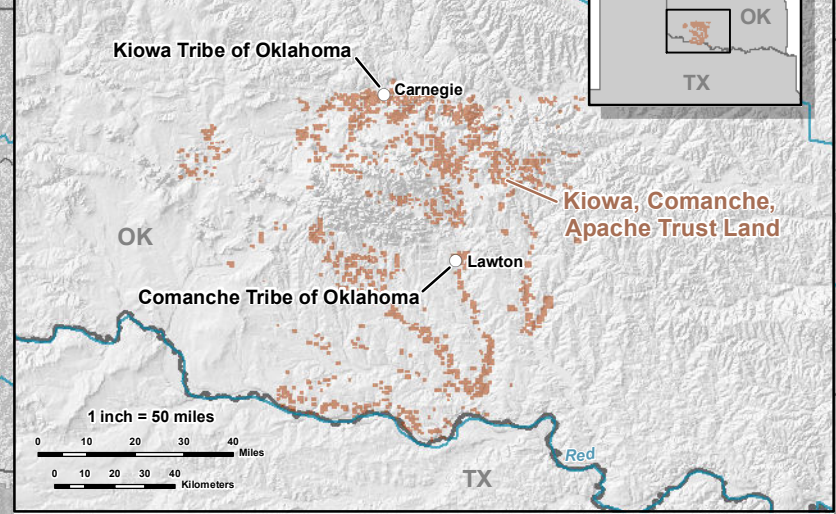
All data are projected to:  
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 North American Datum 1983  
 Spheroid: Geographic Reference System 1980

Data Sources:  
 USGS elevation data: 1993-2002  
 American Indian Reservation data  
 last updated in 2005 from US Census data and  
 "ESRI Data and Maps" 2008

Main Map Scale of 1:7,300,000 and Oklahoma Inset scale of  
 1:2,500,000; Valid only when the map page is 8.5" X 11"

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## Oklahoma Tribes Associated with Yellowstone National Park



## **Tribal Collaboration and Consultation**

Bison are an important natural and cultural resource for many American Indian tribes. DOI is committed to collaboration and consultation with tribes in initial planning, proposal development, and implementation stages of action in the conservation of bison on DOI lands. Consultation is guided by Executive Order 13175 and DOI Secretarial Order 3317 (DOI Policy on Consultation with Indian Tribes).

### **DOI Assistance and Collaboration with Tribes**

Bureau of Indian Affairs (BIA) field offices coordinate funding for tribes through Self Determination 638 contracts and, if funding is available, Reimbursable Support Agreements (RSAs). Existing 638 contracts and RSAs can also be amended or supplemented. For example, in FY2012, BIA provided funding and technical assistance to the Fort Peck Reservation to transfer Yellowstone bison to the tribe and funding to develop a holding pasture. Fort Belknap Indian Reservation received funding to develop a quarantine facility and pasture. The Oglala Sioux Tribe (OST) received funding from BIA through Badlands National Park to develop bison fencing to restore bison on the park's South Unit. NPS is also working with OST to establish a jointly managed Tribal National Park on the South Unit.

In Montana, FWS is working closely with the Confederated Salish and Kootenai Tribes (CSKT) on an Annual Funding Agreement (AFA) that will allow the tribe to administer non-inherently federal activities at the National Bison Range (NBR), which is located entirely within the CSKT's Flathead Reservation. The tribe also has strong cultural ties with the bison herd at NBR, which was established using bison saved by CSKT tribal members.

DOI bureaus also work closely with the InterTribal Buffalo Council (ITBC), an officially recognized tribal organization which serves to coordinate bison restoration among 59 member tribes in 19 states. ITBC maintains existing agreements with multiple DOI units to receive and redistribute bison to member tribes. In 2012, Yellowstone National Park signed an agreement with ITBC to partner on the providing surplus bison to Native American Tribes. ITBC will receive and process Yellowstone bison and distribute the animals to their 59 member tribes for nutritional and cultural purposes.

### **Recent Tribal Consultation**

In 2012, DOI and its bureaus held multiple tribal consultations focused on assessing interest in receiving brucellosis-free Yellowstone bison and in partnering to develop long-term brucellosis quarantine operations that could be used to establish new conservation and cultural herds of brucellosis-free Yellowstone bison. FWS held meetings with CSKT as well as the Eastern Shoshone Tribe on the Wind River Reservation to discuss issues and opportunities related to bison conservation. NPS and BIA invited all 26 tribes associated with Yellowstone National Park to a joint tribal consultation meeting held via conference call. NPS also gave presentations to the ITBC Board of Directors and the Montana Wyoming Tribal Leaders Council. Several tribes expressed interest in receiving Yellowstone bison, and some also expressed interest in partnering on long-term quarantine operations. The tribal consultations also identified important issues such as the resources needed to install infrastructure and manage bison herds, potential conflicts with treaty bison hunting rights, and whether quarantine and relocation are suitable long-term management tools.



# Brucellosis Quarantine

## What is brucellosis?

Brucellosis is a contagious disease caused by the bacteria *Brucella abortus* that was introduced into wild bison and elk in the Greater Yellowstone Area (GYA) by domestic cattle in the early 1900s. This non-native disease can induce abortions or the birth of non-viable calves in livestock and wildlife. Approximately 40 to 60% of Yellowstone bison have been exposed to the *Brucella abortus* bacteria.

## What is brucellosis quarantine?

Best available science indicates that while the Yellowstone bison population is chronically infected with brucellosis, some individual bison may never become infected with the disease (Clarke et al. 2014, Plumb et al. 2009). The Interagency Bison Management Plan for the State of Montana and Yellowstone National Park (IBMP), which focuses on bison conservation and brucellosis risk-management, considered the concept of a brucellosis quarantine program as a supplemental population management tool that could allow bison to be relocated from the GYA to other public and tribal lands. Brucellosis quarantine involves a carefully developed protocol of detailed disease testing to determine whether Yellowstone bison that may be captured from the wild under the terms and conditions of the IBMP are actually free of the disease brucellosis.

## Why does brucellosis quarantine matter?

Recent scientific advances in bison genetics have determined that the Yellowstone population is one of the four surviving genetic lineages that represent distinctive portions of the original species gene pool that survived their near-extirmination (Dratch and Gogan 2010). Best available science indicates that most bison conservation herds, except Yellowstone, show evidence or suggestion of low levels of cattle mitochondrial DNA (mtDNA), though best available science indicates that bison herds with low levels of cattle gene introgression remain important for the conservation of the species.

Thus, the Yellowstone bison genetic lineage is crucial to the long-term conservation of the species across its historic range; yet currently, under the IBMP, wild Yellowstone bison are not permitted to move beyond specific conservation zones immediately adjacent to Yellowstone National Park due to concerns over potential transmission of brucellosis to domestic cattle in other areas. In addition to the IBMP, brucellosis quarantine that validates brucellosis-free Yellowstone bison raises the potential that Yellowstone bison could be available for the first time in over a half century to contribute to the broader conservation of the species beyond the GYA. The DOI Bison Conservation Initiative genetics report (Dratch and Gogan 2010), along with recent science (Douglass 2012, Gates et al. 2010, Halbert 2012, Hendrick 2009, White and Wallen 2012, WCS 2011) provide useful information to determine the best way to utilize quarantined bison to conserve the bison genome.

## Quarantine Feasibility

Under the auspices of the IBMP, during 2005-2011 the state of Montana, in coordination with APHIS and NPS, completed a brucellosis quarantine feasibility study (QFS). This novel research ultimately demonstrated that if wild bison calves born without brucellosis are removed from the wild

population and “quarantined” and repeatedly tested over a sufficient period of time, then these quarantined animals and their offspring are qualified as brucellosis free (Clarke et al. 2014). Thus the “quarantined bison” that successfully completed the QFS are now considered brucellosis free by APHIS and the Montana State Veterinarian. The QFS has been completed, and, as intended, Montana took possession of these quarantined bison and began the search for suitable locations to place them for long term conservation value.

Using the methodology demonstrated in the QFS (Clarke et al. 2014), a long-term “operational” quarantine program (rather than the short-term QFS) could provide brucellosis-free Yellowstone bison for conservation purposes outside of the GYA on a continuing basis. IBMP agencies have developed an early draft protocol for implementing an operational quarantine program that could serve to inform further deliberations. Preliminary estimates suggest that an operational quarantine facility would cost approximately \$2.5 million to establish, and up to \$1.5 million annually to operate. The IBMP stated that additional NEPA review would be required before an operational quarantine program can be implemented on federal land. In order to move beyond the QFS, the Department would coordinate with the full array of IBMP partners and tribes, along with other interested parties including, but not limited to, the U.S. Animal Health Association, state veterinarians and wildlife officials.

### **Suitability of DOI lands for quarantined bison**

The DOI Bison Working Group evaluated 27 locations managed by NPS, FWS, and BLM within the species historical range in 12 states according to relative complexity involved with receipt of quarantined bison (Figure 1, Table 2). The key elements considered included prevailing bison management and human land-use practices, ecological and human interactions, historical range, herd health and genetics, and social and political environment (Sanderson 2008, for details see Appendix A).

Key findings include:

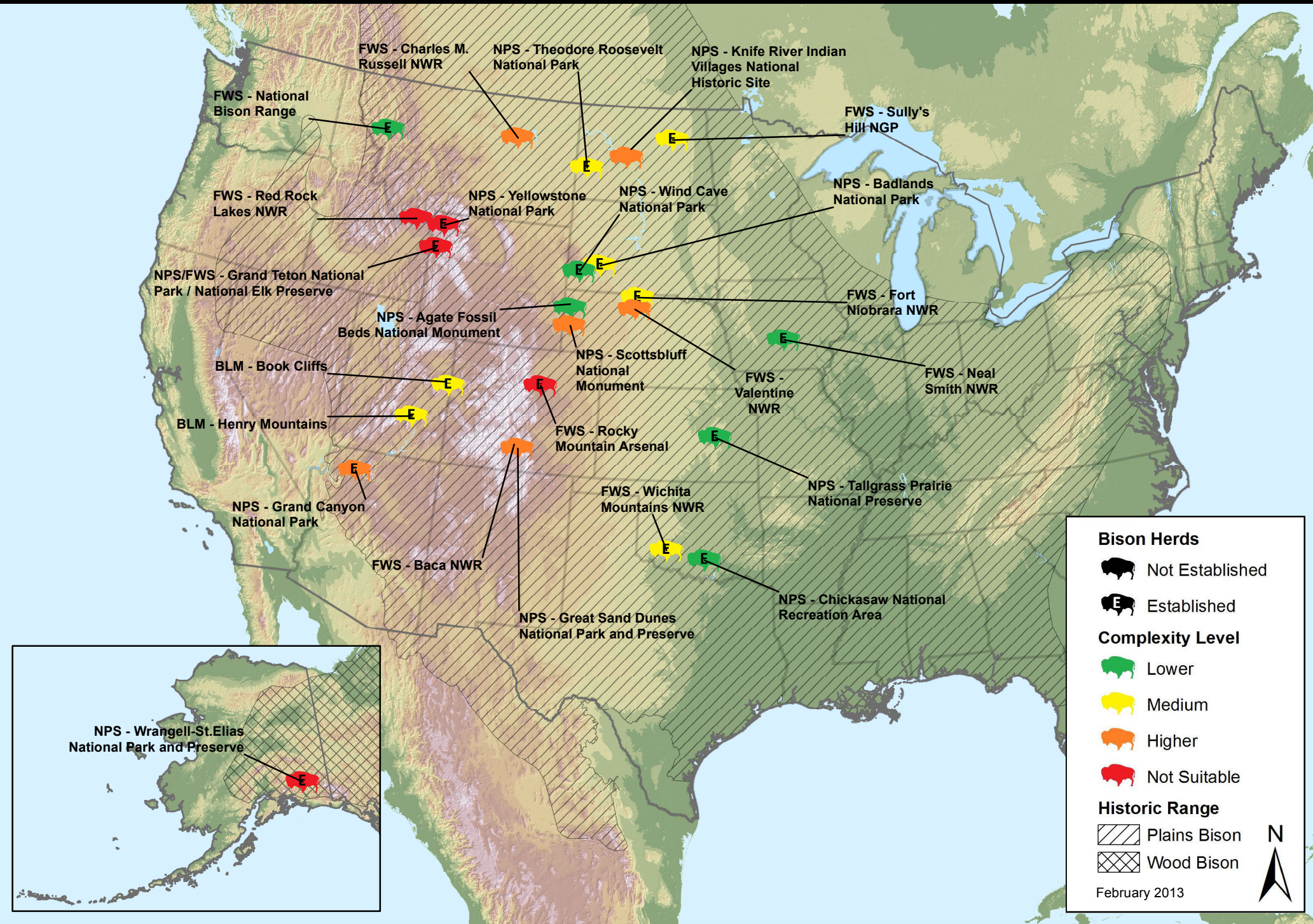
- Twenty units may be suitable for quarantined bison.
- Six units were grouped as least complex, seven units as having medium complexity, and seven units as having the highest level of complexity.
- Seven units are not suitable for the placement of quarantined bison for reasons which are explained in the individual unit’s description in Appendix A.

In addition to these units, other federal lands within the historical range of plains bison could be evaluated in the future. Any consideration of placing bison on DOI lands will take into account resource needs and will follow all applicable federal laws and regulations, including environmental and bureau land use planning requirements prior to implementation. DOI bureaus will also coordinate with state veterinarians and wildlife officials and consult with tribal governments about relocating quarantined bison onto DOI lands.

Placement of quarantined bison on DOI lands that already maintain an existing bison herd will require additional considerations when compared to those that do not have bison. Either option

involves site-specific planning and management, and requires bureaus to engage stakeholders. However, if a DOI unit already has bison, considerations would include whether to separate the quarantined bison from or integrate them with the existing herd. Integrating quarantined bison into an existing herd, with sufficient understanding of the respective genetics, likely represents the least logistically complex and most cost-efficient approach, and could potentially enrich the unit's bison genetics. Keeping the herds separate would be more complex and expensive, but would provide additional time to analyze and plan before making a final decision about the best placement for quarantined bison in terms of genetic and/or ecological benefits.

**Figure 1. Relative complexity of management and planning for consideration of placement of quarantined brucellosis-free Yellowstone-origin bison on DOI lands**



FWS - Charles M. Russell NWR  
 NPS - Theodore Roosevelt National Park  
 NPS - Knife River Indian Villages National Historic Site  
 FWS - National Bison Range  
 FWS - Sully's Hill NGP  
 FWS - Red Rock Lakes NWR  
 NPS - Yellowstone National Park  
 NPS - Wind Cave National Park  
 NPS - Badlands National Park  
 NPS/FWS - Grand Teton National Park / National Elk Preserve  
 NPS - Agate Fossil Beds National Monument  
 FWS - Fort Niobrara NWR  
 BLM - Book Cliffs  
 NPS - Scottsbluff National Monument  
 FWS - Valentine NWR  
 FWS - Neal Smith NWR  
 BLM - Henry Mountains  
 FWS - Rocky Mountain Arsenal  
 NPS - Tallgrass Prairie National Preserve  
 NPS - Grand Canyon National Park  
 FWS - Baca NWR  
 FWS - Wichita Mountains NWR  
 NPS - Chickasaw National Recreation Area  
 NPS - Great Sand Dunes National Park and Preserve

NPS - Wrangell-St. Elias National Park and Preserve



**Table 2.** Relative complexity of management and planning for consideration of placement of quarantined brucellosis-free Yellowstone-origin bison on DOI lands.

<b>Complexity</b>	<b>Unit</b>	<b>Agency</b>	<b>Has Bison</b>	<b>State</b>
<b>Low</b>	Agate Fossil Beds National Monument	NPS	No	NE
	Chickasaw National Recreation Area	NPS	Yes	OK
	National Bison Range	FWS	Yes	MT
	Neal Smith National Wildlife Refuge	FWS	Yes	IA
	Tallgrass Prairie National Preserve	NPS	Yes	KS
	Wind Cave National Park	NPS	Yes	SD
<b>Medium</b>	Badlands National Park	NPS	Yes	SD
	Book Cliffs	BLM	Yes	UT
	Henry Mountains	BLM	Yes	UT
	Fort Niobrara National Wildlife Refuge	FWS	Yes	NE
	Sullys Hill National Game Preserve	FWS	Yes	ND
	Theodore Roosevelt National Park	NPS	Yes	ND
	Wichita Mountains National Wildlife Refuge	FWS	Yes	OK
<b>High</b>	Baca National Wildlife Refuge	FWS	No	CO
	Charles M. Russell National Wildlife Refuge	FWS	No	MT
	Grand Canyon National Park	NPS	Yes	AZ
	Great Sand Dunes National Park and Preserve	NPS	No	CO
	Knife River National Historic Site	NPS	No	ND
	Scotts Bluff National Monument	NPS	No	NE
	Valentine National Wildlife Refuge	FWS	No	NE
<b>Not Suitable<sup>1</sup></b>	Grand Teton National Park / John D. Rockefeller, Jr. Memorial Parkway, National Elk Refuge	NPS, FWS	Yes	WY
	Red Rock Lakes National Wildlife Refuge	FWS	No	MT
	Rocky Mountain Arsenal, National Wildlife Refuge	FWS	Yes	CO
	Wrangell-St. Elias National Park and Preserve	NPS	Yes	AK
	Yellowstone National Park	NPS	Yes	ID,MT,WY

<sup>1</sup> See Appendix A for details.



## Summary

Over the course of the past century, bison were saved from extinction and set on a course to recovery. In that time, DOI has advanced bison conservation and remains committed to doing so over the next century. However, significant work remains to restore the species to its ecological and cultural role on appropriate landscapes. It is encouraging that the bison conservation toolkit continues to grow through functions like adaptive risk management, conservation genetics, meta-population management, and most recently with the potential brought about by the success of brucellosis quarantine.

And yet, the most important bison conservation tool available to DOI continues to be collaboration amongst federal, state, local, and tribal partners. This report reaffirms the 2008 Bison Conservation Initiative finding that wide-scale bison conservation will necessarily entail innovative partnerships with both traditional and non-traditional partners to allow bison to range across multiple jurisdictions at larger landscape scales. This scenario is at the heart of the successful establishment of the wildlife herd of huntable “Book Cliffs” bison on BLM and adjacent lands in Utah.

And on the horizon, DOI is undertaking several formal public planning processes for bison conservation focusing on innovative partnerships. In, South Dakota, NPS is coordinating with the state and BIA and working with the Oglala Sioux Tribe to establish a tribal buffalo herd on the South Unit of Badlands National Park which is within the Pine Ridge Reservation. In Colorado, NPS and FWS are coordinating with the state and The Nature Conservancy (TNC) in public planning to evaluate the potential for a ranging bison herd across DOI lands at Great Sand Dunes National Park and Preserve, Baca National Wildlife Refuge, and adjacent TNC lands. And in Arizona, DOI is collaborating with the state and USFS in public planning for bison management at Grand Canyon National Park that would contribute to Arizona’s goals for a wildlife herd of huntable bison on lands adjacent to the park. These three represent important case studies to measure DOI’s success in developing these types of innovative partnerships.

Indeed, by developing such partnerships, it is possible to look forward and envision a rich and varied tableau of conservation bison herds amidst working landscapes wherein healthy, ranging bison contribute not only to the conservation of the species, but also to sustainable local and regional economies and communities through such activities as tourism, hunting, agriculture, and ecological and cultural restoration.

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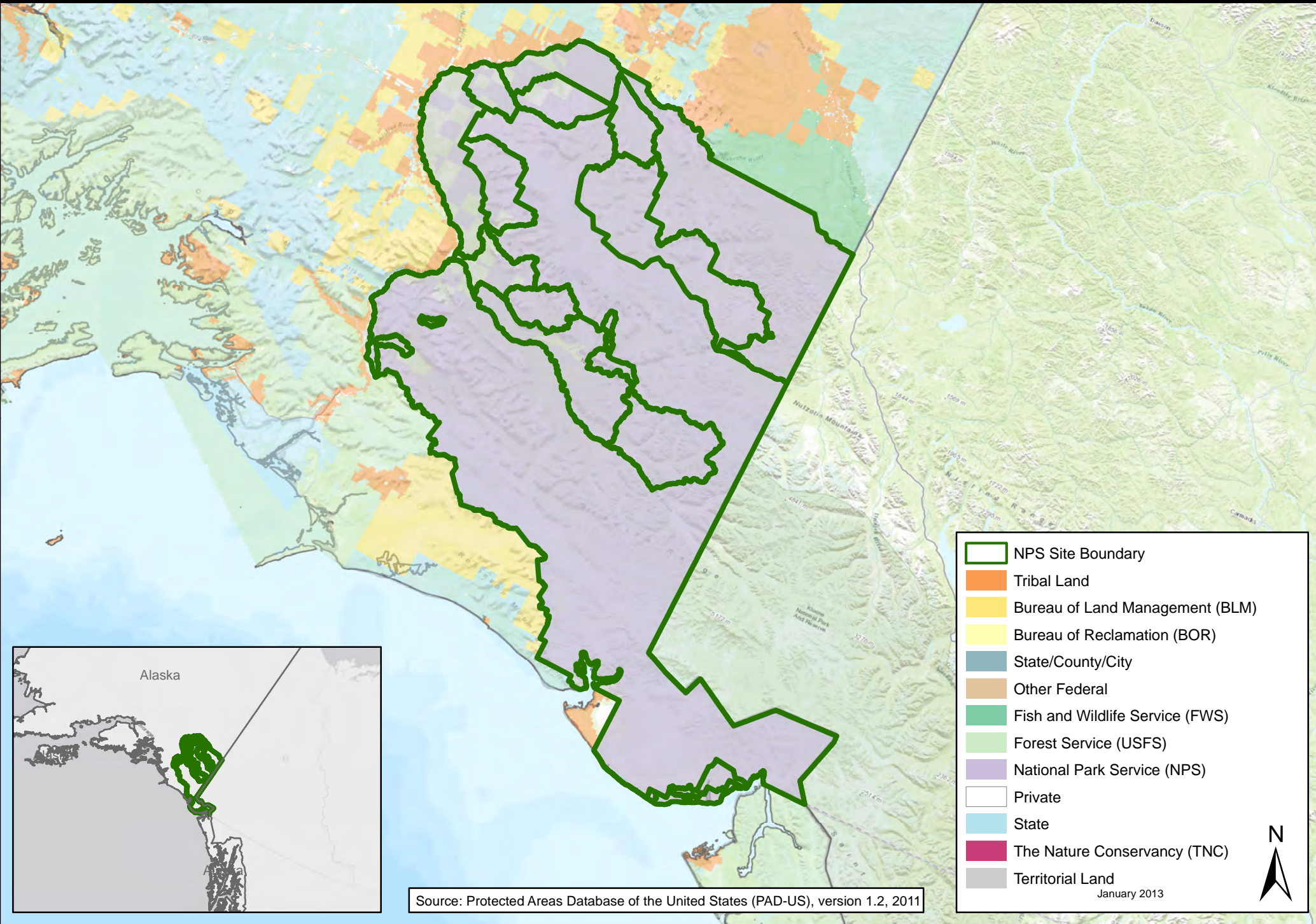
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# **Appendix A – DOI Bison Resource Details**

(All information accurate as of December 2012)

# NPS - Wrangell - St. Elias National Park & Preserve

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



## **Wrangell-St. Elias National Park and Preserve: Chitina River and Copper River (Alaska)**

Primary Jurisdiction/Agency: Alaska Department of Fish and Game

Cooperating Jurisdiction/Agency: National Park Service <[www.nps.gov/wrst](http://www.nps.gov/wrst)>

Established Bison Herd: Yes

Primary Objective(s) for Bison: Hunter harvest, long-term population and genetic conservation, source for other conservation populations.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

Two separate plains bison herds occupy the park:

- Copper River herd established in 1950 with 17 animals from Delta Junction, Alaska
- Chitina River herd established in 1962 from Delta Junction

Both populations are unfenced and managed through hunting to maintain a minimum overwintering adult population of at least 60 (Copper River) and 50 (Chitina River) animals. Population estimates in 2009 were 118 adults and 36 adults, respectively. The Chitina herd is recovering from a die-off in 2004 due to deep snows. Bison are not routinely handled.

