Montana Fish, Wildlife & Parks
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Bozeman, MT 59718

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October 12, 2004

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Environmental Quality Council, State Capitol, Room 106, P.O. Box 201704, Helena, MT 59620-1704
Dept. of Environmental Quality, Metcalf Building, P.O. Box 200901, Helena, MT 59620-0901
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Ladies and Gentlemen:

The enclosed Environmental Assessment (EA) has been prepared for the proposed Feasibility Study of Bison Quarantine. This research project proposes that Montana Fish, Wildlife and Parks (FWP) in cooperation with the United States Department of Agriculture-Animal Plant Health Inspection Service conduct a research project on the feasibility of quarantine for Yellowstone bison at the existing bison research facility leased by USDA/APHIS near Corwin Springs, MT. The proposed action would be implemented as early as January 1, 2005 and would be completed as early as January 2007.

This Draft EA is available for review in Helena at FWP's Headquarters, the State Library, and the Environmental Quality Council. It also may be obtained from FWP at the address provided above, or viewed on FWP's Internet website: http://www.fwp.state.mt.us/publicnotices

Montana Fish, Wildlife & Parks invites you to comment on the attached proposal. Public comment will be accepted until 5:00 pm on November 11, 2004. Comments should be sent to the following:

Montana Fish, Wildlife & Parks
c/o Bison Quarantine
1400 South 19th Avenue
Bozeman, MT 59718

Or e-mailed to: kaune@state.mt.us

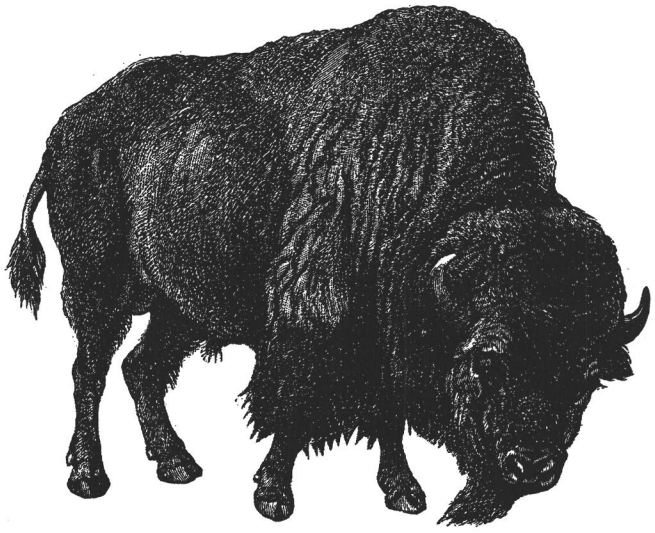
Sincerely,

Patrick J. Flowers
Region Three Supervisor

Attachment

Environmental Assessment

BISON QUARANTINE FEASIBILITY STUDY



October 12, 2004

Montana Fish, Wildlife & Parks

Preliminary Environmental Assessment-October, 2004
Feasibility Study of Bison Quarantine -Phase I

Proposed Action: The Montana Fish, Wildlife and Parks in cooperation with the United Stated Department of Agriculture-Animal Plant Health Inspection Service, proposes to conduct a research project on the feasibility of quarantine for Yellowstone bison at the existing bison research facility leased by USDA/APHIS near Corwin Springs, MT. The proposed action would be implemented as early as January 1, 2005 and would be completed as early as January 2007.

Responsible Officials: Keith Aune, Montana Fish, Wildlife and Parks, P.O. Box 200701, 1420 E. 6th Ave., Helena, MT 59620-Phone 406-444-3248

Dr. Jack Rhyan, National Wildlife Research Center, USDA/APHIS/Vet. Services, 4101 Laporte Ave, Ft. Collins, CO 80524-Phone 970-266-614

For further information: Keith Aune, Montana Fish, Wildlife and Parks, P.O. Box 200701, 1420 E. 6th Ave., Helena, MT 59620-Phone 406-444-3248

Special Note: Comments received in response to this Environmental Assessment will be available for public inspection and will be released in their entirety if requested pursuant to the Montana Constitution.