Landscape (Size and Use, Land-Use Practices, Management of Bison Movement):

The bison are free-ranging. The Copper River bison move through several townships on private and public land, including the park. The Chitina River herd occupies a 40-mile stretch of the upper Chitina River Valley within the park.

Ecological Interactions (Selection Regime, Native Species, and Ecological Processes):

Dall sheep, mountain goats, caribou, and moose may interact with bison. Wolves, black bears, and brown bears likely prey on bison (especially calves). Periodic wildfire affects bison grazing range.

Bison-Livestock Interactions: During winter, the Copper River bison may commingle with domestic cattle, yaks, goats, sheep, and horses in the Kenny Lake area outside the park. Trail horses are allowed to graze inside the park during winter and may occasionally share bison range.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Hunting is the principal bison-human interaction. The bison are harvested by Alaska residents who access the herds by boat, snowmobile, or airplane. There is no subsistence hunting of these herds.

Historical Range: These bison are descended from bison relocated from the National Bison Range in 1928. They are outside the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The bison are brucellosis-free. They are not vaccinated. Some genetic testing has been completed, but there is no long-term genetic monitoring.

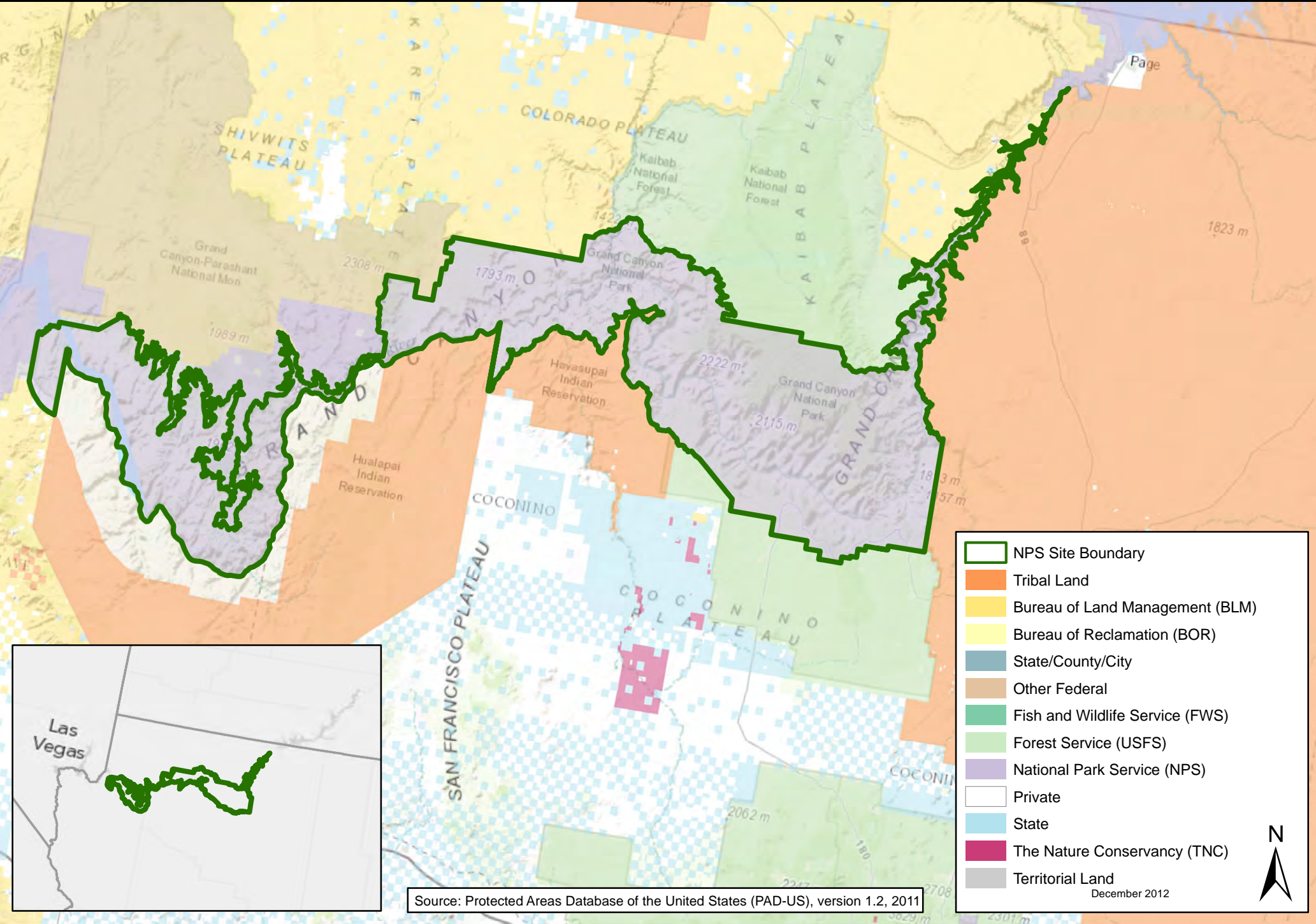
Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Not suitable for the placement of quarantined bison. (This unit is outside the historical range of plains bison.)

Other Key Management Considerations: N/A

# NPS - Grand Canyon National Park

National Park Service  
 U.S. Department of the Interior  
 Natural Resource Stewardship and Science



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012



## **Grand Canyon National Park (Arizona)**

Primary Jurisdiction/Agency: National Park Service (NPS) <[www.nps.gov/grca](http://www.nps.gov/grca)>

Cooperating Jurisdiction/Agency: U.S. Forest Service (USFS), Bureau of Land Management (BLM) and Arizona Game and Fish Department (AGFD)

Established Bison Herd: Yes

Primary Objective(s) for Bison: NPS is collaborating with AGFD, BLM and USFS to complete an Environmental Impact Statement for a long-term bison management plan at Grand Canyon National Park that also contributes to conservation of ranging bison on lands adjacent to the park.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd began with Yellowstone-origin bison that were transported by private owner to Arizona in 1906 and crossbred with cattle to establish a hardier breed of livestock (cattlelo). During the next 20 years, the herd underwent multiple ownership changes, and in 1927, 98 animals with hybrid ancestry were sold to the state of Arizona where they grazed on fenced USFS land from the 1950s to the 1980s. The bison then escaped confinement and began moving onto the Kaibab Plateau and into the Grand Canyon North Rim area after 2000, when fires opened up the forest canopy. The bison are unconfined and now spend little time outside the park due to hunting pressures and lack of available water. NPS has unsuccessfully attempted to move the bison outside the park, and the AGFD bison hunt objectives on lands adjacent to the park have not been met (see “Human Interactions” below). The current population estimate is over 300.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison occupy approximately 1 township (36 mi<sup>2</sup>) within the North Rim of the park. They no longer use historic calving areas outside the park.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Both managed and natural wildfires occur on the North Rim and are believed to influence bison distribution in the park and adjacent lands. Prevailing concerns about bison effects include impacts to archeological resources, water resources (including natural lakes, springs and seeps), water quantity and quality, plant diversity, and sensitive soils and native plant communities, which could then affect habitat suitability for other sensitive wildlife.

Bison-Livestock Interactions: There are some concerns about potential for bison and cattle competition on grazing allotments on adjacent USFS lands.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

AGFD manages a bison hunt on lands adjacent to the park and harvest objectives have not been met in recent five years because the herd now remains primarily in the park. Bison viewing by visitors to the park’s North Rim is limited.

Historical Range: The park lies within the southwest edge of the historical range of plains bison and local abundance was likely very limited.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

AGFD collects blood samples from hunter-killed bison for brucellosis testing. Genetic testing has shown these animals to have a relatively high level of cattle gene introgression.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): The socio-political environment is complex with contrasting viewpoints amongst a wide range of stakeholders for and against bison on the park and adjacent lands.

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

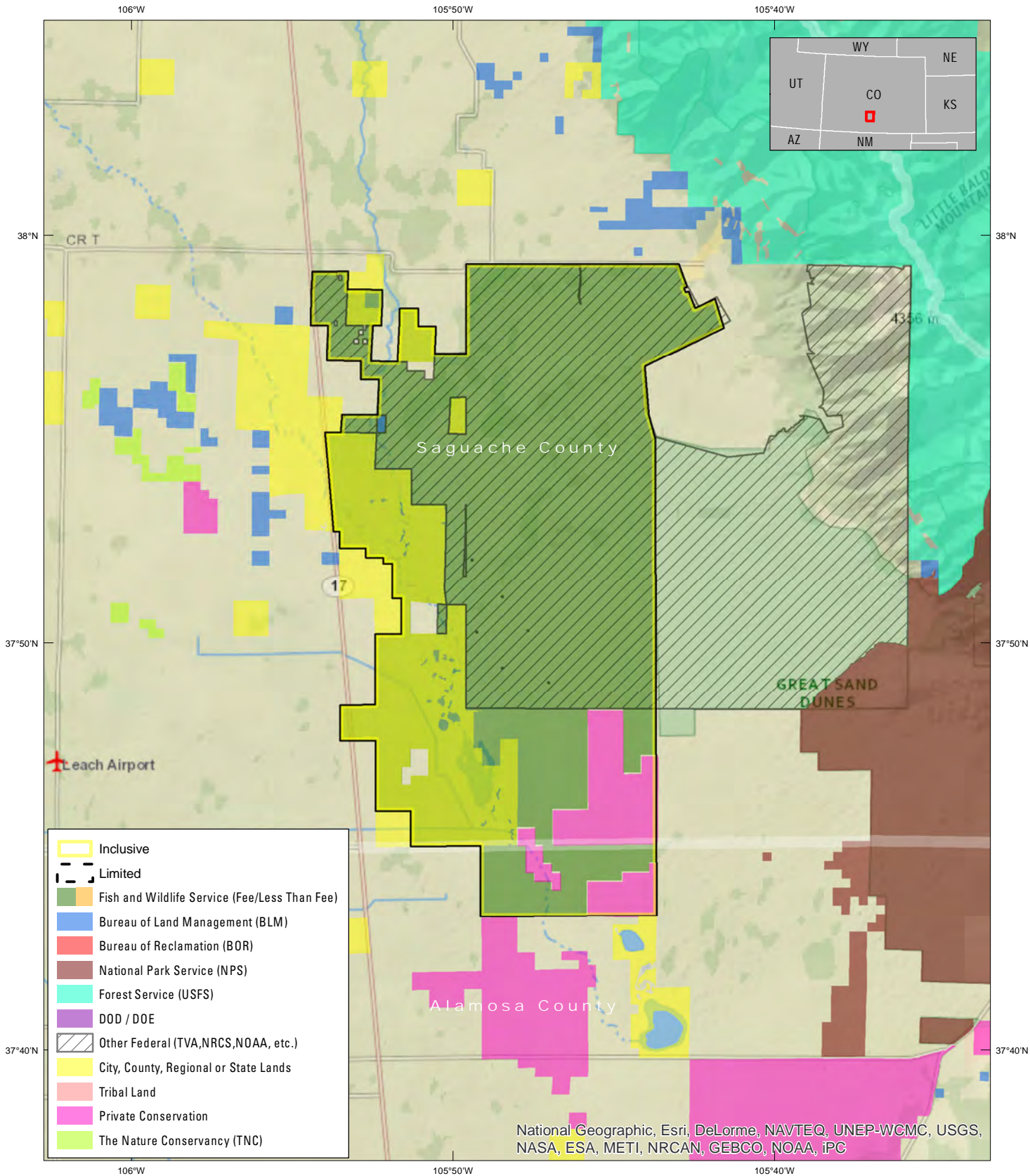
Other Key Management Considerations: NPS is working with USFS, BLM and AGFD toward joint management objectives for the existing population.



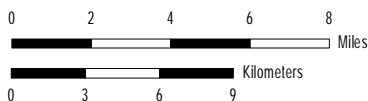
U.S. Fish & Wildlife Service

# Baca National Wildlife Refuge

Region 6



PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

## **Baca National Wildlife Refuge (Colorado)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service <[www.fws.gov/alamosa/bacanwr.html](http://www.fws.gov/alamosa/bacanwr.html)>

Cooperating Jurisdiction/Agency: National Park Service, The Nature Conservancy (TNC)

Established Bison Herd: No

Primary Objective(s) for Bison: The current bison population at the refuge is owned by TNC as a result of former bison grazing leases on lands previously owned by the state of Colorado. A Comprehensive Conservation Plan (CCP) under development will evaluate various options for bison conservation on the refuge. The CCP is scheduled for completion in early 2015.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The CCP will evaluate considerations for herd management under any alternative which proposes bison conservation on the refuge.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The refuge is adjacent to Great Sand Dunes National Park and Preserve and TNC's Medano Ranch. Collectively, the area represents a relatively large landscape for bison conservation.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Recent studies on bison foraging ecology and elk interactions in the San Luis Valley show that annual forage variation needs to be considered.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

A bison herd exists on adjacent TNC lands and is only partially accessible to public viewing. No bison hunting or associated tribal uses currently occur for the TNC herd.

Historical Range: The entire San Luis Valley is part of the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The TNC herd is considered disease free, with evidence of cattle gene introgression.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

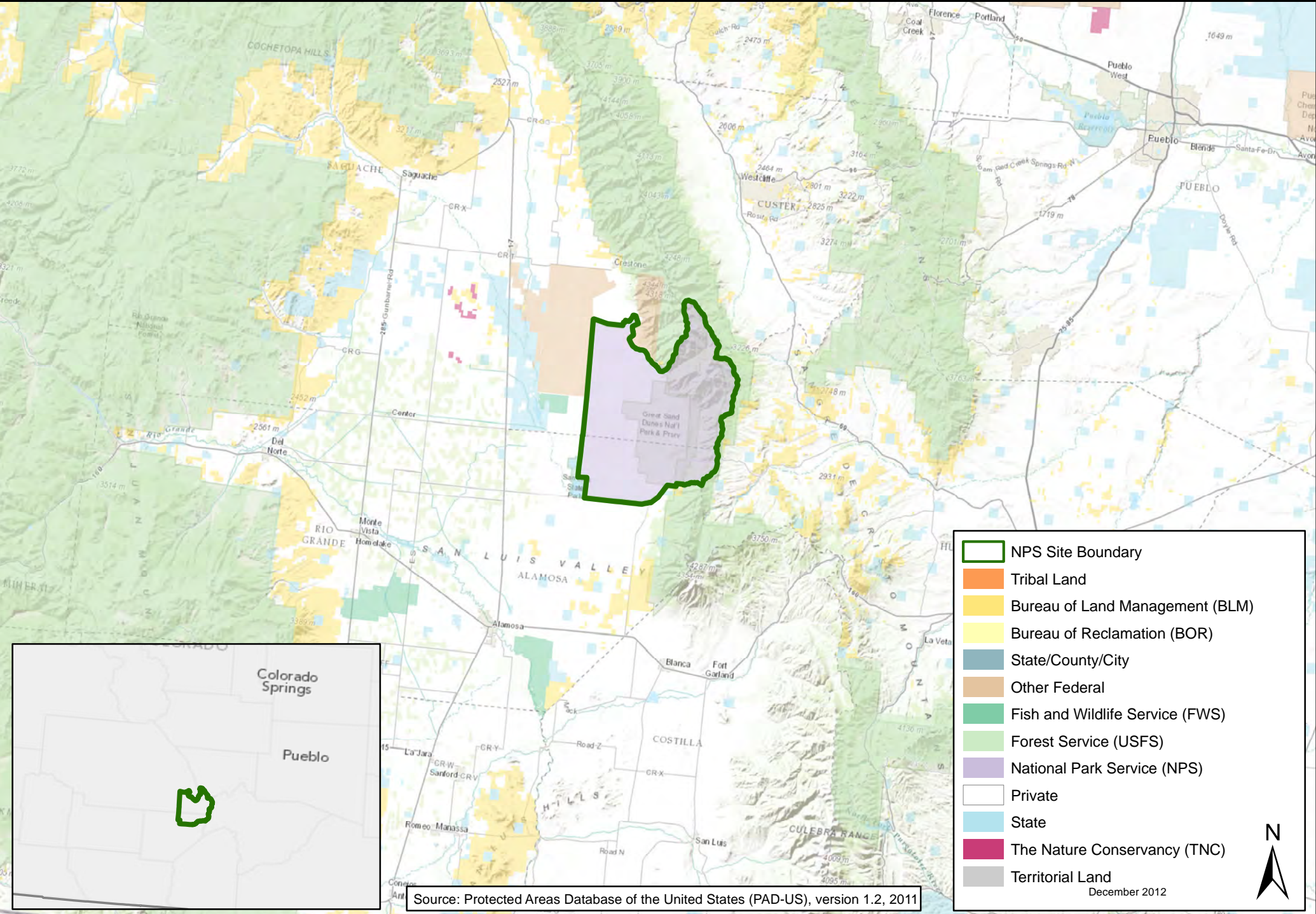
Conflict): The refuge has successfully used cattle and sheep as habitat management tools to achieve habitat and other vegetation management goals. Since the refuge was established in 2003, TNC has advocated expanding their bison area to all or parts of the refuge and Great Sand Dunes National Park and Preserve. Public comments generated while preparing the CCP were mixed—some support more widespread use of bison on the refuge and others, primarily from the agricultural community, oppose it.

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

Other Key Management Considerations: Extensive planning, compliance, and review would be needed to accommodate any transfer of quarantined bison to the refuge.

# NPS - Great Sand Dunes National Park & Preserve

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



- NPS Site Boundary
- Tribal Land
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- State/County/City
- Other Federal
- Fish and Wildlife Service (FWS)
- Forest Service (USFS)
- National Park Service (NPS)
- Private
- State
- The Nature Conservancy (TNC)
- Territorial Land

December 2012

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011



## **Great Sand Dunes National Park and Preserve (Colorado)**

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/grsa](http://www.nps.gov/grsa)>

Cooperating Jurisdiction/Agency: Colorado Department of Parks and Wildlife, U.S. Fish and Wildlife Service (FWS), U.S. Forest Service (USFS), The Nature Conservancy (TNC)

Established Bison Herd: No

Primary Objective(s) for Bison: TNC owns and maintains bison on their lands adjacent to the park. In 2012 the park began NEPA planning to evaluate potential bison restoration and elk management on NPS lands.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure): N/A  
Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The park comprises mixed-shrub, sand dune, forest, and mountain habitats. Extensive agriculture in the San Luis Valley includes high-value irrigation farms adjacent to the park. TNC, USFS, and FWS hold extensive landscape scale conservation land adjacent to the park.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The park's extensive mixed-shrub, sand dune, forest, and mountain habitats support a wide array of native wildlife of the southern Rocky Mountains.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The park is primarily known for its unique sand dunes and associated hydrological processes. A bison herd exists on adjacent TNC lands and is only partially accessible to public viewing. No bison hunting or associated tribal uses currently occur for the TNC herd.

Historical Range: The entire San Luis Valley is part of the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The TNC herd is considered disease free, with evidence of cattle gene introgression.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): NPS is coordinating with the Colorado Department of Parks and Wildlife through the park's bison-elk EIS. Public support for bison restoration is mixed, with concerns primarily surrounding potential conflicts with agriculture and water use.

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

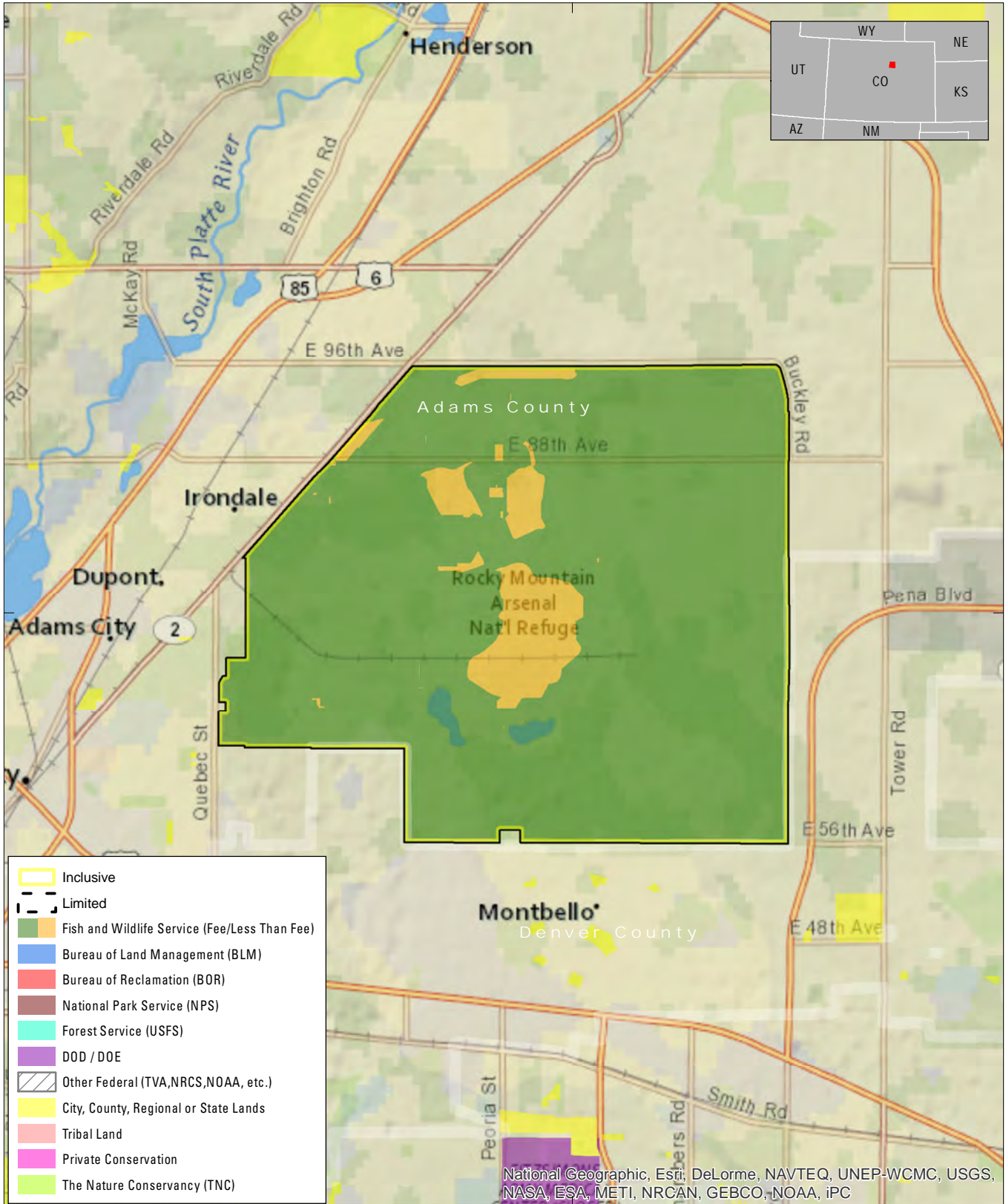
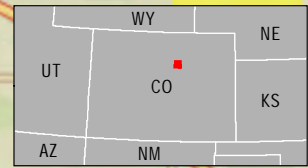
Other Key Management Considerations: Extensive feasibility study, interagency cooperation, and NEPA compliance would be necessary, as the transfer of quarantined bison would likely occur within an overall bison restoration program. In addition, coordination with the state of Colorado would be necessary along with associated state permits for transporting quarantined bison to the park.



# Rocky Mountain Arsenal National Wildlife Refuge

Region 6

104°50'W



39°50'N

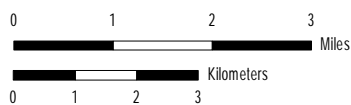
39°50'N

- Inclusive
- Limited
- Fish and Wildlife Service (Fee/Less Than Fee)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- National Park Service (NPS)
- Forest Service (USFS)
- DOD / DOE
- Other Federal (TVA, NRCS, NOAA, etc.)
- City, County, Regional or State Lands
- Tribal Land
- Private Conservation
- The Nature Conservancy (TNC)

National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

104°50'W

PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



## **Rocky Mountain Arsenal National Wildlife Refuge (Colorado)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

<[www.fws.gov/refuge/rocky\\_mountain\\_arsenal](http://www.fws.gov/refuge/rocky_mountain_arsenal)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Habitat management, education, and research.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The carrying capacity of the existing enclosure is up to 80 animals with a current population of 70 animals. An expanded bison enclosure has been proposed, which would require the construction of an additional 8.5 miles of tall game fence and 12 miles of lower buffer fencing to separate pastures inside the existing perimeter fence. The current bison handling facility would also require expansion to accommodate a larger herd. When all planned habitat expansions for bison are completed, the refuge will have the capacity for approximately 250 bison.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

Once the existing enclosure has been expanded, the refuge will have approximately 12,000 acres of bison habitat. Nearly all of those acres have been disturbed in the past, either through environmental toxins or by farming before the military presence. The refuge has undergone decades of remediation under EPA supervision and is now restoring habitat in disturbed areas, with approximately 4,000 acres yet to be completed. Once completed, the refuge will maintain restoration projects and offer public tours. Rotational grazing will manage bison movement and enhance ecological restoration.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Bison at the refuge are being used as a grassland ecological restoration tool to help restore native prairie function. The prairie community within the bison enclosure includes deer and small mammals, particularly prairie dogs.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison are one of the main attractions for tours at the refuge. In the future, the public will be able to see bison from the visitor center and on self-guided tours.

Historical Range: The refuge is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The herd is rounded up and culled annually. It is part of the FWS meta-population with known genetic background (high diversity and minor cattle gene introgression) and subject to herd health monitoring. Genotyping is completed on all calves that are 6–8 months old. The herd is not affected by any USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries), and vaccination is not routinely practiced. Malignant catarrhal fever has been diagnosed in bison on the refuge.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): Currently, the refuge is under an EPA-monitored Federal Facilities Agreement (FFA) that states that nothing can leave the refuge for human consumption. Unless the FFA is modified, any bison that need to be culled cannot be sold or transferred to other ownership. Bison can be sent to other refuges, but they must remain there until they die.

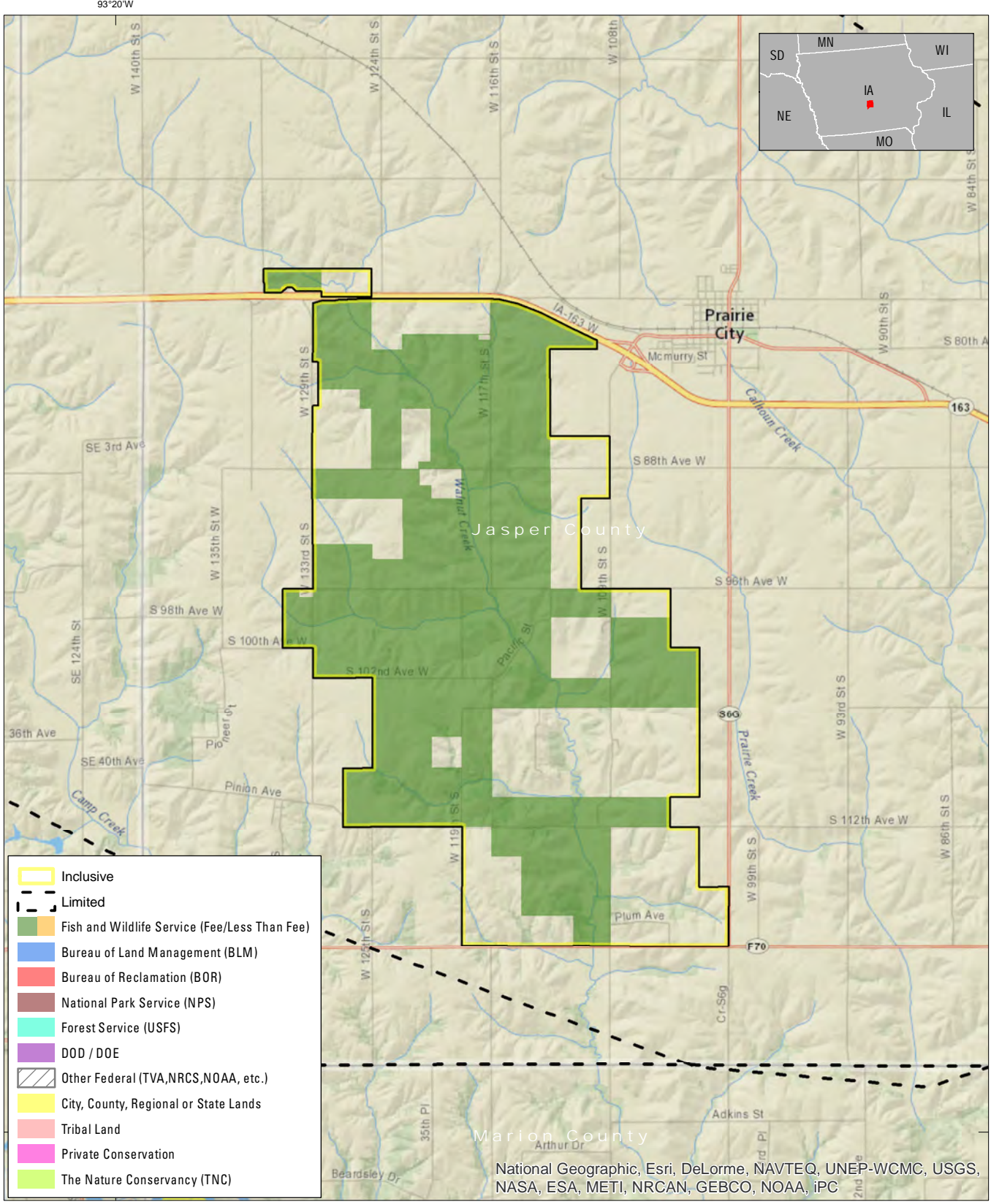
Relative Level of Complexity for Placement of Quarantined Bison: Not suitable for the placement of quarantined bison. (Because of residual environmental contamination at the site, bison at the refuge cannot be sold or transferred to other ownership and cannot be relocated from the refuge for purposes that could involve eventual human consumption. Therefore, placing quarantined bison here would preclude future relocation and ownership options.)

Other Key Management Considerations: N/A



# Neal Smith National Wildlife Refuge

Region 3

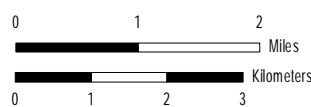


41°30'N

41°30'N

93°20'W

PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC



## Neal Smith National Wildlife Refuge (Iowa)

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service <[www.fws.gov/refuge/Neal\\_Smith](http://www.fws.gov/refuge/Neal_Smith)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Genetic conservation, habitat management, research, and education.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The bison are in a 700-acre fenced enclosure within the 5,600-acre refuge. The current herd size is 68 yearlings and adults and 17 calves, and the target carrying capacity is approximately 70 animals. The population is managed for an even gender ratio and maximum age distribution.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison move freely within the 700-acre enclosure, which consists primarily of a grassland ecosystem with strips of trees along waterways. The area has been planted with native prairie vegetation, although non-native pasture grasses and other invasive species are present. Invasive species management takes place within the enclosure, including mowing and herbicide spot-spraying. Patch burning is used to influence herd grazing patterns. The landscape around the refuge is primarily agricultural with the town of Prairie City adjacent to the refuge.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Selection pressure is almost entirely through refuge-managed culling, with occasional individual mortality. Conserving genetic diversity shapes the primary criteria for bison culling. Bison feed on native and non-native prairie vegetation. Prairie birds, small mammals, white-tailed deer, and a small herd of elk can also be found within the enclosure. Patches of prairie in the enclosure are burned 2–3 times each year, which results in a complete burn of the enclosure every 2–3 years. Several waterways run through the enclosure; none are eroding due to use by bison.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

A gravel county road runs through the enclosure and is part of the refuge auto tour to view the bison. They also can be viewed from a portion of the entry road, and from the visitor center and its adjacent trails. Hunting of bison is not permitted, and there is no indigenous use of the bison on the refuge. However, excess animals not transferred to other refuges are donated to area tribes.

Historical Range: Bison were historically found in Iowa but were extirpated from the state in 1863.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The herd is rounded up and culled annually, and is part of the FWS meta-population with a known genetic background (high diversity and minor cattle gene introgression) and subject to herd health monitoring. Genotyping is completed on all calves that are 6–8 months old. The herd is not affected by any USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries), and vaccination is not routinely practiced.

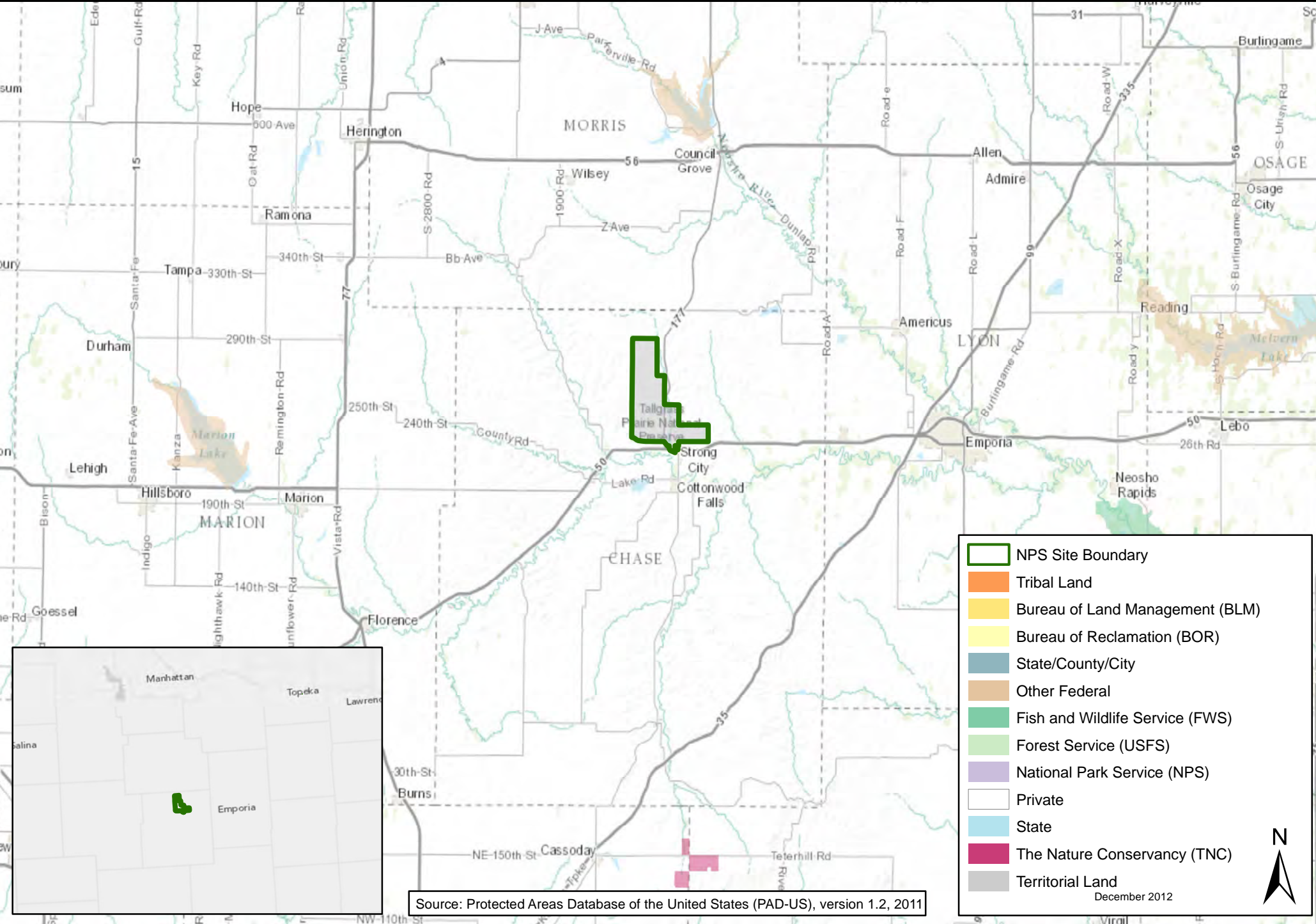
Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict) and Other Key Management Considerations: The bison are extremely popular with area residents and other visitors, who continually ask for more opportunities to view and photograph the herd.

Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

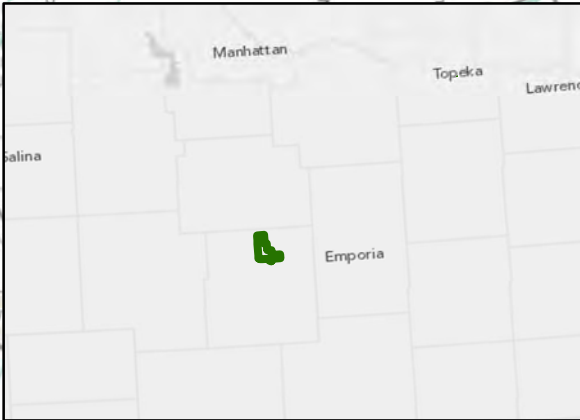
Other Key Management Considerations: Health management is a key element at the refuge, which has conducted long-term comprehensive prospective herd health surveillance. Adequate health assessments of quarantined bison would be necessary before they are introduced. Genetic augmentation would make introduction a beneficial refuge management action and not subject to any further planning or compliance. Additional review, planning, and compliance may be necessary if the quarantined bison were maintained as a separate herd.

# NPS - Tallgrass Prairie National Preserve

National Park Service  
 U.S. Department of the Interior  
 Natural Resource Stewardship and Science



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012



## Tallgrass Prairie National Preserve (Kansas)

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/tapr](http://www.nps.gov/tapr)>

Cooperating Jurisdiction/Agency: The Nature Conservancy (TNC)

Established Bison Herd: Yes

Primary Objective(s) for Bison: Restore and conserve a keystone native species; improve and sustain the ecological health and biological diversity of the preserve; restore and conserve a cultural and ethnographic resource; increase visitor satisfaction and experiences at the preserve; and serve as satellite herd to Wind Cave National Park.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 2009 with 13 bison from Wind Cave National Park. The current bison population is 21 animals with a goal of 75–100 animals. Bison are fenced and managed as a satellite herd to Wind Cave. Annual fall roundups are planned once bison handling facilities are completed.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The preserve is located in the heart of the Flint Hills region of Kansas. This physiographic region of tallgrass prairie, ranging from 30 to 100 miles in width, extends from the Nebraska state line southward into northern Oklahoma. Only 1,100 acres of preserve land have been designated for bison. The preserve has been designated a National Historic Landscape.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

White-tailed deer share the bison pasture. Prescribed fire is used annually to mimic natural processes and improve habitat for all grazers including bison. Bison prefer new growth of recently burned sites. Invasive weeds and trees are removed as needed.

Bison-Livestock Interactions: TNC uses the preserve for cattle grazing during all or part of the growing season. Cattle are separated from the bison herd by a barbed-wire fence.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Bison are a major visitor attraction throughout the year.

Historical Range: The nearly 11,000-acre preserve is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The founding animals came from Wind Cave NP in 2009 and were brucellosis-free. The bison are tested for brucellosis during fall roundups every 2–3 years.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): The preserve's Bison Management Plan/Environmental Assessment was completed September 2009. Public concern was mostly related to potential bison disease issues (brucellosis and tuberculosis).

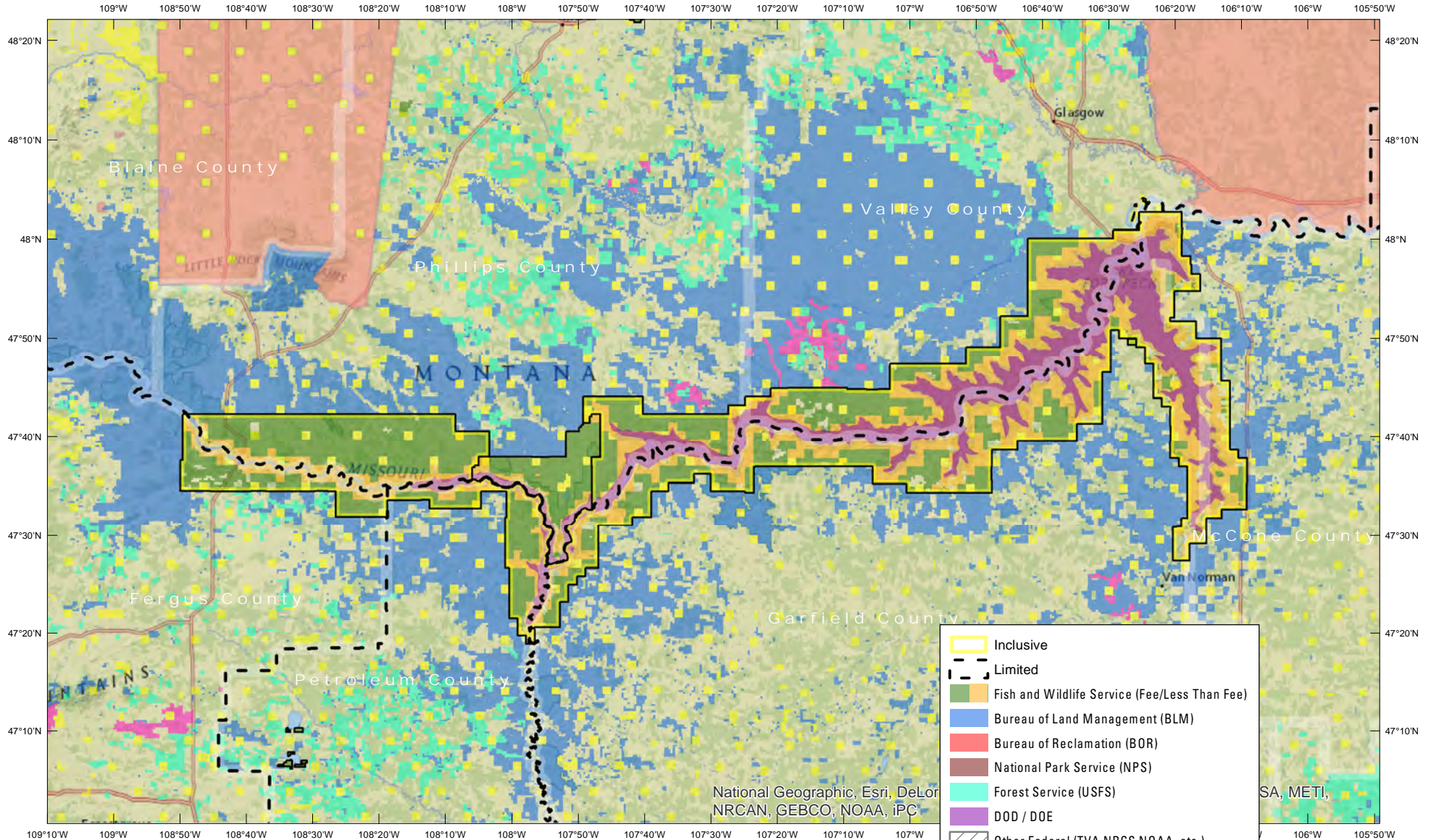
Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

Other Key Management Considerations: NPS holds jurisdiction over 34 acres of the preserve while TNC owns the balance of preserve lands as well as the bison herd.

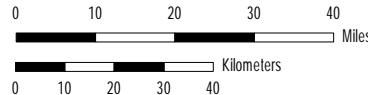
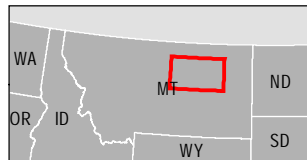


U.S. Fish & Wildlife Service

# Charles M. Russell National Wildlife Refuge Region 6



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 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/2/2013  
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 World Transverse Mercator Projection



## **Charles M. Russell (CMR) National Wildlife Refuge (Montana)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

<[www.fws.gov/refuge/charles\\_m\\_russell](http://www.fws.gov/refuge/charles_m_russell)>

Cooperating Jurisdiction/Agency: Montana Department of Fish, Wildlife and Parks

Established Bison Herd: No

Primary Objective(s) for Bison: To be determined by the state.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

Any plan to restore bison to the refuge would likely focus on large landscape ecological restoration without fences. Because of this, any planning effort would need to be led by the state of Montana. The Record of Decision for the CMR Comprehensive Conservation Plan and Environmental Impact Statement indicates that FWS would cooperate with Montana and other potential partners if the state develops a plan to restore bison as a wide-ranging wildlife species in eastern Montana. Objectives for herd size, composition and range would be established in that plan.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The refuge is focused around and bisected by the Missouri River and Fort Peck Reservoir. The dry-land habitat is a mixture of river bottoms, forested canyons, native prairies, and badlands. Bison management, including distribution and harvest, would be subject to a state plan that would consider forage resources, other native ungulates (e.g. deer, elk, pronghorn, bighorn sheep), and livestock interactions within the larger public and privately owned landscape.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The refuge contains a wide diversity of native fauna and flora with the exception of some large native predators such as grizzly bear and wolves. Mountain lions, large ungulates (elk, two species of deer, pronghorn, moose, bighorn sheep), small mammals (including endangered black-footed ferrets), and a highly diverse avian community occupy the refuge. Refuge managers anticipate bison would interact fully with all components of the ecosystem, and would be hunted.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The public accesses the refuge by car (limited roads), boat, and through recreational activities like hiking, biking, and horseback riding. If bison are relocated here, there would be additional opportunities for public wildlife viewing and hunting.

Historical Range: Bison were historically the dominant herbivore on this landscape.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

N/A

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): The six counties surrounding the refuge are primarily agricultural, with cattle production and ranching as the major economic and cultural drivers. Opposition to “free-ranging wild bison” is deeply entrenched with some stakeholders. At the same time, the non-profit American Prairie Reserve is acquiring large tracts of private land and associated Bureau of Land Management grazing allotments adjacent to the refuge with the goal of restoring bison on more than three million acres of public and private land.

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

Other Key Management Considerations: A Montana-led plan for bison restoration is required before FWS would work with stakeholders to complete a cooperative bison management plan, addressing population objectives and management, movement of animals outside the designated restoration area, genetic conservation and management, disease management, and conflict resolution.



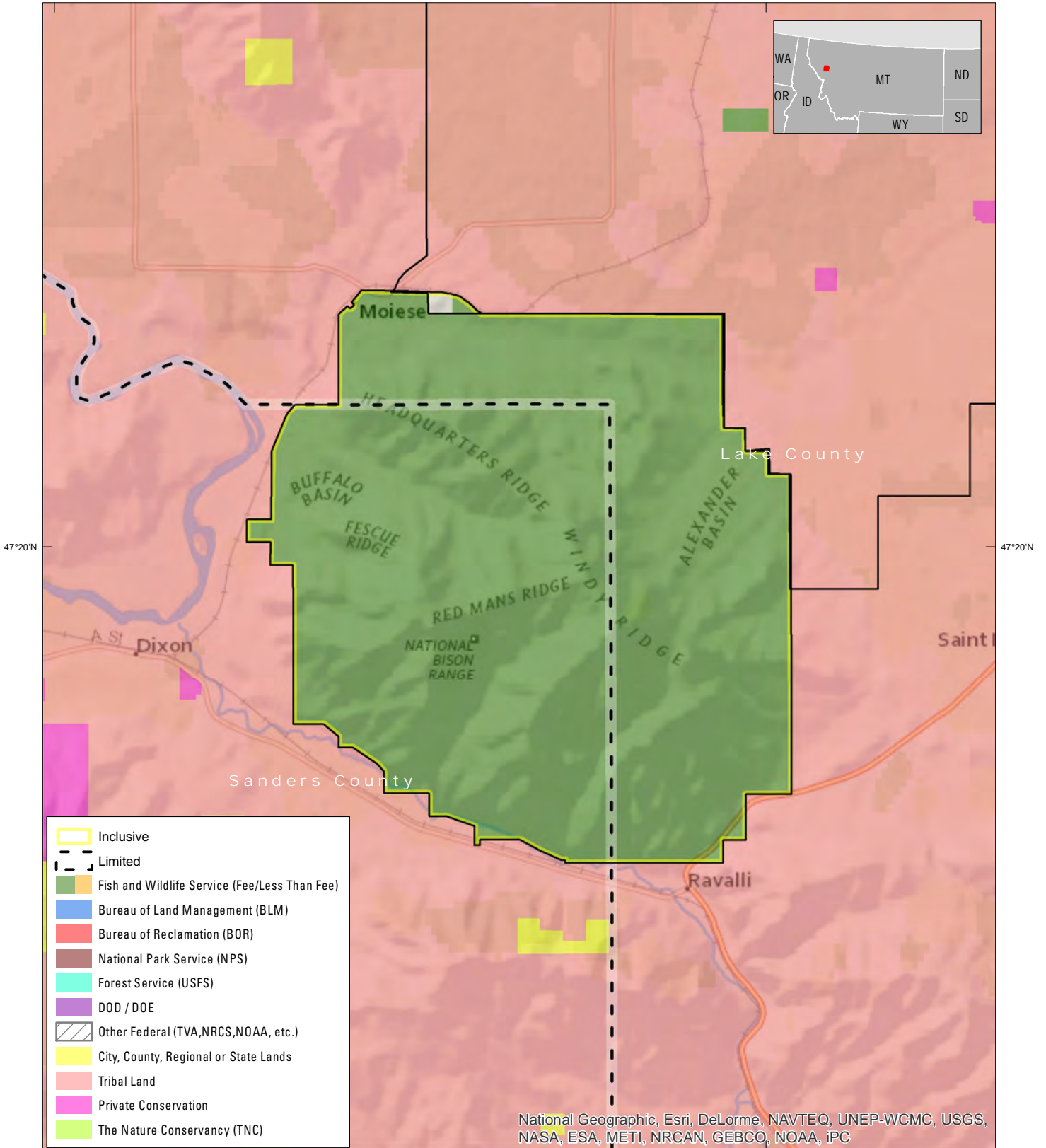
U.S. Fish & Wildlife Service

# National Bison Range

Region 6

114°20'W

114°10'W



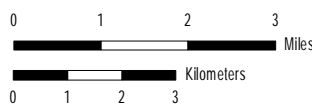
- Inclusive
- Limited
- Fish and Wildlife Service (Fee/Less Than Fee)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- National Park Service (NPS)
- Forest Service (USFS)
- DOD / DOE
- Other Federal (TVA, NRCS, NOAA, etc.)
- City, County, Regional or State Lands
- Tribal Land
- Private Conservation
- The Nature Conservancy (TNC)

National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

114°20'W

114°10'W

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## National Bison Range (Montana)

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

[www.fws.gov/refuge/national\\_bison\\_range](http://www.fws.gov/refuge/national_bison_range)

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Long-term genetic conservation for establishing other conservation populations, habitat management, education, research, and meeting the refuge's legislated purpose ("*for a permanent national bison range for the herd of bison to be presented by the American Bison Society*"), with the original herd purchased with private funds raised by the American Bison Society and then donated to the National Bison Range (NBR).

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

NBR is located on land within the boundary of the Flathead Reservation, purchased from the Confederated Salish and Kootenai Tribes (CSKT). The herd was established in 1908 from 36 bison purchased from the Conrad herd in Kalispell, MT, which originated from the herd of CSKT members, Michel Pablo and Charles Allard, and four others from Charles Goodnight of Texas (1) and Austin Corbin of New Hampshire (3). Since the inception of the NBR herd, 12 bison have been brought in from different locations (1939: 2 males from Seven-Up Ranch, Cameron, MT; 1952: 4 males from Fort Niobrara NWR, Nebraska; 1953: 2 males from Yellowstone National Park; 1984: 4 females from Maxwell State Game Refuge, Kansas). The herd is managed behind a 7-foot woven wire fence topped with 3 strands of barbed wire. The population averages 380–390 animals and is managed for close to a 1:1 gender distribution and wide age distribution to conserve genetic diversity. The refuge does not provide supplemental feeding and carrying capacity varies over time with climate and habitat conditions. All bison at NBR are implanted with microchips for identification purposes during the annual roundup, which occurs annually during the first week of October. Currently, NBR supports a post-roundup population of approximately 350 animals. NBR bison that are culled are donated to tribes, research institutions, food banks, etc. They may also be sold at auction by sealed bid.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison occupy 19,000 acres, divided by interior fencing into 6 grazing units ranging in size from 1,777 to 6,872 acres. These units are separated by a 4-foot woven wire wildlife fence that is electrified when in use. To protect the ecological health of the range, the herd is periodically rotated among grazing units on 3–5 week intervals, and the entire herd is moved to each successive unit by horseback.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Multiple native mammal and bird species are present, and the refuge balances the numbers of bison with other large grazing ungulates such as elk and deer.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

NBR has a 19-mile auto tour route open from May through mid-October. Approximately 250,000 visitors come to this area annually. Hunting is not permitted.

Historical Range: While NBR is within the historical range of plains bison, it consists of Palouse prairie (short grass) habitat that did not evolve with large grazers such as bison. At most, bison were seasonal visitors to the area historically.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The bison at NBR are managed as part of a National Wildlife Refuge System (NWRS) meta-population (comprising 6 refuges in 6 states). Within the meta-population, bison can be relocated among the participating refuges as needed, and the number of animals combined is sufficient to

maintain the greatest level of genetic diversity across all herds while managing them as a closed population—one that is generally closed to outside animal introductions.

Recent science has established that the Yellowstone and NBR herds are closely related and both have high genetic diversity (Dratch and Gogan 2010). Like Yellowstone, NBR bison represent one of the four primary genetic lineages of extant conservation herds. Based on the most recent comparable datasets, the estimated genetic diversity of the NBR bison was slightly higher than Yellowstone bison, but Yellowstone bison do have some unique alleles not currently found in the NWRS meta-population. Scientists have documented that NBR bison show evidence of low-level domestic cattle gene introgression. However, geneticists agree that low levels of introgression exist in most conservation bison herds and no evidence suggests this poses a threat to the bison genome.

NBR bison are subject to herd health monitoring (including mortality and reproductive assessments, and routine assays for pathogen serology, bacteriology, parasitology, clinical chemistry, hematology, clinical assessments, and body weight). Genotyping is completed on all calves that are 6–8 months old. The herd is not affected by any USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries), and vaccination is not routinely practiced. Historically, paratuberculosis has been found on NBR but management over years has reduced or eliminated this disease to undetectable levels.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): FWS and CSKT are developing an Annual Funding Agreement under the Tribal Self-Governance Act of 1994. Therefore, continued consultation with the tribe is essential.

Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

Other Key Management Considerations: NBR may be a suitable relocation site for up to 30 quarantined bison, pending the conclusions of updated health and genetic assessments. Introducing a small number of quarantined bison to NBR is unlikely to raise socio-political concerns provided the net result maintains or increases the genetic diversity of NBR bison. FWS would examine the relative genetic contribution of quarantined bison versus potential loss of existing NBR bison diversity, should outside animals be introduced. Introducing quarantined bison with novel genotypes into the meta-population could further enhance this genetic diversity. Health management is also a key element at NBR, and adequate health assessments on the quarantined bison would be needed prior to relocation to prevent introducing novel pathogens. The results of health and genetic testing will determine which, if any, quarantined bison would be appropriate for transfer to NBR. Specific details relating to the health assessment and genetic testing requirements can be found in the May 2012 FWS statement of work (available upon request).

Further evaluation is needed regarding whether to integrate quarantined bison into the existing herd or maintain them as a separate herd within NBR; the level of environmental compliance and costs are expected to differ substantially between the two management options. The existing cohort of quarantined bison owned by the state of Montana has been the subject of a brucellosis quarantine feasibility study jointly conducted by the state of Montana and APHIS. As such, FWS would plan to consult with the Montana State Veterinarian and APHIS in the event that these animals are proposed for relocation to NBR. In addition, FWS would plan to conduct appropriate tribal consultation before introducing quarantined bison to NBR.



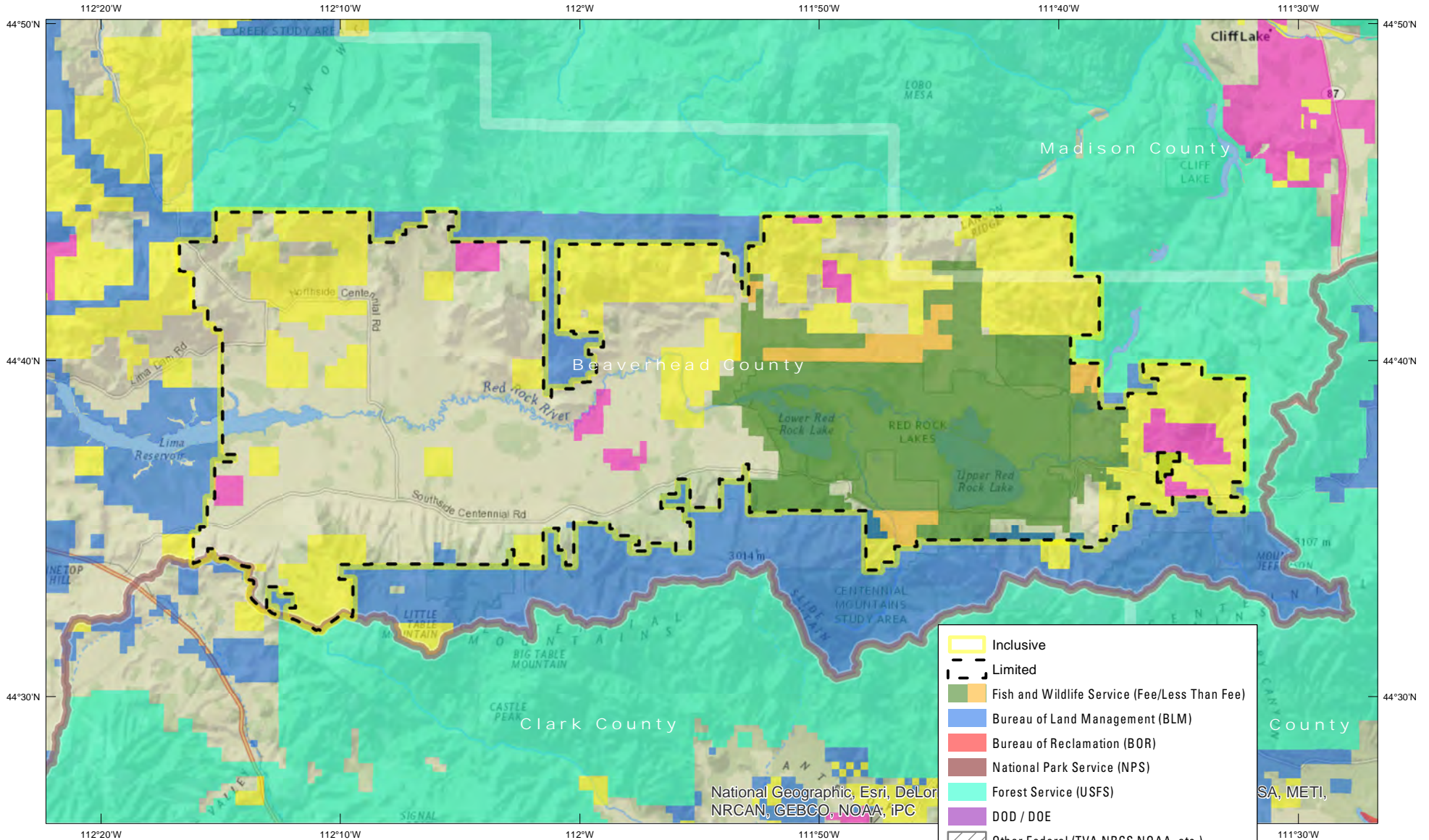




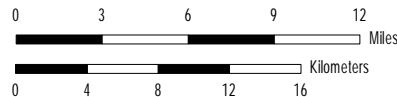
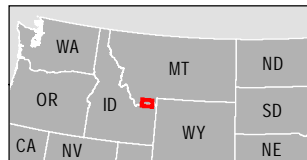
U.S. Fish & Wildlife Service

# Red Rock Lakes National Wildlife Refuge

Region 6



PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/2/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



## **Red Rock Lakes National Wildlife Refuge (Montana)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

<[www.fws.gov/refuge/red\\_rock\\_lakes](http://www.fws.gov/refuge/red_rock_lakes)>

Cooperating Jurisdiction/Agency: Montana Fish, Wildlife and Parks would be cooperators in management of any bison introduced to the refuge because their status would be as ranging wildlife.

Established Bison Herd: No

Primary Objective(s) for Bison: Restore ecological functions of an extirpated species.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The refuge could carry up to 1,000 bison for up to 8 months out of the year as a ranging population. Severe winter weather precludes year-round refuge habitation; the herd would need to winter off the refuge at lower elevation. Any plan to restore bison to the refuge would likely focus on large landscape ecological restoration without fences. Because of this, any planning effort would need to be led by the state of Montana. Objectives for herd size, composition and range would be established by the state plan.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The refuge is a 51,000-acre grassland adjacent to lands managed by the state, Bureau of Land Management, and U.S. Forest Service. The refuge also borders approximately 100,000 acres of private land. The entire landscape (Centennial Valley) is 350,000 acres. Cattle grazing and recreation are primary uses of the valley. Elk, pronghorn, moose, and deer all migrate in and out of the refuge. Bison would likely migrate to lower elevations during the winter.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Bison would interact with the full complement of wildlife and vegetation native to high elevation Rocky Mountain valleys.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Wildlife viewing is a priority for most visitors, who can access the refuge by a network of gravel roads. Hunting of elk, deer, moose and pronghorn antelope is allowed.

Historical Range: The refuge is within the historical range of plains bison; bison bones and horns are occasionally found.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The refuge is within the Brucellosis Designated Surveillance Area of the Greater Yellowstone Area (see [www.aphis.usda.gov](http://www.aphis.usda.gov) for further details). Recent studies by Montana Fish, Wildlife and Parks found that the elk population in the region is chronically infected with brucellosis.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

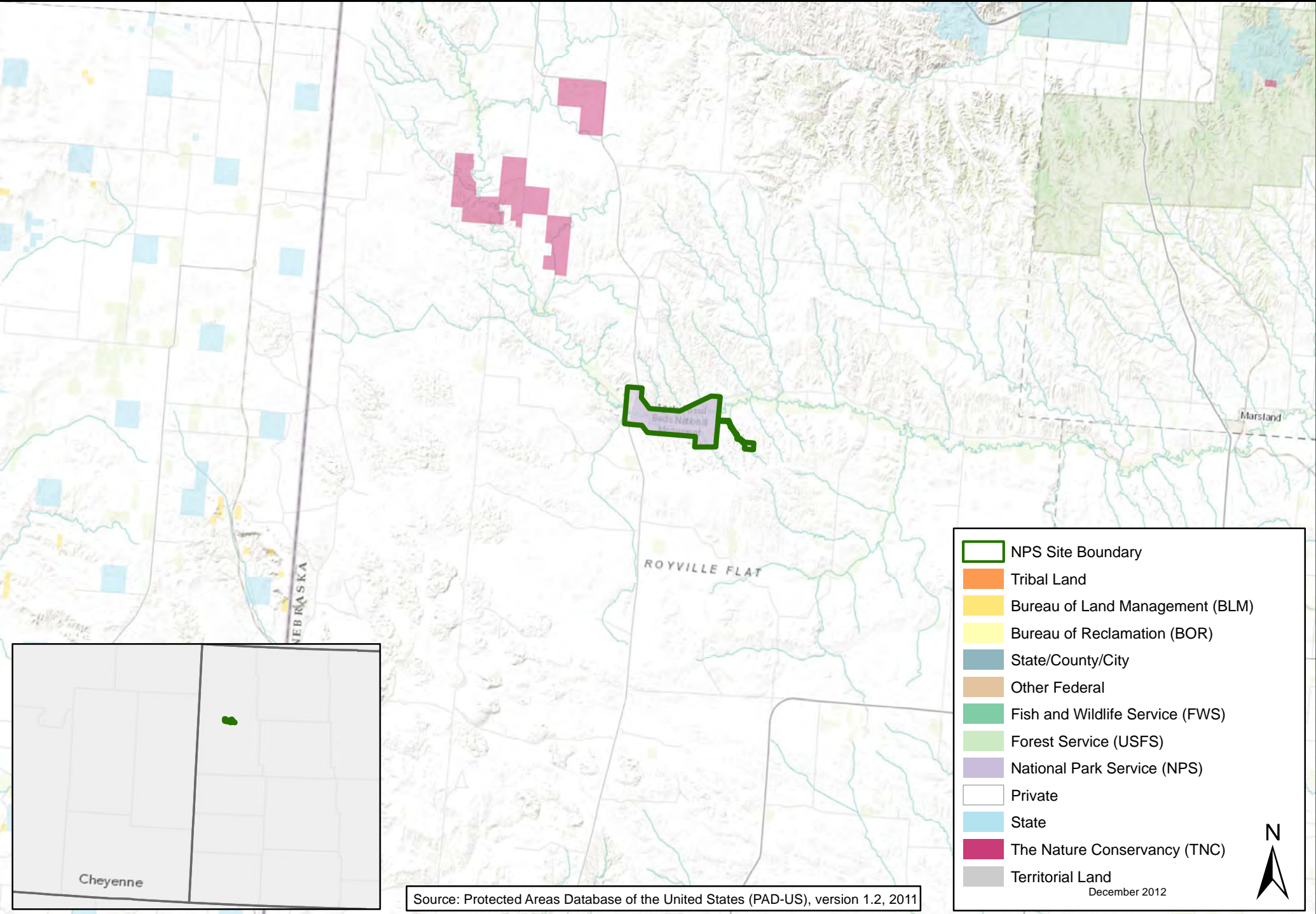
Conflict): There are only eight private landowners with large ownerships in the Centennial Valley. All other land is managed by the federal or state government. The refuge's Comprehensive Conservation Plan reflects the FWS previous decision to not reintroduce bison to this refuge.

Relative Level of Complexity for Placement of Quarantined Bison: Not suitable for the placement of quarantined bison. [This unit is within the Brucellosis Designated Surveillance Area of the Greater Yellowstone Area (see [www.aphis.usda.gov](http://www.aphis.usda.gov) for further details) where these bison could be subsequently exposed to brucellosis.]

Other Key Management Considerations: N/A

# NPS - Agate Fossil Beds National Monument


National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

- NPS Site Boundary
- Tribal Land
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- State/County/City
- Other Federal
- Fish and Wildlife Service (FWS)
- Forest Service (USFS)
- National Park Service (NPS)
- Private
- State
- The Nature Conservancy (TNC)
- Territorial Land

December 2012



## **Agate Fossil Beds National Monument (Nebraska)**

Primary Jurisdiction/Agency: National Park Service (NPS) <[www.nps.gov/agfo](http://www.nps.gov/agfo)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: No

Primary Objective(s) for Bison: Bison are not present at the monument.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure): N/A

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The monument consists of 3,055 acres in a predominantly ranching area far from population centers. Roughly 2,000 acres of the monument, consisting of primarily semi-arid, high plains short-grass prairie bisected by the Niobrara River, would provide suitable bison habitat. Hills in the monument contain significant fossil sites. The River Road (county-maintained) runs through the monument west to east, and NE Highway 29 runs north and south. Highway 29 separates NPS land from private land within the legislated boundary.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes): N/A

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use): N/A

Historical Range: The monument is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):  
N/A

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

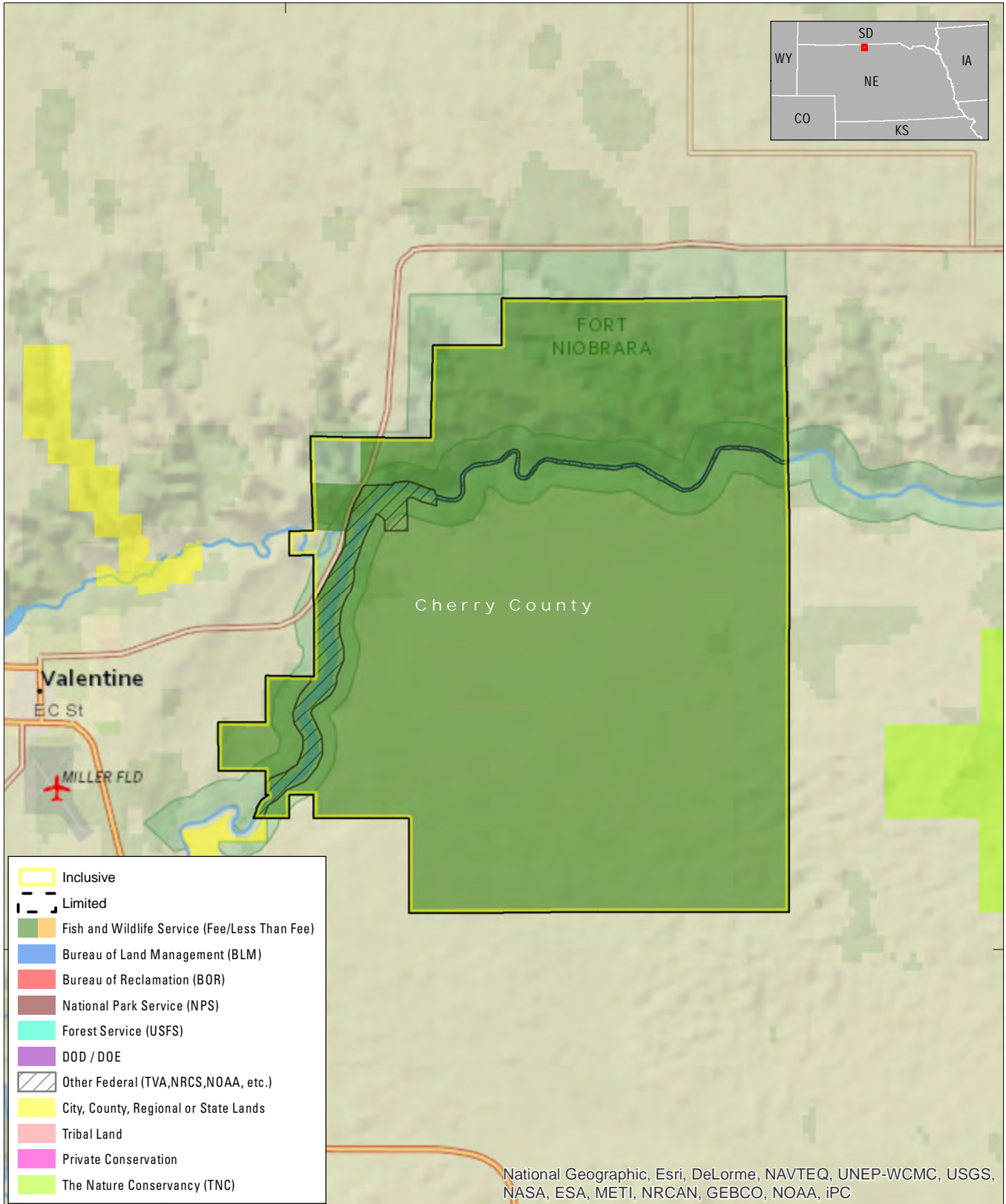
Other Key Management Considerations: Fort Robinson State Park, 50 miles away, has a bison herd and may be a partner in the future. Infrastructure and logistical considerations include fencing, resource management staff, and protections for cultural resources and fossil sites. Public outreach will also be important to address concerns about bison introduction. New partnerships would likely need to be established with local ranchers and adjacent landowners. Additional feasibility studies, interagency cooperation, and NEPA compliance would be necessary.



# Fort Niobrara National Wildlife Refuge

Region 6

100°30'W

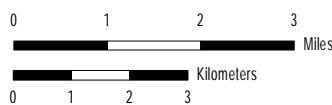


42°50'N

42°50'N

100°30'W

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National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

## **Fort Niobrara National Wildlife Refuge (Nebraska)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service <[www.fws.gov/refuge/fort\\_niobrara](http://www.fws.gov/refuge/fort_niobrara)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Genetic conservation; habitat management; education; and research.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The refuge established a fenced bison herd in January 1913 with the donation of six bison (gender unknown) from J.W. Gilbert of Friend, Nebraska and two bulls from Yellowstone National Park. Additional introductions include 8 males (1935 and 1937, Custer State Park), 5 males (1952, National Bison Range), 1 male (2009, Wind Cave NP via the American Prairie Foundation), and 4 females and 4 males (2011, Wichita Mountains NWR). The 2012 pre-roundup herd size was ~416 (approximately 1:1 gender ratio) with a carrying capacity of ~350.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

Fenced areas of the refuge available to bison include ~17,000 acres of sand hills, oak/pine forests, and hard prairie table lands. Land use surrounding the refuge is primarily cattle grazing with some irrigated cropland adjacent to the wilderness area on the north end of the refuge. Bison are moved quickly through a series of cross-fenced pastures during the growing season (April–Sept.) and are moved to the wilderness area (~5,000 acre) for the winter.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Bison on the refuge are treated as wildlife, although their status as a genetic conservation herd requires comprehensive health monitoring and occasional response to disease. Bison interact freely with native plants and animals within the confines of the fence. The herd is culled annually to keep it within carrying capacity. Culls are selected based on genotype analysis to conserve genetic diversity, striving for a 1:1 gender ratio and wide age distribution.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

A herd of approximately 35 animals is maintained through the growing season in pastures close to the refuge visitor center. Visitors and bison are not separated by fence while in this area. During the winter months, visitors may view bison from an overlook within the wilderness area. No bison hunting is allowed. Deer hunting is allowed in the wilderness area where hunters and bison interact. Bison culled from the refuge have been provided to tribes over the years.

Historical Range: The refuge is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The bison herd is part of the FWS meta-population with known genetic background (high diversity and minor cattle gene introgression) and is subject to herd health monitoring.

Genotyping is completed on all calves that are 6–8 months old. The herd is not affected by any USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries), and vaccination is not routinely practiced.

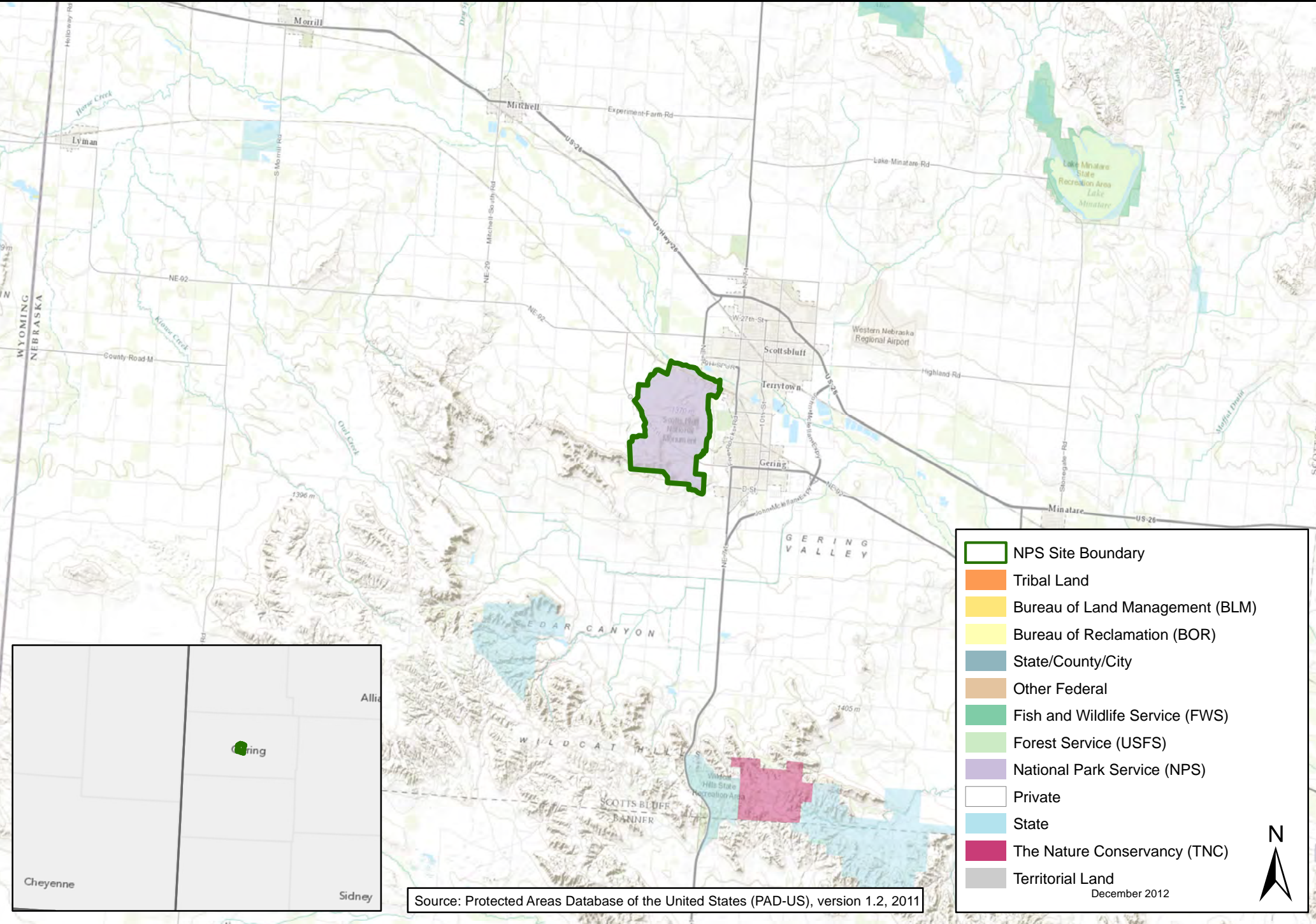
Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

Other Key Management Considerations: The refuge serves as a preserve and breeding ground for native birds and as habitat for elk and bison. Adding bison and estimating bison carrying capacity for the refuge must consider all wildlife objectives for refuge grasslands. A genetic analysis will be needed to understand the genetic contribution of the quarantined bison if integrated into the existing herd. Introducing quarantined bison will require outreach to area cattle and bison ranchers and response to any concerns they may have.

# NPS - Scottsbluff National Monument

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012





## **Scotts Bluff National Monument (Nebraska)**

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/scbl](http://www.nps.gov/scbl)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: No

Primary Objective(s) for Bison: Bison are not present at the monument.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure): N/A

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The monument consists of approximately 3,000 acres of rugged badlands, a high bluff, and surrounding prairie. The northern boundary of the monument is the North Platte River. The eastern boundary is the city of Gering, Nebraska. The city of Scottsbluff is nearby. The historic Oregon Trail, three active irrigation canals, and a railroad right-of-way bisect the monument.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes): N/A

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use): N/A

Historical Range: The monument is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):  
N/A

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

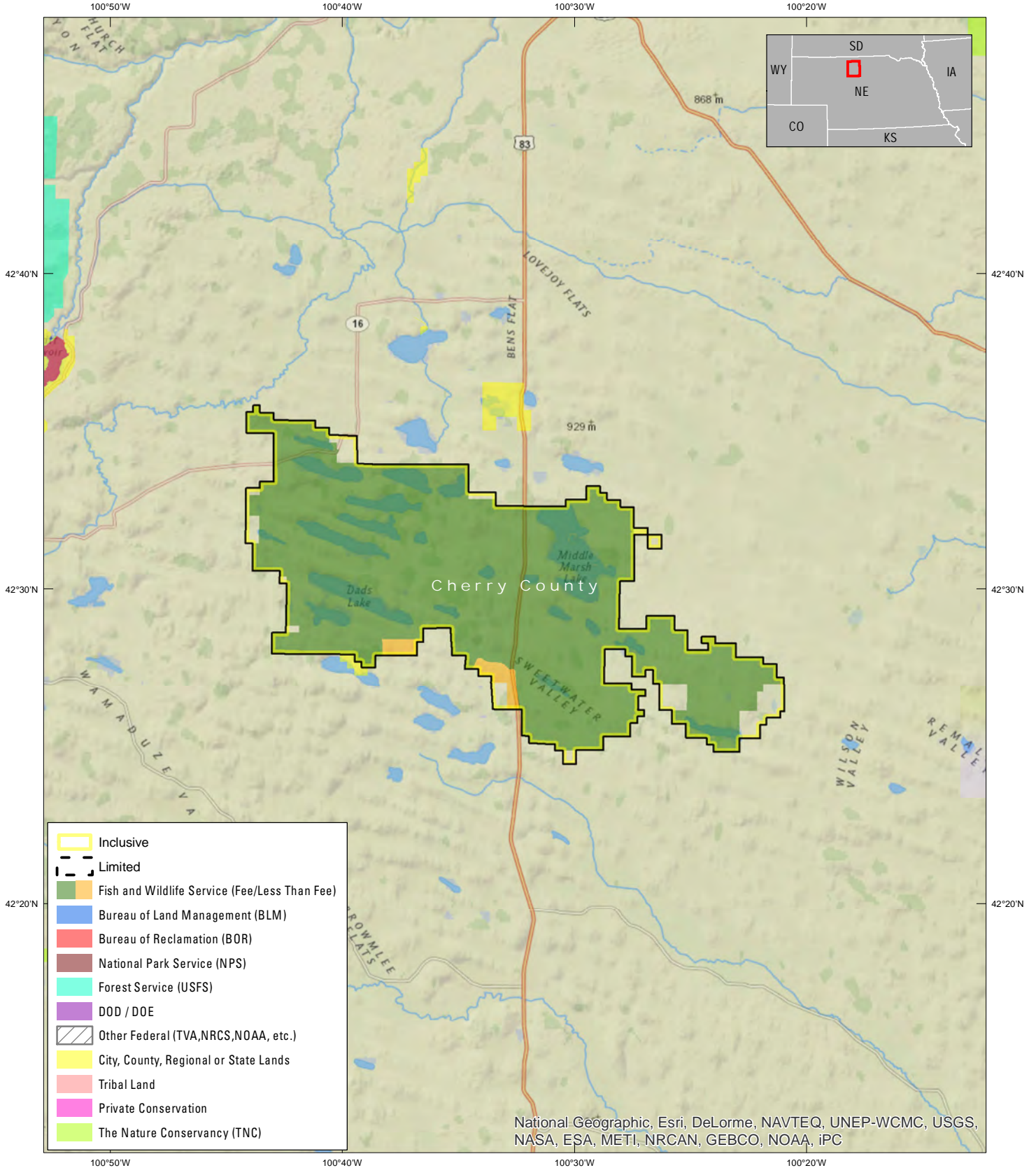
Other Key Management Considerations: Only small portions of the monument would be suitable for a bison enclosure, due to the complexities of constructing fencing along the river, canals and the railroad. A water source would also need to be constructed. Concerns by the public may include bison escapes and the potential for disease transmission to neighboring cattle. A feasibility study, interagency cooperation, and NEPA compliance would be necessary.



U.S. Fish & Wildlife Service

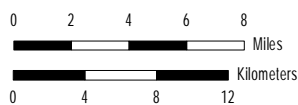
# Valentine National Wildlife Refuge

Region 6



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



## **Valentine National Wildlife Refuge (Nebraska)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

<[www.fws.gov/refuge/valentine](http://www.fws.gov/refuge/valentine)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: No

Primary Objective(s) for Bison: The refuge's Comprehensive Conservation Plan (CCP) analyzed bison introduction to restore a native species for grassland management. Although the current FWS Region 6 policy is not to create additional fenced refuges, the CCP determined that introduced bison would have to be fenced. The CCP is due for revision in 2014.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

Extrapolating from cattle grazing models, a bison herd of about 145 head of adults could be maintained without supplemental feeding. However, current management involves only seasonal cattle grazing, and the effects of year-round grazing are unknown. Restoring bison would require monitoring habitat impacts and adjusting herd size as appropriate.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The area proposed for bison reintroduction is an estimated 19,261 acres, of which 17,227 acres is grassland habitat with lakes covering the remaining acreage. In 1972, much of this same area (14,285 acres) was proposed for wilderness designation. By FWS policy, the proposed wilderness area is currently managed as if it were designated as wilderness. The landscape is grazed by cattle from May through July, and some haying is done.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Bison would be a key component of the grassland ecosystem of the refuge, interacting with native plants and wildlife. Herd size would be regulated by culling. The herd would be incorporated into the FWS bison meta-population and thus subject to herd health and genetic management programs. Prescribed fire is also used to improve grassland habitat.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

About 20,000 visitors visit the refuge annually. Current public use, including bird and deer hunting and fishing would continue under the proposal for bison introduction to the refuge. A public access road lies along the north side of the area proposed for bison introduction. Most of the proposed bison range would be managed as wilderness, and the public could view the bison by foot or horseback. The area proposed for bison would remain open to grouse and deer hunting.

Historical Range: The refuge is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

N/A

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

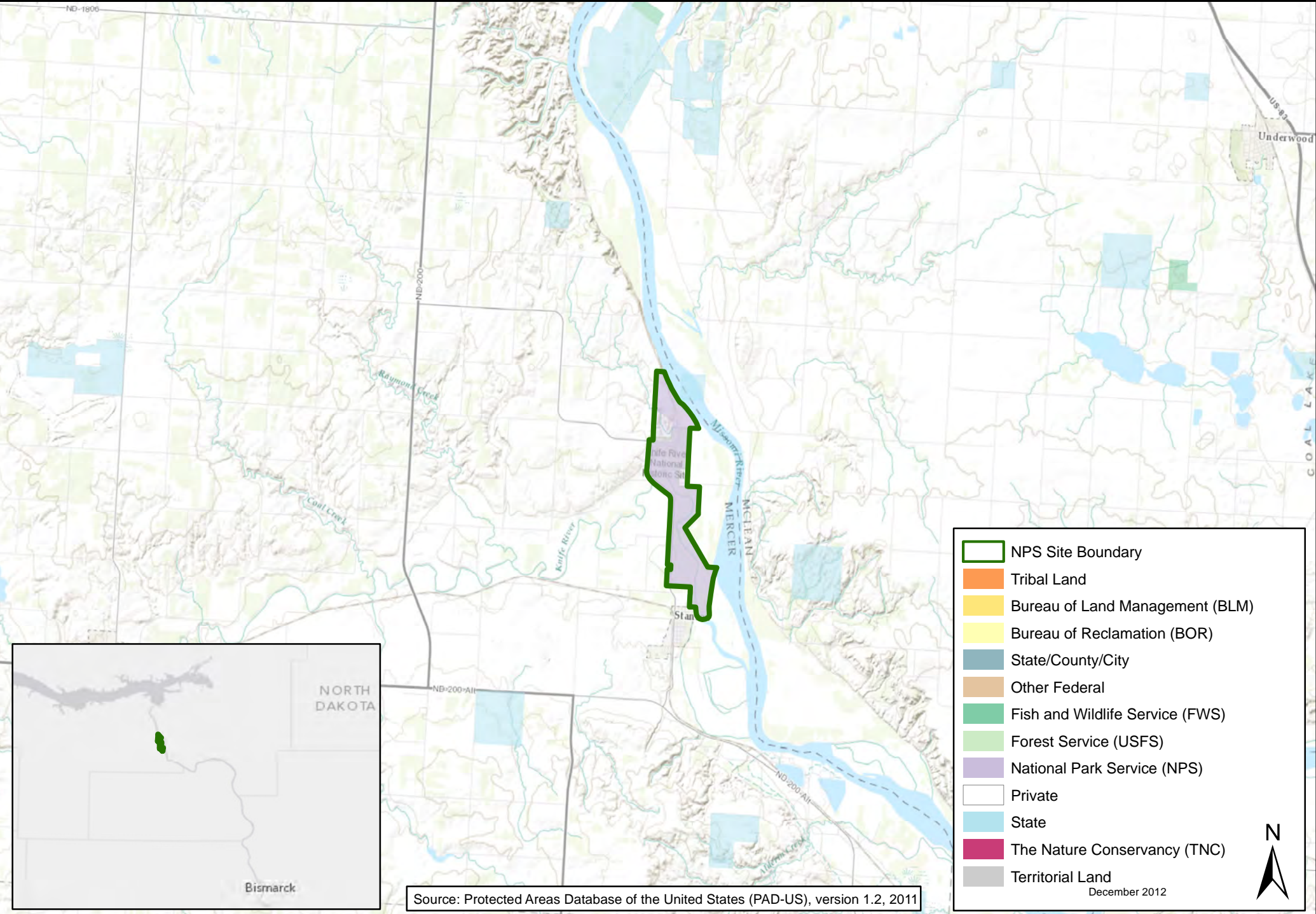
Conflict): Public concerns may include that bison restoration could detract from the migratory bird purposes of the refuge.

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

Other Key Management Considerations: Logistical and budgetary considerations would need to be evaluated, including the cost of perimeter fencing, handling facilities, and internal pasture fencing that may be required to maintain grassland habitats and meet other migratory bird objectives of the refuge. Additional review, analysis and compliance would be needed.

# NPS - Knife River National Historic Site

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012



## **Knife River Indian Villages National Historic Site (North Dakota)**

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/knri](http://www.nps.gov/knri)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: No

Primary Objective(s) for Bison: Bison are not present.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure): N/A

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The park consists of 1,759 acres of prairie and woodland and is surrounded by a predominantly agricultural landscape. The Knife River flows through the park and joins the Missouri River within the park boundary. The city of Stanton, North Dakota is about a half mile away to the south.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes): N/A

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use): N/A

Historical Range: The park is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):  
N/A

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Higher Complexity

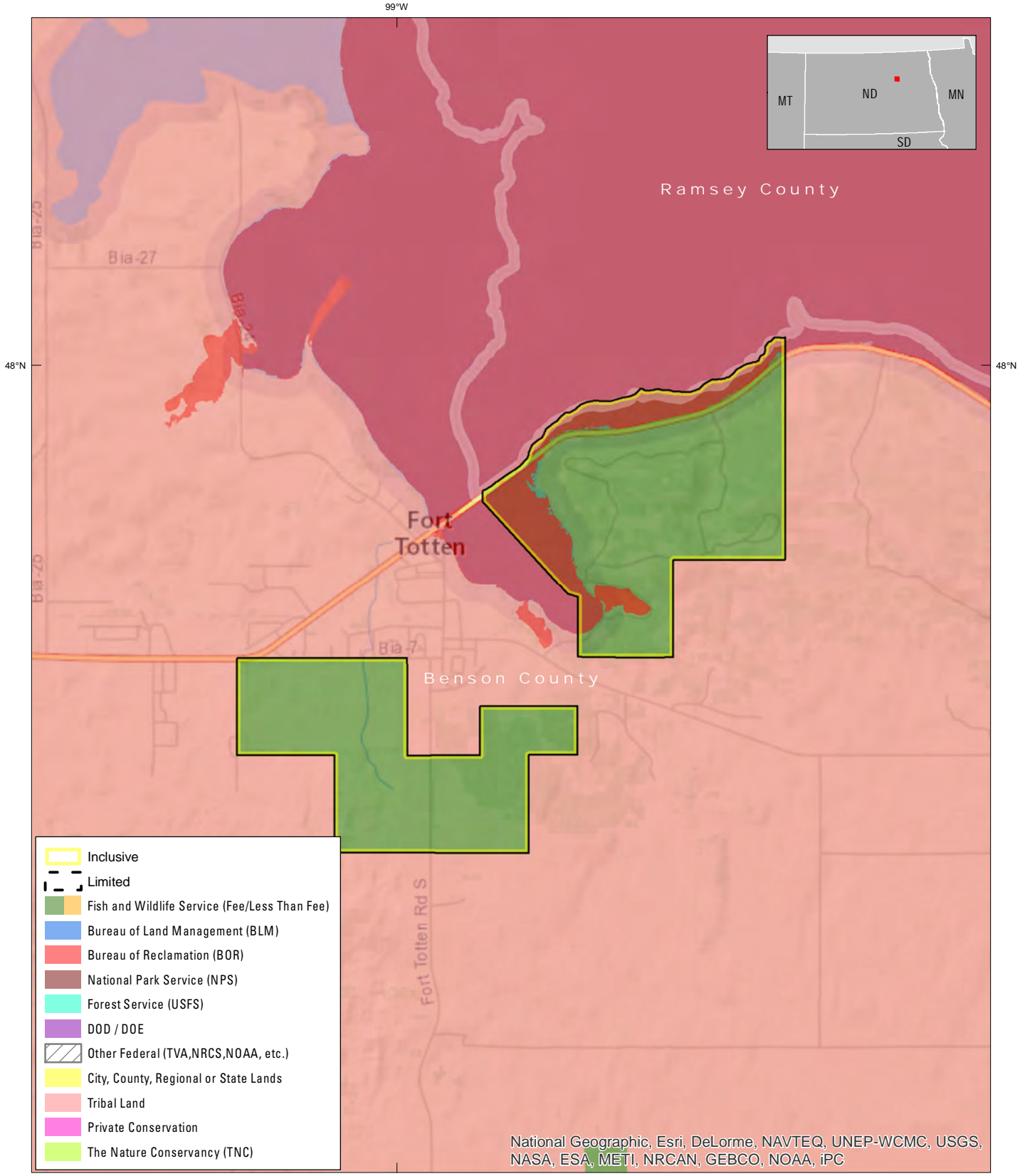
Other Key Management Considerations: The park has expressed some interest in reintroducing bison as a prairie management tool. Nearby tribes have a strong connection to the park and to bison, and consultation would be important. Additional feasibility study, interagency cooperation, and NEPA compliance would be necessary.



U.S. Fish & Wildlife Service

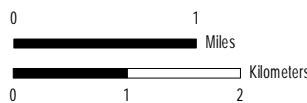
# Sullys Hill National Game Preserve

Region 6



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

PRODUCED IN THE DIVISION OF REALTY  
ARLINGTON, VIRGINIA  
LAND STATUS CURRENT TO: 5/5/12  
MAP DATE: 8/1/2013  
BASEMAP: National Geographic - ESRI  
USGS PAD-US v1.3  
World Transverse Mercator Projection



## **Sullys Hill National Game Preserve (North Dakota)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service

<[www.fws.gov/refuge/sullys\\_hill\\_national\\_game\\_preserve](http://www.fws.gov/refuge/sullys_hill_national_game_preserve)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Establishing other conservation populations for long-term genetic conservation; habitat management; education; and research.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The bison herd is maintained in a 542-acre enclosure on the 1,674-acre preserve. The enclosure contains 23 bison, 24 elk, and 18 white-tailed deer, with the carrying capacity set at 20 bison, 18 elk, and 18 white-tailed deer. The preserve conducts winter feeding primarily for elk and bison, although deer also participate. The bison herd is occasionally culled based on genetic information to retain as much diversity as possible while keeping the herd at or near carrying capacity.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The enclosure includes lowland hardwood forest, upland hardwood forest, oak savannah, native prairie habitat, and wetlands. Grazing intensity is managed by staying within the enclosure's carrying capacity. Prescribed burning is used to stimulate grass growth. The Spirit Lake Nation manages a herd of bison adjacent to the preserve separated by the enclosure's perimeter fence.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The preserve is managed to provide suitable habitat conditions for native species including woodland and grassland birds, black-tailed prairie dogs, bison, elk, and white-tailed deer.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The preserve is open year-round and offers excellent opportunities for photography, wildlife interpretation, wildlife observation, and environmental education.

Historical Range: The preserve is within the core historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

Herd health is regularly monitored. The preserve is part of the FWS bison meta-population and has representative genetic characteristics of the bison at the National Bison Range.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): Sullys Hill receives an estimated 60,000 visitors annually and provides educational interpretation to visitors, technical assistance for other bison herd managers, and fire training.

The preserve also assists with the cultural and religious needs of the Spirit Lake Nation, which is given first right to receive any surplus bison.

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

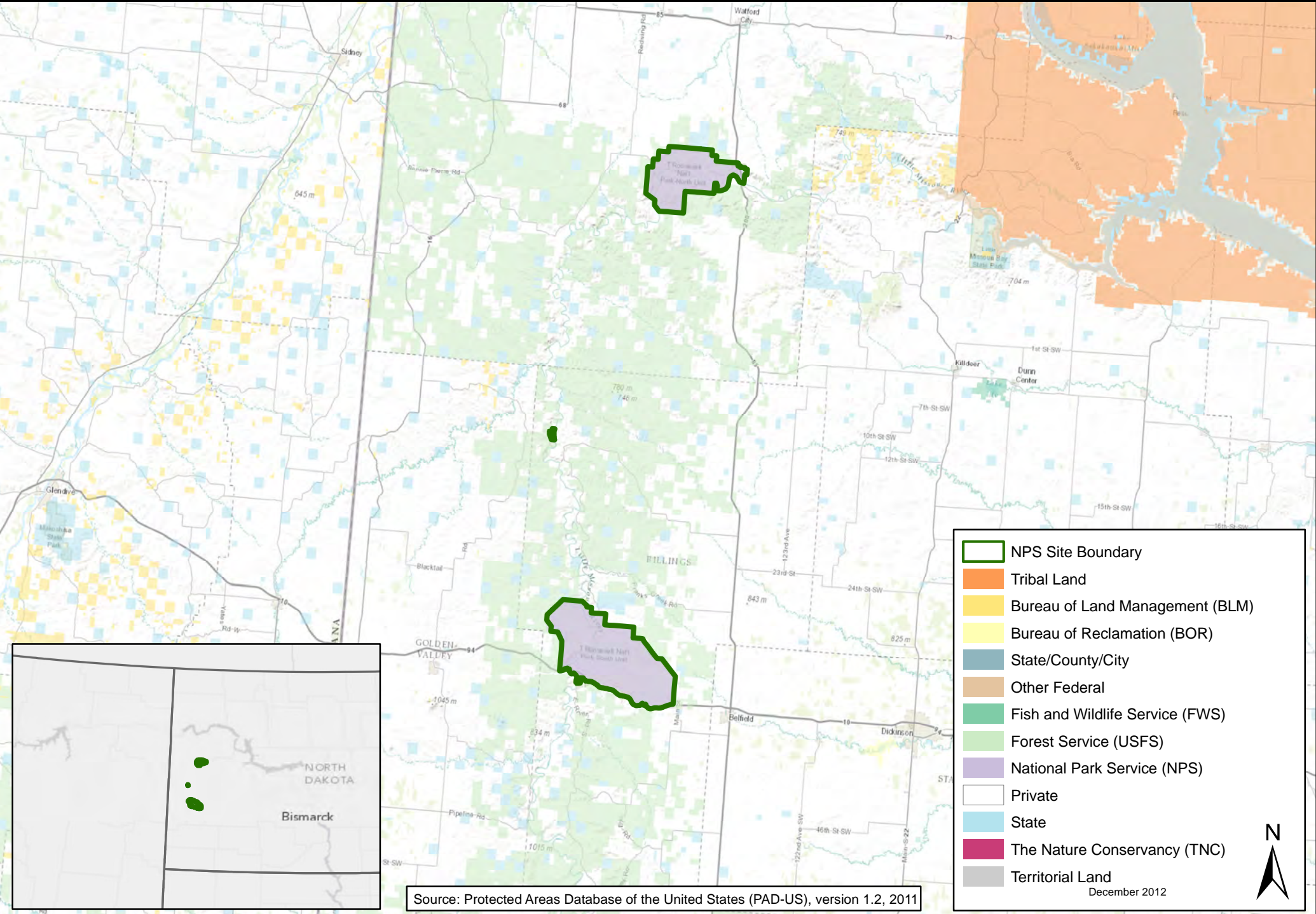
Other Key Management Considerations: Unlike larger preserves, the small size and accessibility of

Sullys Hill means bison are intensively monitored, and management problems are quickly identified and addressed. The preserve specifically manages a small number of bison that came from the National Bison Range and are representatives of low prevalence genotypes.

Accommodating quarantined bison would require considerable culling of existing bison and loss of the existing genetic base. However, if scientifically justified, quarantined bison could replace some or all of the bison at the preserve without extensive planning, compliance, or other hurdles as long as the number remained within the established carrying capacity.

# NPS - Theodore Roosevelt National Park

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012



## Theodore Roosevelt National Park (North Dakota)

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/thro](http://www.nps.gov/thro)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Long-term population and genetic conservation; and source for other conservation populations.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The park has three management units totaling 70,446 acres (North Unit, 24,070; Elkhorn Ranch, 218; South Unit, 46,158). In 1956, 29 plains bison from Fort Niobrara National Wildlife Refuge were reintroduced in the South Unit; in 1962, 20 bison from that population were released into the North Unit. No bison are at the Elkhorn Ranch Unit. Both the North and South units are surrounded by a 7-foot wire mesh fence with no internal cross-fencing, permitting bison the ability to roam anywhere within the unit. Population objectives in the North and South units were set at 100–300 and 200–500 animals, respectively, using a park-specific forage allocation model. Approximate cow to bull ratio is maintained at 2:1.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

Bison movement within the park is not manipulated by fencing, hazing, supplemental feeding, or strategic water source development. All park units are managed with the objective of promoting and maintaining native species diversity and natural ecological processes.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Bison are free to interact with elk, feral horses, white-tailed and mule deer, bighorn sheep, pronghorn, and prairie dogs. Ecosystem processes include significant wind and water erosion, periodic wildland fire, and extreme climatic fluctuations. Bison share the range with elk (South Unit), bighorn sheep (North Unit), mule deer, prairie dogs, and associated biota. Prescribed fire is used to mimic natural processes and improve habitat for all grazers including bison. Water is not a limiting resource: the Little Missouri River flows through the park and there are seeps and springs associated with the many coal seams. Bison also use some developed water sources in the park, but this does not determine their distribution. Weed control (including bio-control) of leafy spurge has improved forage conditions for bison and other ungulates in riparian areas.

Bison-Livestock Interactions: Other than horses in the South Unit, no livestock are in the park. Bison may interact with adjacent cattle herds if they exit through breaks in the fence or along the Little Missouri River.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Bison are a major visitor attraction all year.

Historical Range: The park is within the core historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The founding herd was brucellosis-free, and the present herd is considered disease free. They are tested and monitored during each roundup.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

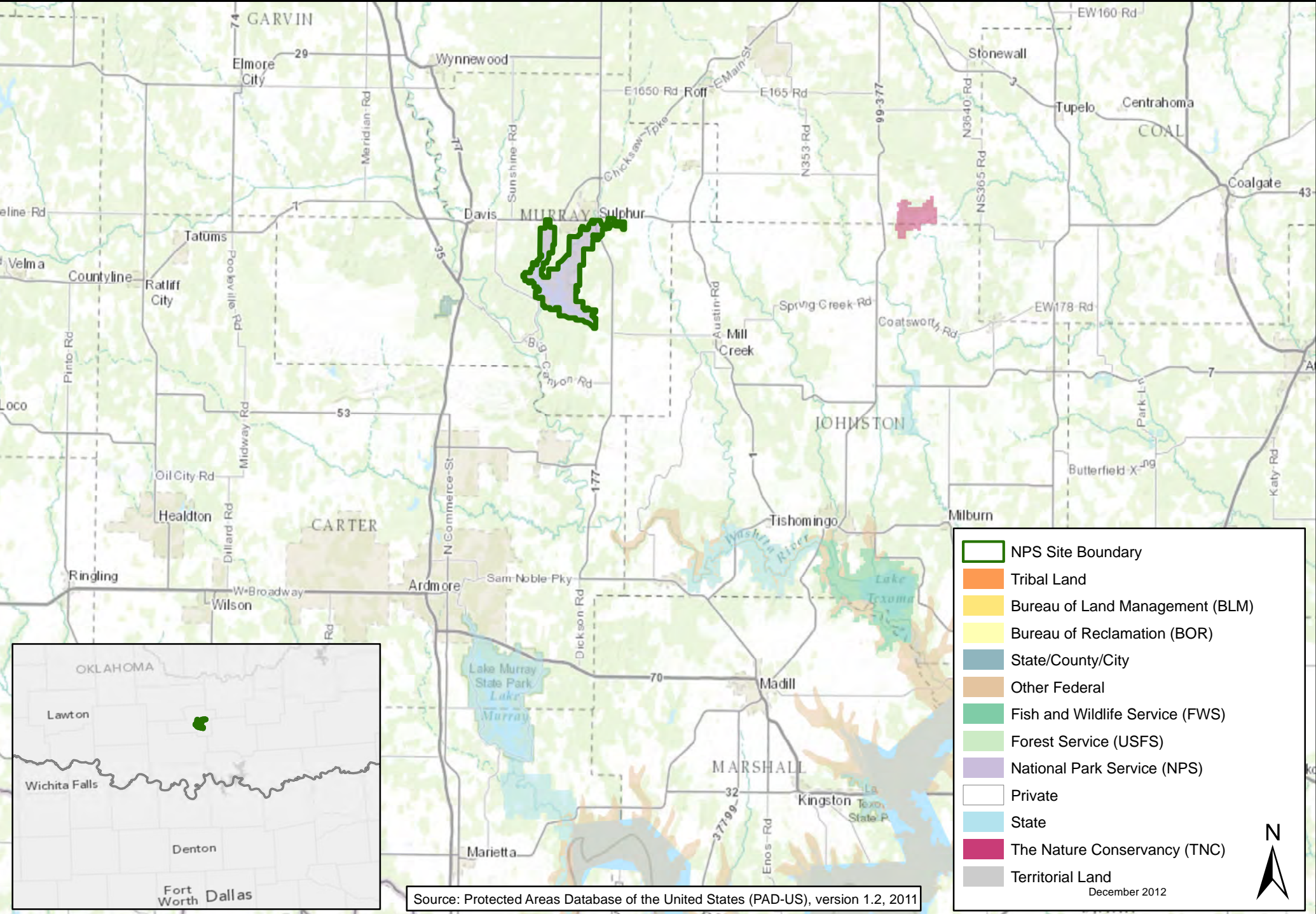
Conflict): Although presently experiencing an oil and gas boom, this area historically has been economically dependent on the cattle industry. NPS has a strong and positive relationship with the North Dakota Game and Fish Department, the North Dakota State Veterinarian, North Dakota tribal governments, and the U.S. Forest Service (Dakota Prairie Grasslands Medora District).

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

Other Key Management Considerations: Additional feasibility study, interagency cooperation, and NEPA compliance would be necessary. Other management issues include variability of annual forage production and allocation between bison and other ungulates.

# NPS - Chickasaw National Recreation Area

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land

December 2012

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011



## **Chickasaw National Recreation Area (Oklahoma)**

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/chic](http://www.nps.gov/chic)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Wildlife viewing and photography; public education; and habitat management.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1920 from six bison – three each from Yellowstone National Park and Wichita Mountains National Wildlife Refuge. Currently, six bison graze within an 84-acre fenced pasture, and the recreation area has a population goal of 6–10 animals. Surplus animals are culled and distributed to a local tribe.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The recreation area is ~9,900 acres and includes ~2,400 acres of open water. While historically bison have occupied the 84-acre fenced pasture with an overlook for public viewing, park officials are considering a proposal to expand the herd to other parts of the recreation area.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

Free-ranging deer occasionally occupy the bison pasture. Tree removal in the pasture is being considered to increase prairie grassland cover for bison.

Bison-Livestock Interactions: Livestock are not allowed within the recreation area boundaries.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Bison are one of the main visitor attractions throughout the year.

Historical Range: The recreation area is within the historical range of plains bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

There is no record of disease or genetic testing in this bison herd.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): None

Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

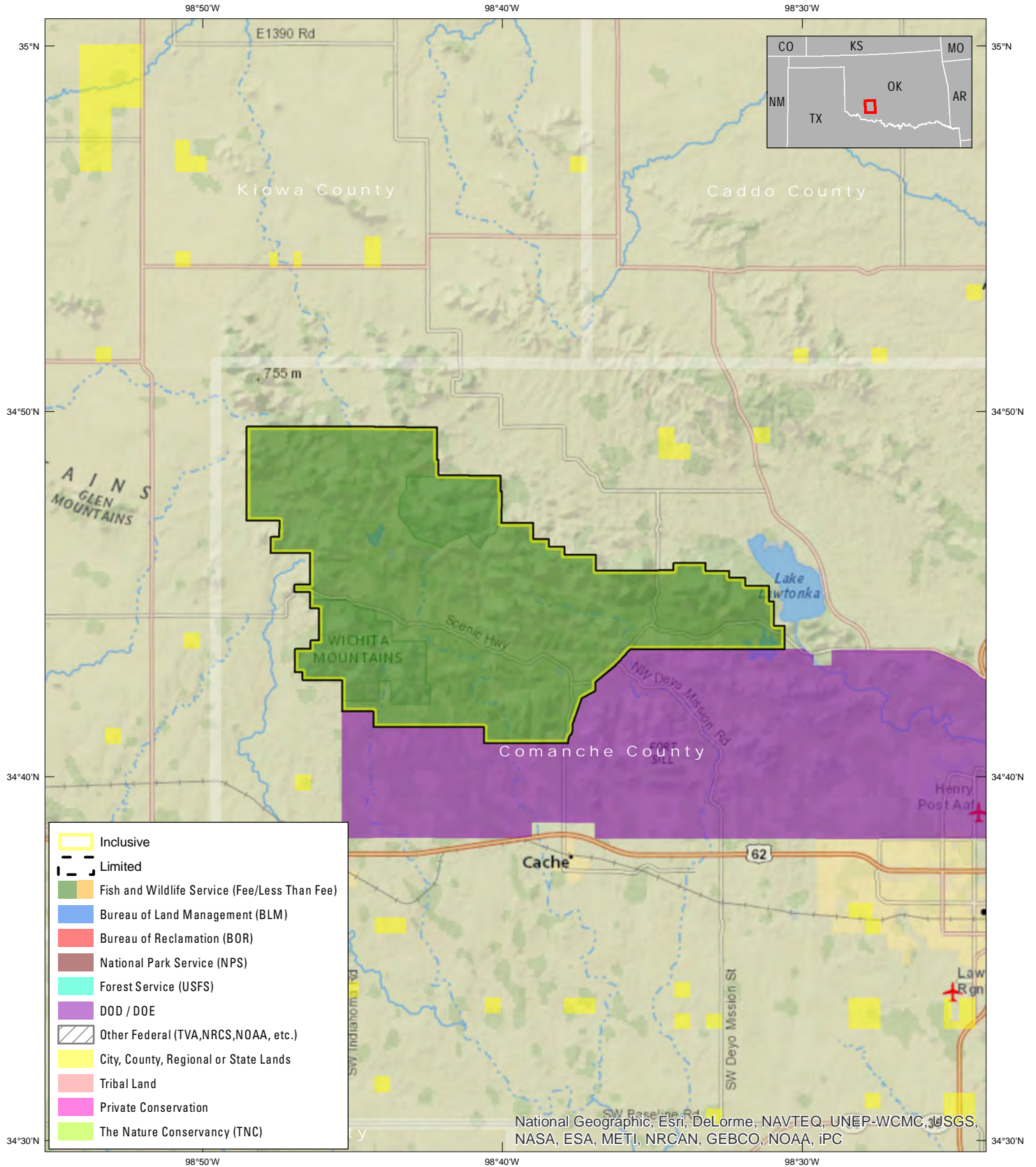
Other Key Management Considerations: Additional feasibility study, interagency cooperation, and NEPA compliance would be necessary. In addition, the recreation area's bison handling facilities are in need of repair or replacement.



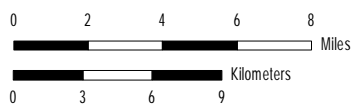
U.S. Fish & Wildlife Service

# Wichita Mountains Wildlife Refuge

Region 2



PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

## **Wichita Mountains National Wildlife Refuge (Oklahoma)**

Primary Jurisdiction/Agency: U.S. Fish and Wildlife Service (FWS)

<[www.fws.gov/refuge/wichita\\_mountains](http://www.fws.gov/refuge/wichita_mountains)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Long-term genetic conservation for establishing other conservation populations; habitat management; wildlife viewing and photography; education; and research.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1907 with 15 bison from the New York Zoological Society and supplemented in 1940 with two bulls from Fort Niobrara. The refuge is enclosed with an 8-foot big game fence. In 2012, the herd size was 636 animals not including the 2012 calf crop. Extended drought has negatively affected the refuge's carrying capacity, which may require reductions in the herd size based on multi-ungulate forage allocation models. The bison population is managed by annual roundups and distribution of surplus animals through donations to tribal and conservation partners and public auction.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison can roam throughout the 59,020-acre fenced refuge. The refuge is adjacent to Fort Sill Military Base on the south, private and tribal lands to the west and north, and the city of Lawton and Lake Lawtonka on the east.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with multiple native ungulates (elk and white-tail deer), prairie dogs and associated biota. The refuge uses grazing and fire as tools to maintain native mixed grass prairie and cross-timber habitats.

Bison-Livestock Interactions: The bison share the range with a conservation herd of Texas Longhorn cattle.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Visitors can view the bison year-round. A public auction is held at the refuge annually. Surplus bison are donated to tribes and conservation partners. Hunting of other animals also occurs on the refuge.

Historical Range: Oklahoma is within the historical range of plains bison, and the refuge may have served as year-round habitat for bison.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The refuge manages all ungulate herds on a yearly basis to maintain healthy and viable habitat conditions. The bison herd is part of the FWS meta-population with known genetic background (high diversity and minor cattle gene introgression) and subject to herd health monitoring. Genotyping is completed on calves that are 4–8 months old. The herd is not affected by any USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries), and vaccination is not routinely practiced.

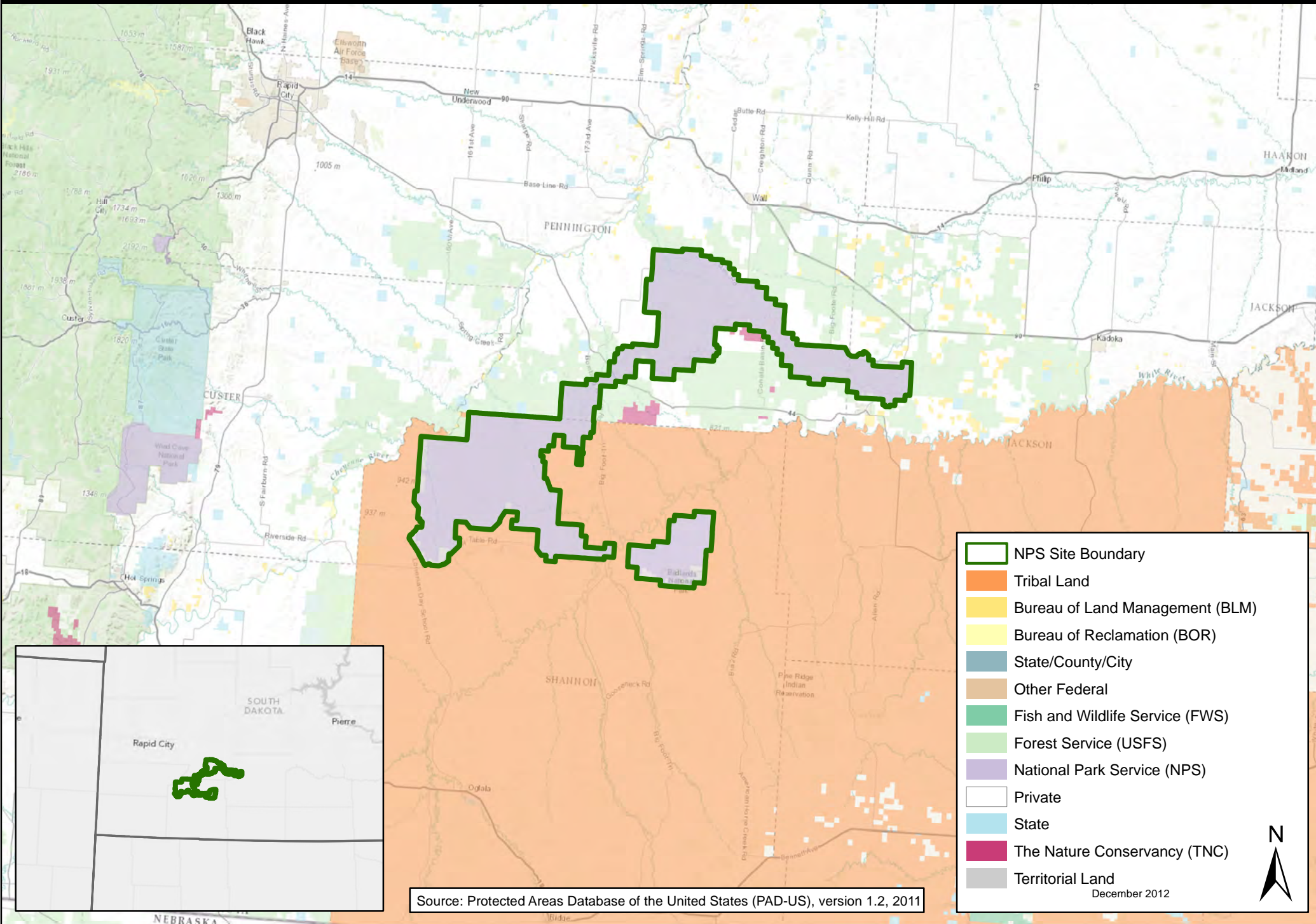
Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

Other Key Management Considerations: Variability in annual forage production and allocation between bison, elk, and longhorns is of concern when considering supplementing the bison herd with quarantined bison. Recent severe drought and large wildfires have caused a strong reduction in forage availability.

# NPS - Badlands National Park

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

- NPS Site Boundary
- Tribal Land
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- State/County/City
- Other Federal
- Fish and Wildlife Service (FWS)
- Forest Service (USFS)
- National Park Service (NPS)
- Private
- State
- The Nature Conservancy (TNC)
- Territorial Land

December 2012

## **Badlands National Park (South Dakota)**

Primary Jurisdiction/Agency: National Park Service (NPS) <[www.nps.gov/badl](http://www.nps.gov/badl)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Long-term population and genetic conservation.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1963 with 50 bison from Theodore Roosevelt National Park and 3 bison from Yellowstone National Park; it was supplemented in 1983 with 20 bison from Colorado National Monument (Yellowstone-origin). The bison are confined by boundary fencing and natural physiographic features of the badlands within the park. The population goal is 600–700 animals depending on rainfall, water availability, and forage allocation models, and the population is managed by roundups and distribution of surplus animals to tribal partners.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison are restricted to approximately 64,000 acres of the North Unit of the park and wilderness. The park is abutted by Buffalo Gap National Grassland, the Pine Ridge Indian Reservation, and private ranchlands. The park consists of an arid mixed grass prairie intermixed with a highly eroded badlands geography. There is no perennial free-flowing water; water is derived from impoundments and springs. Arable land outside the park is used for dry land agriculture, limited irrigation agriculture, and livestock grazing.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with multiple native ungulates (bighorn sheep, pronghorn, mule deer), prairie dogs and associated biota. Prescribed fire mimics natural processes and improves habitat.

Bison-Livestock Interactions: The bison may interact with adjacent cattle herds if they leave the park.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison are a major year-round attraction to visitors of the Black Hills area. The park has long-standing relationships with the Oglala Sioux Tribe and the InterTribal Buffalo Council.

Historical Range: The park and adjacent Buffalo Gap National Grassland are within the core historical range of plains bison. The badlands may have served as year-round habitat for bison.

Health and Genetics (Presence and management of disease, Genetic integrity and management):

Blood samples from all bison handled during annual fall captures are tested for brucellosis.

Testing for tuberculosis (when required for transfer) and for Johne's disease has been conducted in the past. No evidence of these diseases has been found. The bison are not vaccinated, and the park archives a random sample of blood for future disease and micronutrient testing.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

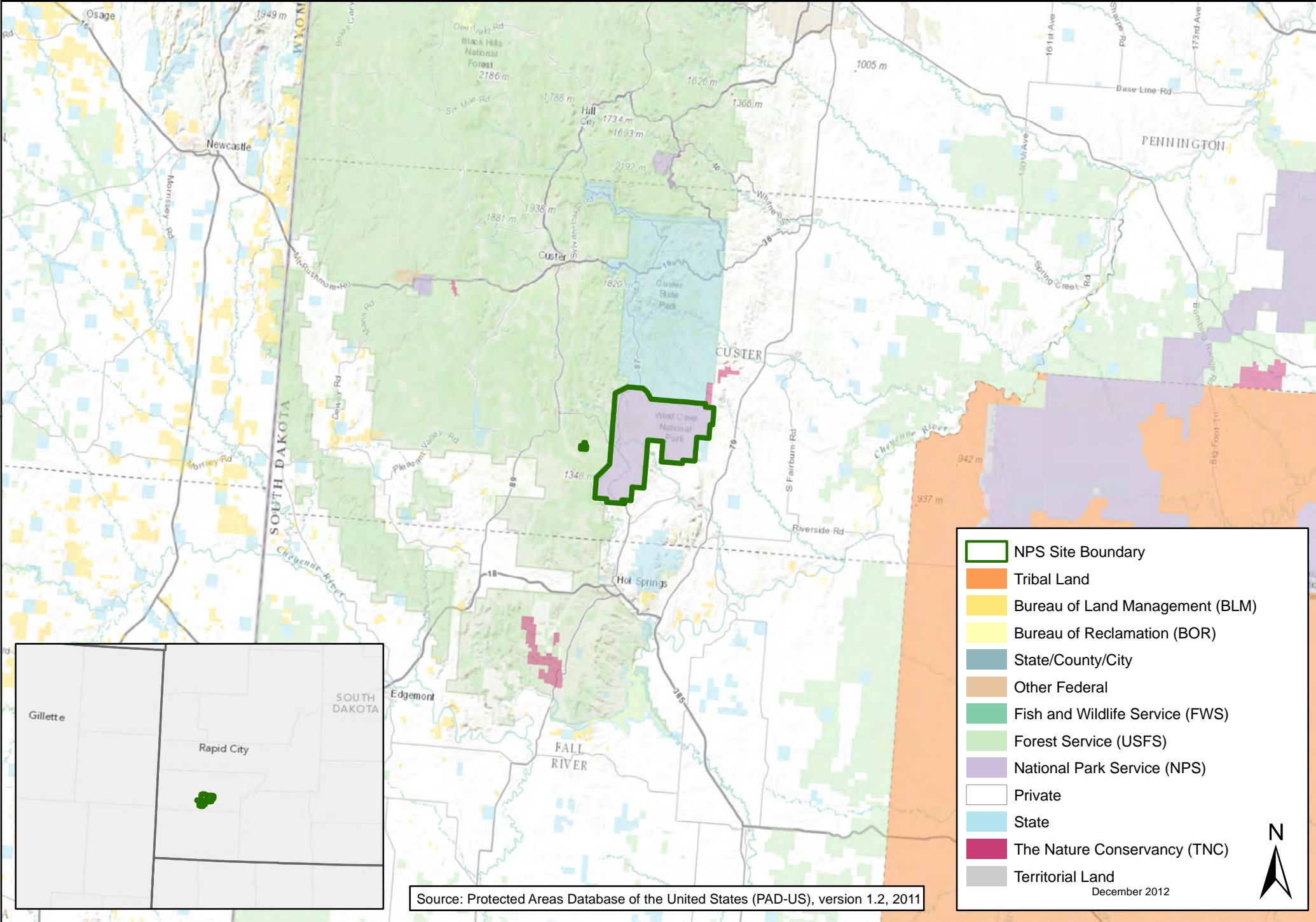
Conflict): The park has a priority relationship with the Oglala Sioux through management of the park's South Unit. Escaped bison are not a major issue, and area landowners are generally tolerant.

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

Other Key Management Considerations: Additional feasibility study, interagency cooperation, and NEPA compliance would be necessary. South Dakota is the largest private sector market bison-producing state in the nation. Relocating quarantined bison into the state will require outreach with the commercial bison community, the Game, Fish and Parks Department, State Veterinarian, and Animal Industry Board, including any necessary permits. In April 2012, the park issued a Record of Decision for its General Management Plan with the preferred alternative of designating the park's South Unit as a Tribal National Park managed by the Oglala Sioux Tribe. While this designation is dependent on action by Congress, NPS would work with the tribe before any decisions are made regarding placing bison on the South Unit. The tribe has indicated support for bison restoration.

# NPS - Wind Cave National Park

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012





## Wind Cave National Park (South Dakota)

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/wica](http://www.nps.gov/wica)>

Cooperating Jurisdiction/Agency: N/A

Established Bison Herd: Yes

Primary Objective(s) for Bison: Long-term population and genetic conservation; and source for other conservation populations.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1913 from 14 bison from the New York Zoological Society and 6 bison from Yellowstone National Park. The herd is fenced with a population goal of 350–500 animals, based on forage allocation models. The population is managed through periodic roundups and distributing surplus animals to tribal and conservation partners.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison are limited to the boundaries of the park, which abuts the Black Hills National Forest to the east and private lands to the south and east. The park shares its northern boundary with Custer State Park, which also maintains a separate bison herd.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with multiple native ungulates, prairie dogs and associated biota. Wildland and prescribed fire is used to improve prairie ecosystem function and habitat for all grazers, including bison.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison are a major year-round attraction to visitors of the Black Hills area. Hunting is prohibited in the park. The land within the park has historical, cultural, and spiritual meanings to many American Indian tribes. The park consults with twenty tribal governments on major projects and plans.

Historical Range: The park is within the Black Hills, which are within the core historical range of plains bison and may have served as year-round habitat.

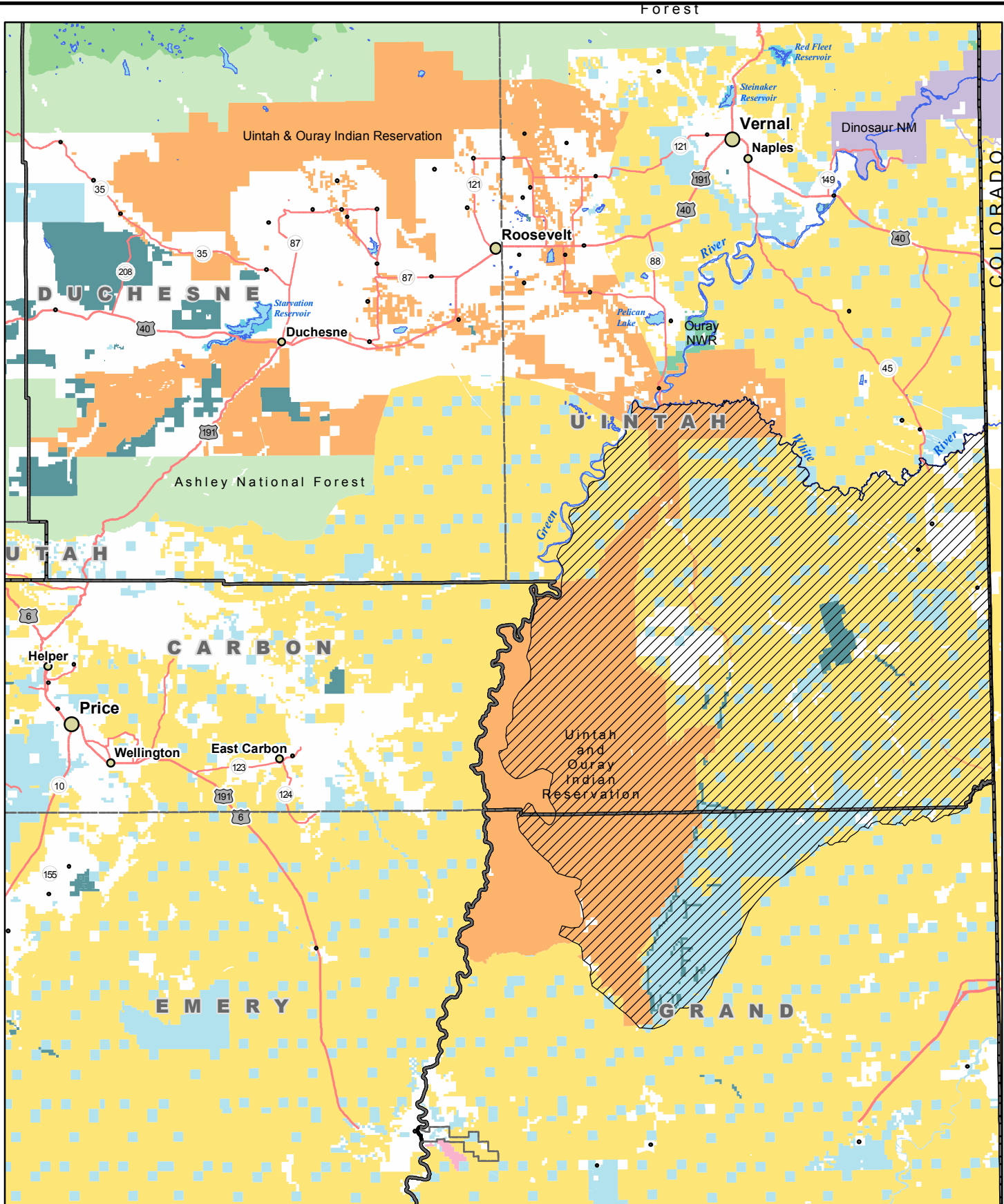
Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

Brucellosis testing is conducted during roundups, and there is no evidence of the disease in the herd. The bison are not vaccinated, and some genetic testing has been completed, but there is no long-term genetic monitoring.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social Conflict): N/A

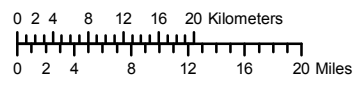
Relative Level of Complexity for Placement of Quarantined Bison: Lower Complexity

Other Key Management Considerations: Additional feasibility study, interagency cooperation, and NEPA compliance would also be necessary. The park monitors the variability in annual forage production and allocation between bison and elk. The park recently acquired 5,000 acres that may become available for bison use.

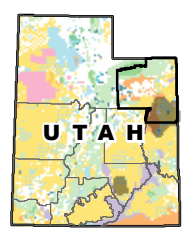


# Vernal Field Office

## Bison Habitat



- Field Office Boundary
- Bison Habitat - Utah DWR**
- Year-long - Crucial
- Land Status**
- Bureau of Land Management
- US Forest Service
- USFS Wilderness Area
- National Park Service
- US Fish & Wildlife Service
- Indian Trust Lands
- Military Reservations
- State
- State Parks and Recreation
- State Wildlife Management Area
- Private



UTM zone 12, NAD 1983, meters  
 No warranty is made by the Bureau of Land Management for use of any of the data for purposes not intended by BLM.

September 2012

## **Book Cliffs (Utah)**

Primary Jurisdiction/Agency: Utah Division of Wildlife Resources (UDWR)

Cooperating Jurisdiction/Agency: Bureau of Land Management (BLM), Ute Indian Tribe, State Trust Lands <[www.blm.gov/ut/st/en/fo/vernal/recreation/\\_book\\_cliffs.html](http://www.blm.gov/ut/st/en/fo/vernal/recreation/_book_cliffs.html)>

Established Bison Herd: Yes

Primary Objective(s) for Bison: Hunter harvest; long-term population and genetic conservation; and source for other conservation populations.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 2009 with 44 bison (30 from Henry Mountains, 14 from Ute Tribe Trust Lands) and was supplemented in 2010 with 40 bison from Henry Mountains (the latter originally sourced from Yellowstone National Park). The herd is not fenced and has a population goal of 450 adults and yearlings, based on range carrying capacity.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison range across more than 1.4 million acres (~2,300 mi<sup>2</sup>) of piñon-juniper shrub-steppe habitat. The herd commingles with bison from the Ute Tribal Trust Lands.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with multiple native ungulates, including elk, mule deer, and pronghorn, and with bison from the Ute Tribal Trust Lands. The state uses prescribed fire, mechanical treatments, and reseeds burned areas to improve habitat for grazers.

Bison-Livestock Interactions: The bison share grazing range with cattle. Sheep are grazed at lower elevations on the northern and southern ends of the Management Unit with little overlap with bison. Feral horses are also present.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison can be viewed from public access roads throughout the Book Cliffs area. UDWR initiates hunting when the bison population approaches the management goal. A limited harvest has been undertaken to remove bison from a temporary range that extended to agricultural lands outside the Book Cliffs.

Historical Range: The Tavaputs Plateau northeast of the Book Cliffs is within the historical range of plains bison but probably did not sustain high population densities due to the lack of water, a short growing season, and dense forest.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

The bison were tested for brucellosis, tuberculosis, and trichomoniasis before transfer to the Book Cliffs. No evidence was found of any of these diseases. A minimum of 15 cow bison are captured and tested annually for brucellosis. Some genetic testing of bison was completed before the animals were brought from the Henry Mountains.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): The state has worked closely with landowners and grazing permittees, and has cooperative projects underway to develop habitat and water resources for bison and livestock.

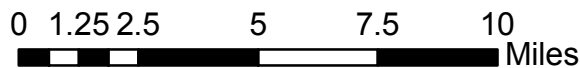
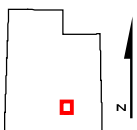
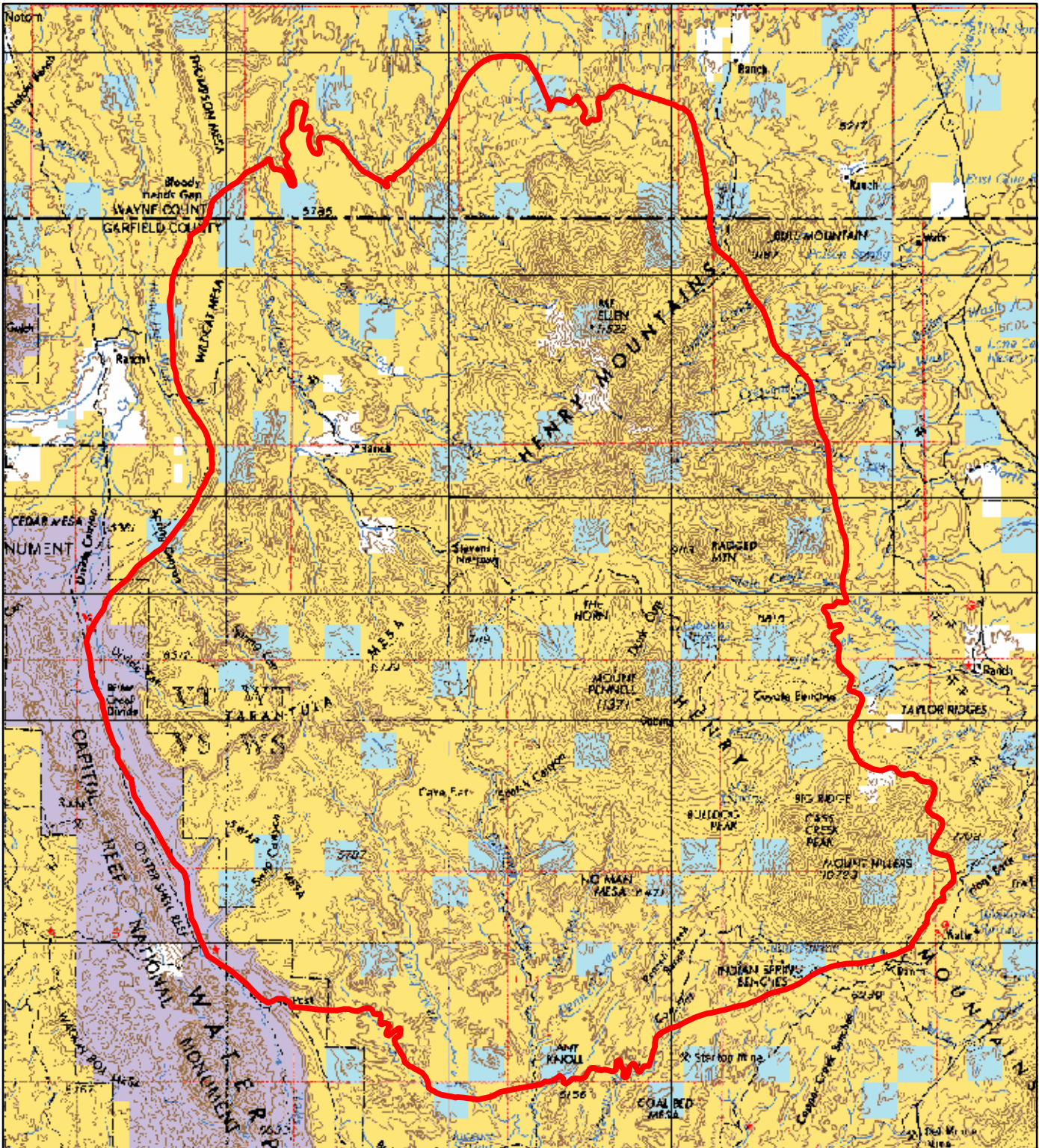
Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity





Other Key Management Considerations: UDWR works with landowners and third parties to resolve any chronic conflicts that develop between bison and livestock interests. Water availability is the biggest concern. The Federal Land Policy and Management Act of 1976 gives BLM the authority to manage non-wilderness lands for multiple uses including fish and wildlife conservation but the state retains jurisdiction over managing resident wildlife populations. To supplement the existing herd with quarantined bison, BLM would need to coordinate with UDWR to reconcile respective goals and objectives. If the state does wish to increase herd sizes, additional planning and coordination may be required.

# Henry Mountain Field Station Bison Habitat Area

9/6/2012

BLM



-  National Park
-  Public Land
-  State Land
-  Private Land

No warranty is made by the BLM for use of the data for purposes not intended by the BLM. This product may not meet BLM standards for accuracy and content. Different data sources and input scales may cause some misalignment of data layers.

## Henry Mountains (Utah)

Primary Jurisdiction/Agency: Utah Division of Wildlife Resources (UDWR)

Cooperating Jurisdiction/Agency: BLM, School and Institutional Trust Lands Administration (SITLA), <[www.blm.gov/ut/st/en/fo/richfield/recreation/\\_henry\\_mountains.html](http://www.blm.gov/ut/st/en/fo/richfield/recreation/_henry_mountains.html)>

Established Bison Herd: Yes

Primary Objective(s) for Bison: Hunter harvest; long-term population and genetic conservation; and source for other conservation populations.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1941 with 18 bison and 5 animals in 1942 (all Yellowstone-origin).

The herd is unfenced with a population goal of 325 adults based on range carrying capacity.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

The bison range across on 300,205 acres (469 mi<sup>2</sup>) of piñon-juniper shrub-steppe habitat.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with native ungulates (mule deer and pronghorn), and with black-tailed jackrabbits. The state/ BLM use prescribed fire, mechanical treatments, and reseeding of resource use fires to improve habitat for grazers. Wildfire is a natural, ongoing process in the area.

Bison-Livestock Interactions: The bison range includes some cattle grazing allotments and one vacant sheep grazing allotment. Some ranchers have expressed concern over bison using winter cattle grazing allotments during the summer.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

Bison can be viewed by the public and harvested by hunters from access roads throughout the Henry Mountains. UDWR issues hunting permits by lottery according to the population target and range conditions. The annual harvest is ~55 bison (either-sex and cow-only combined).

Historical Range: The Henry Mountains are within the historical range of plains bison but most likely were used seasonally and did not sustain high population densities due to the lack of water.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

According to all evidence, brucellosis was successfully eradicated from the Henry Mountains bison herd in 1963–64 through capture-test-vaccination and test-harvest-cull of positive reactors. Subsequent blood testing from hundreds of hunter-killed bison and bison captured for radio collaring has revealed no brucellosis in the herd. Bison are tested for brucellosis, bTB, and trichomoniasis before moving to new sites (e.g. Book Cliffs). Some genetic testing of bison in the Henry Mountains has been completed and more extensive genetic work is planned.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

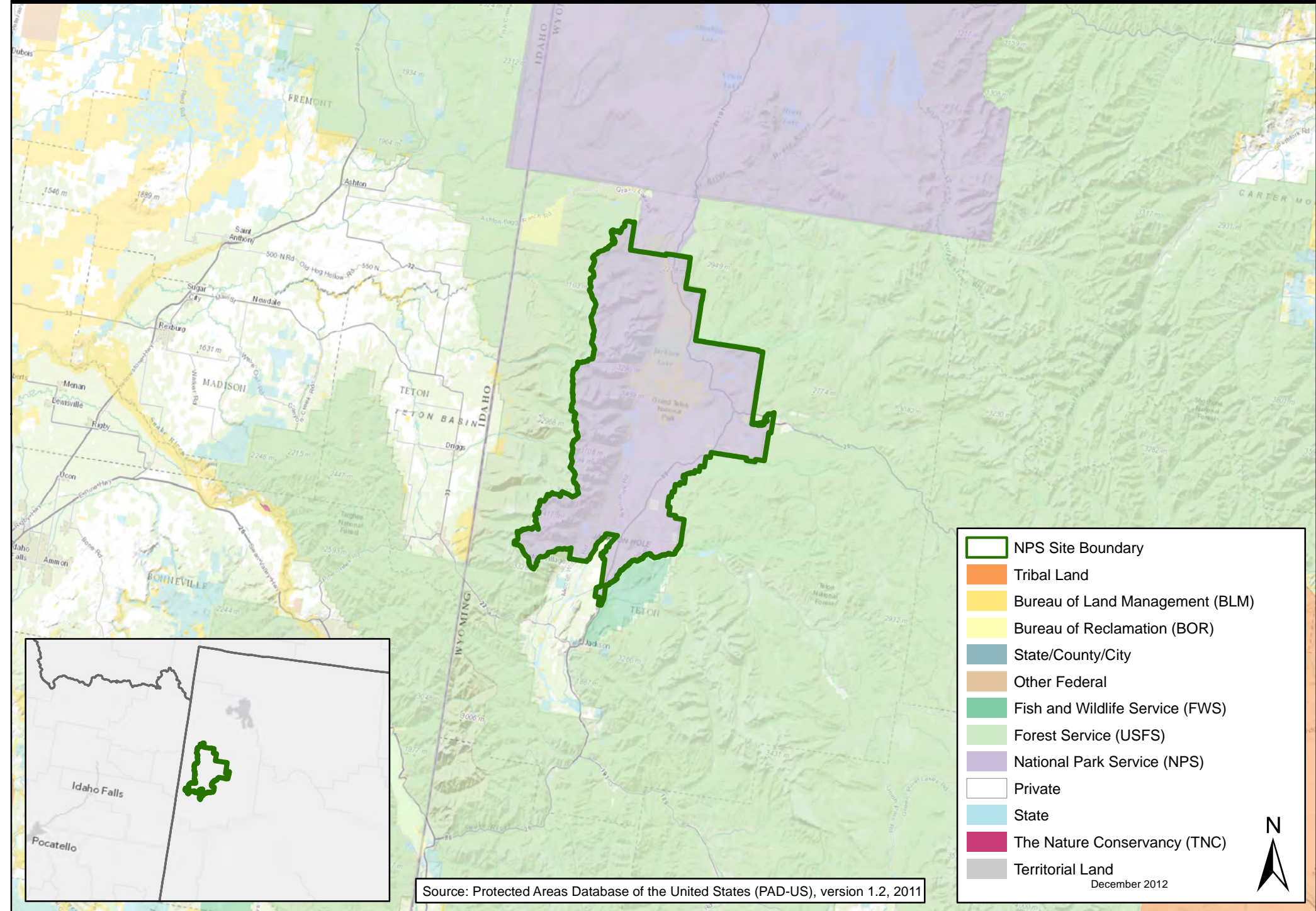
Conflict): BLM has partnered with UDWR and SITLA to carry out habitat improvement projects on ~40,000 acres in the Henry Mountains. Improvements include water developments, prescribed burns, mechanical treatments, and reseedings. The state and BLM also work closely with grazing permittees and community groups to address habitat and water resources issues.

Relative Level of Complexity for Placement of Quarantined Bison: Medium Complexity

Other Key Management Considerations: Some low-elevation pastures have been fenced to exclude bison from alfalfa and grass hay fields. Depredations by bison have been limited to drought years and are usually of short duration and low impact. Hazing has also occasionally been used. The Federal Land Policy and Management Act of 1976 gives BLM the authority to manage non-wilderness lands for multiple uses including fish and wildlife conservation but the state retains jurisdiction over managing resident wildlife populations. To supplement the existing herd with quarantined bison, BLM would need to coordinate with UDWR to reconcile respective goals and objectives. If the state does wish to increase herd sizes, additional planning and coordination may be required.

# NPS - Grand Teton National Park

National Park Service  
U.S. Department of the Interior  
Natural Resource Stewardship and Science



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land

December 2012

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011



## **Grand Teton National Park/ John D. Rockefeller, Jr. Memorial Parkway and the National Elk Refuge (Wyoming)**

Primary Jurisdiction/Agency: These three adjacent units are managed by the National Park Service (NPS) and U.S. Fish and Wildlife Service (FWS), respectively. <[www.nps.gov/grte](http://www.nps.gov/grte)> <[www.fws.gov/refuge/national\\_elk\\_refuge](http://www.fws.gov/refuge/national_elk_refuge)>

Cooperating Jurisdiction/Agency: U.S. Forest Service (USFS), Wyoming Game and Fish Department

Established Bison Herd: Yes

Primary Objective(s) for Bison: The ranging population known as the Jackson bison herd is managed for large landscape ecological function; hunter harvest; brucellosis reduction; and long-term population and genetic conservation.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd was established in 1948 with 20 bison from Yellowstone National Park. Twelve bison were added in 1963 from Theodore Roosevelt National Park. The bison were fenced at the Jackson Hole Wildlife Park and escaped in 1968. The bison range between the refuge and adjacent NPS and USFS lands, but fences and hazing prevent the bison from accessing private lands south of the refuge. The 2007 Bison and Elk Management Plan and EIS set the post-winter harvest population goal at 500 bison, based on range carrying capacity and feed availability. However, the current population is ~900 because the carrying capacity is inflated due to winter supplemental elk feeding on the refuge. The bison carrying capacity in the absence of feeding has not been estimated. Concurrent range use by 5,000–7,000 wintering elk further complicates carrying capacity estimates for bison.

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

Bison habitat encompasses 358,472 acres (560 mi<sup>2</sup>) including the two park units, refuge, National Forest System, Bureau of Land Management, and state lands. The bison predominately winter on the refuge and summer in the park with peripheral use of the Bridger Teton National Forest. Occasional movement by Yellowstone bison into the Jackson population has been documented, but is rare. Bison distribution and movements are managed by the refuge using hazing before winter, following feeding season, and if bison move into certain areas that pose a threat to human safety.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison share the range with multiple native ungulates (elk, pronghorn, moose, mule and white-tailed deer) and large carnivores (wolves, grizzly bears, and mountain lions). Bison and elk commingle on the winter feed grounds at the refuge. Sport hunting by humans is the principal selective pressure on the Jackson bison herd. Although grizzly bears and wolves are present, they rarely prey on bison in this area. Bison winter mortality is minimized by access to supplemental feed on the refuge, and both bison and elk populations grossly exceed carrying capacity because of this supplemental feeding. High densities of bison and elk have reduced the structural complexity of woodland and shrub communities on the refuge and portions of the park with resulting decreased biodiversity in breeding bird and aquatic communities. These high densities have also increased the prevalence of density-dependent diseases, including brucellosis.

Bison-Livestock Interactions: Brucellosis exposure risk from bison to cattle is minimal in the park and on the refuge. There are active cattle grazing allotments adjacent to the park with low potential for contact between bison and cattle. Horses from two dude ranches in the park graze in areas frequented by bison, and they occasionally commingle.



U.S. Fish & Wildlife Service

# National Elk Refuge

Region 6

110°50'W

110°40'W

43°40'N

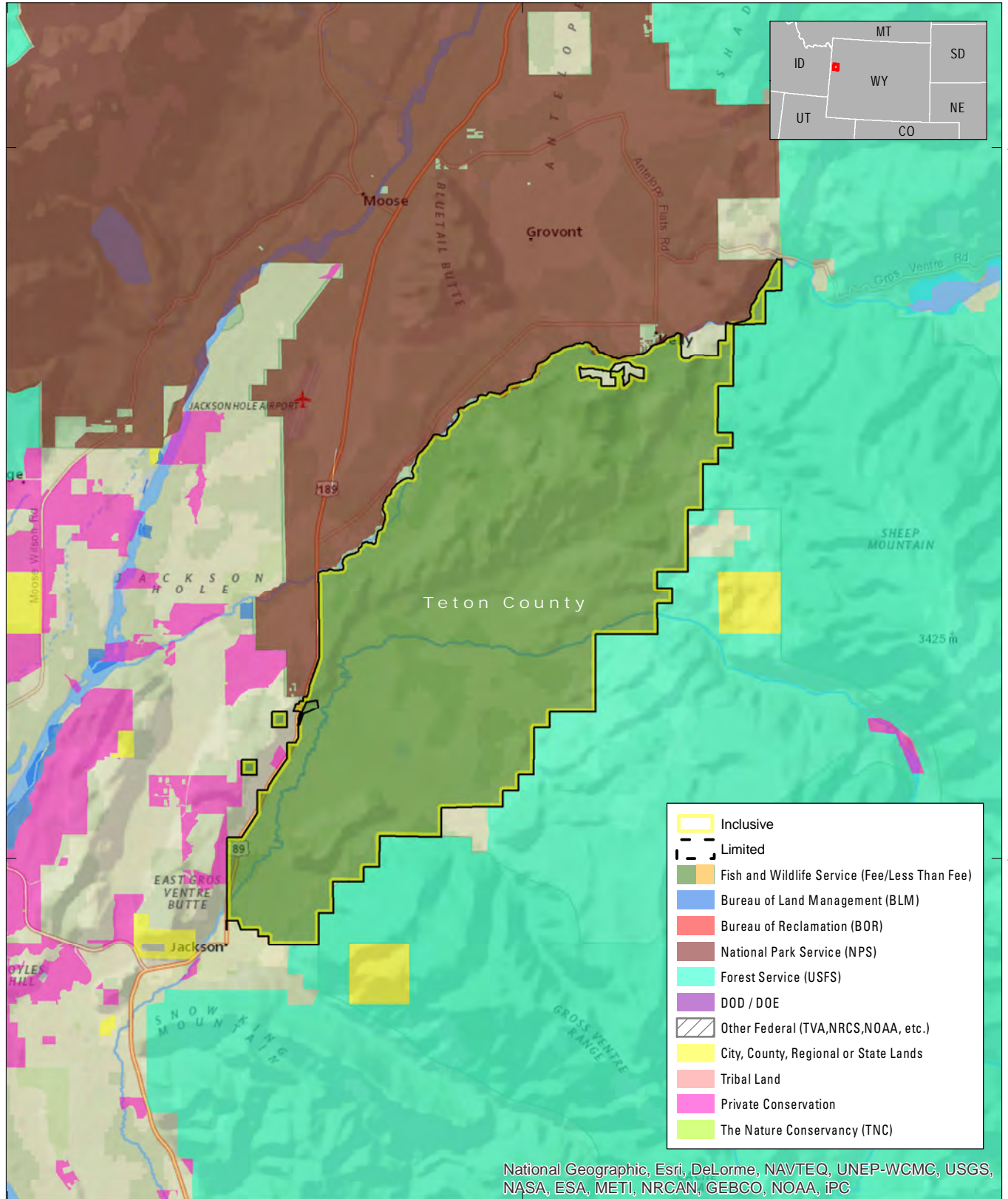
43°40'N

43°30'N

43°30'N

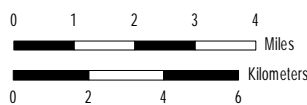
110°50'W

110°40'W



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

PRODUCED IN THE DIVISION OF REALTY  
 ARLINGTON, VIRGINIA  
 LAND STATUS CURRENT TO: 5/5/12  
 MAP DATE: 8/1/2013  
 BASEMAP: National Geographic - ESRI  
 USGS PAD-US v1.3  
 World Transverse Mercator Projection





Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison are a major tourist attraction throughout the year. Bison hunting is administered by the Wyoming Game and Fish Department through a lottery system and is designed to reduce the bison population to 500 wintering animals. The Shoshone-Bannock Tribes also conduct an annual harvest for ceremonial purposes. Most bison harvest occurs on the refuge and portions of the Bridger Teton National Forest. Hunting is not permitted in the park.

Historical Range: The park and refuge are within the historical range of plains bison and may have provided seasonal habitat. Archeological and historical evidence suggests that bison had been present in Jackson Hole for at least 6,000 years but were absent from the valley from 1840 until their reestablishment in the 1970s.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

Research on bison health in the late 1990s and early 2000s did not detect any endemic USDA program disease (a disease of concern to the livestock, poultry, or aquaculture industries) other than brucellosis. Brucellosis is endemic in Jackson bison with an estimated seroprevalence of 60%, and routine testing is conducted through sampling of hunter kills. While the bison are not vaccinated, the herd is subject to intermittent herd health assessments especially during research projects, including occasional mortality assessment, serology, clinical chemistry and other ancillary tests. Due to the brucellosis infection status, the herd is not part of the FWS meta-population. Genetic assessments indicate a highly diverse herd with minor amounts of cattle gene introgression.

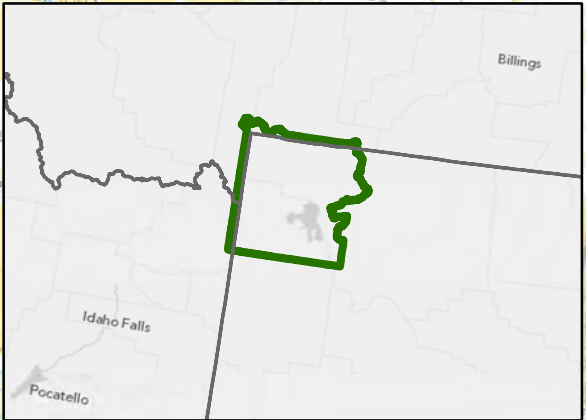
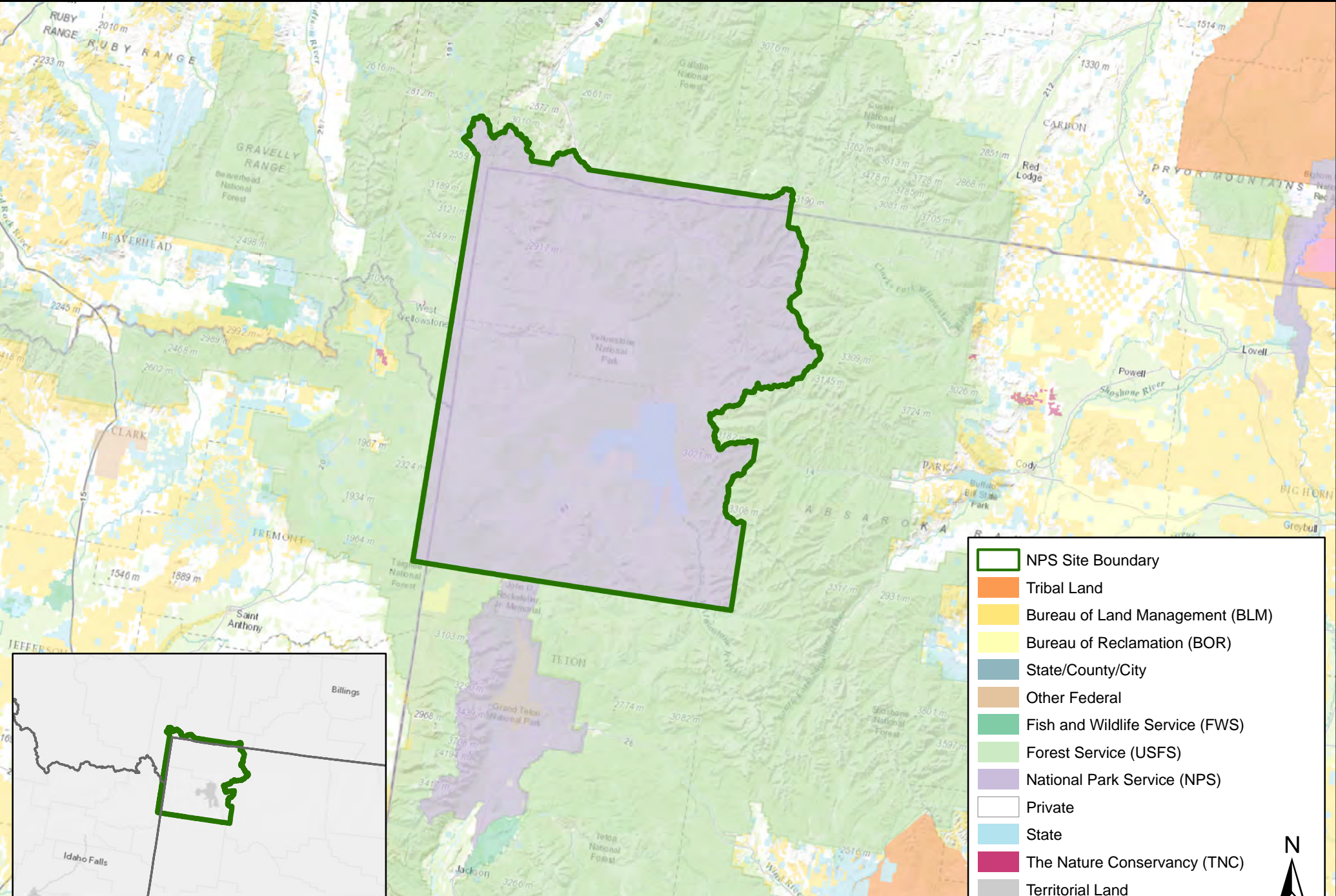
Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): The objectives in the 2007 Bison and Elk Management Plan call for reducing the Jackson bison herd to 500 wintering animals through controlled hunting. Reducing the Jackson bison and elk herds is necessary to reduce reliance on supplemental feeding on the refuge, to limit further degradation of woody plant communities on the refuge, and to reduce the transmission of density-dependent diseases. There have been various legal efforts to stop bison hunting on the refuge and to eliminate supplemental feeding.

Relative Level of Complexity for Placement of Quarantined Bison: Not suitable for the placement of quarantined bison. [These two units are within the Brucellosis Designated Surveillance Area of the Greater Yellowstone Area (see [www.aphis.usda.gov](http://www.aphis.usda.gov) for further details) where these bison could be subsequently exposed to brucellosis.]

Other Key Management Considerations: The bison population exceeds the management goal of 500 animals by 80 percent. The objective is to reduce the number of bison in the Jackson herd. Current management through sport hunting is sufficient to maintain the current herd size but not adequate to achieve the herd size goal. Adding quarantined bison to this population would require other methods for herd reduction that would be highly controversial. These units would be an inappropriate for introducing quarantined bison because the Jackson herd has endemic brucellosis, which defeats the purpose for the Yellowstone bison quarantine program. Further, the Jackson and Yellowstone herds already occasionally intermix through natural immigration and emigration.

# NPS - Yellowstone National Park



	NPS Site Boundary
	Tribal Land
	Bureau of Land Management (BLM)
	Bureau of Reclamation (BOR)
	State/County/City
	Other Federal
	Fish and Wildlife Service (FWS)
	Forest Service (USFS)
	National Park Service (NPS)
	Private
	State
	The Nature Conservancy (TNC)
	Territorial Land

Source: Protected Areas Database of the United States (PAD-US), version 1.2, 2011

December 2012



## **Yellowstone National Park (Wyoming, Idaho, Montana)**

Primary Jurisdiction/Agency: National Park Service <[www.nps.gov/yell](http://www.nps.gov/yell)>

Cooperating Jurisdiction/Agency: Interagency Bison Management Plan for the State of Montana and Yellowstone National Park (IBMP): U.S. Forest Service (USFS), USDA Animal and Plant Health Inspection Service, Montana Departments of Livestock and Fish, Wildlife and Parks, Nez Perce Tribe, Confederated Salish and Kootenai Tribes, InterTribal Buffalo Council. Absaroka Divide Cooperative Wildlife Working Group: Wyoming Game and Fish Department and USFS.

Established Bison Herd: Yes

Primary Objective(s) for Bison: To maintain a wild, free-ranging bison population with concurrent risk management to prevent brucellosis transmission to livestock on lands adjacent to the park.

Herd Management (Fence, Herd Size/Composition, Carrying Capacity, Population Structure):

The herd is unfenced and originates from ~25 wild bison remaining in the park in the late 19<sup>th</sup> century. The herd was supplemented in 1902 with 18 cows from the Pablo-Allard herd in Montana, and 3 bulls from the Goodnight herd in Texas. The IBMP population guideline is 3,000 animals to balance brucellosis risk management and conservation objectives. The actual abundance of Yellowstone bison during the IBMP period (2001-2012), based on summer counts, has been between 2,969 and 5,015 (average = 3,885).

Landscape (Size and Use, Human Land Use Practices, Management of Bison Movement):

There is extensive movement and habitat use in the park, and seasonal movement and migration outside the park along the Yellowstone and Madison Rivers into Montana up to ~15 miles from the park boundary. Limited livestock grazing occurs adjacent to the park.

Ecological Interactions (Selection Regime, Native Species and Ecological Processes):

The bison are subject to a full suite of ecological processes, including: predator-prey dynamics; landscape-scale movement; seasonal breeding rut where more than 2,000 animals aggregate; seasonal herbivory patterns and nutrient distribution; and carcasses for the scavenger guild.

Human Interactions (Public Access, Public Viewing, Hunting, Indigenous Use):

The bison are highly visible inside and outside the park, with extensive tourism to view bison. There is limited bison hunting by Montana and Wyoming outside the park, and limited hunting by the Confederated Salish and Kootenai Tribes, Nez Perce, Shoshone Bannock and Umatilla on National Forest System lands adjacent to the park in Montana through the 1855 Stephens Treaty.

Historical Range: At the beginning of the 20<sup>th</sup> century, this herd was the last remaining wild bison herd in the United States.

Health and Genetics (Presence and Management of Disease, Genetic Integrity and Management):

Yellowstone bison likely contracted brucellosis from domestic livestock during the late 19<sup>th</sup> or early 20<sup>th</sup> centuries. At present, brucellosis risk management is performed through the IBMP. Formal planning for remote vaccination was completed in 2014. A brucellosis quarantine feasibility study is complete and operational quarantine is under consideration. Long-term genetic monitoring program is being conducted through partnership with Texas A&M University.

Socio-Political Environment (Legal and Policy Environment, Management Capacity, Social

Conflict): Seasonal movement of hundreds to thousands of bison outside the park can conflict with a variety of land uses on adjacent lands.

Relative Level of Complexity for Placement of Quarantined Bison: Not suitable for the placement of quarantined bison. [This unit is within the Brucellosis Designated Surveillance Area of the Greater Yellowstone Area (see [www.aphis.usda.gov](http://www.aphis.usda.gov) for further details) where these bison could be subsequently exposed to brucellosis.]

Other Key Management Considerations: For this analysis, it is not suitable or permissible under the IBMP to return quarantined brucellosis-free bison to the park.



The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 909/124952, June 2014

**National Park Service**  
**U.S. Department of the Interior**



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**Natural Resource Stewardship and Science**

1201 Oakridge Drive, Suite 150  
Fort Collins, CO 80525

[www.nature.nps.gov](http://www.nature.nps.gov)

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