Table of Contents

Section 1.0: Purpose of and Need for Action
- 1.1 Proposed Action: Feasibility Study of Quarantine for Yellowstone Bison
- 1.2 Location
- 1.3 Need for the Action
  - 1.3.1 History and Purpose
- 1.4 Relevant Plans, EISs, EAs, Regulations and Other Documents
- 1.5 Agency Authority for the Proposed Action
- 1.6 Local, State or Federal Agencies that Have Overlapping or Additional Jurisdiction
- 1.7 Agencies Consulting During Preparation of the EA
- 1.8 Objectives of the Action (desired outcomes and conditions)
- 1.9 Decisions That Must Be Made
- 1.10 Scope of this Environmental Analysis
  - 1.10.1 Public Involvement
  - 1.10.2 Duration of Comment Period for this EA
  - 1.10.3 Personal Responsible for Preparing EA

Section 2.0: Alternatives Including the Proposed Action
- 2.1 Introduction
- 2.2 Description of Alternatives
  - 2.2.1 Alternative 1: No Research (No Action)
    - 21.1.1 Principal Actions of Alternative 1
    - 2.2.1.2 Past Relevant Actions
    - 2.2.1.3 Mitigation and Monitoring
  - 2.2.2 Alternative 2
    - 2.2.2.1 Principal Actions of Alternative 2
    - 2.2.2.2 Past Relevant Actions
    - 2.2.2.3 Mitigation and Monitoring
    - 2.2.2.4 Cumulative Effects
  - 2.2.3 Alternative 3
    - 2.2.3.1 Principal Actions of Alternative 3
    - 2.2.3.2 Past Relevant Actions
    - 2.2.3.3 Mitigation and Monitoring
    - 2.2.3.4 Cumulative Effects
- 2.3 Checklist Summary Comparing Alternatives and Impacts
- 2.4 Identification of the Preferred Alternative
  - 2.4.1 Alternative 3 Phase I Research Project Description
  - 2.4.2 Alternative 3 Description of the Existing Phase I Facility and Proposed Research Protocol

Section 3.0 EA Checklist Review of Alternative 3

Section 4.0 Conclusion

Literature Cited

Appendix A Definition of Acronyms Used in the EA

Section 1.0: Purpose of and Need for Action

1.1 Proposed Action: Feasibility Study of Quarantine for Bison

Montana Fish, Wildlife and Parks (MFWP) proposes to study the feasibility of implementing quarantine procedures for bison from Yellowstone National Park in order to identify the potential for latent expression of brucellosis and test the sensitivity of quarantine procedures for detecting such infection. Under the quarantine research alternative, the department and interagency research cooperators would detain up to 200 sero-negative bison calves (100 each year of the two-year study) captured during management actions in the Greater Yellowstone Area in accordance with the Interagency Bison Management Plan (IBMP) and EIS. These bison would be retained for up to 1 year to determine if latent infection occurs and if approved USDA/APHIS quarantine protocols (year 1) would efficiently screen for brucellosis.

The State of Montana (Departments of Livestock and Fish, Wildlife and Parks) or the National Park Service (Yellowstone National Park) would capture and then transport sero-negative bison calves to the USDA/APHIS research facility at Corwin Springs to be used during a proposed quarantine research study. These bison calves would otherwise be sent to slaughter under the provisions of the Interagency Bison Management Plan, as the current population is over 3000. The bison calves would be maintained and cared for behind fence in a 400-acre game proof enclosure for 1 year and put through an enhanced USDA/APHIS quarantine protocol to determine if sero-negative bison calves can be serially tested and efficiently screened for brucellosis while maintaining them in a secure environment. Under Alternative 2, all the bison calves would be euthanized at the end of the year. No continuing research would occur. Under Alternative 3, approximately ½ of these bison from each test group would be euthanized at the end of phase I and submitted to extensive sample and culture testing to determine the likelihood that latent disease is present in the remaining bison in the research facility. Possibly, more phases of the project could be considered under alternative 3, depending on research results from phase I.

1.2 Location

The sero-negative bison calves selected for this research would be contained at an existing bison research facility leased by USDA/APHIS near Corwin Springs, Montana, Park County, Section 19 Township 8S Range 8E.

1.3 Need for the Action

Bison are essential to Yellowstone National Park because they contribute to the biological, ecological, cultural, and aesthetic purposes of the Park. However, Yellowstone National Park is not a self-contained ecosystem for bison and periodic movements of bison into Montana regularly occur. Some bison are infected with brucellosis and may transmit this disease to cattle if bison movements from the Park into Montana are not controlled. Transmission of brucellosis from bison to cattle would have significant adverse effects on Montana livestock operators in the Yellowstone area and on the Montana cattle industry, statewide. If the risks associated with brucellosis were not managed, the disease concerns of officials who are responsible for regulation of livestock diseases in other states and countries also could adversely affect Montana's livestock industry. Furthermore, there are currently few useful management tools to alleviate the internal population pressures from the growing bison population inside Yellowstone National Park. Finally, there is a need to understand

how quarantine procedures may be applied to the overall management of bison in the Greater Yellowstone Area (GYA) and the restoration of bison in other suitable habitats in North America.

1.3.1 History and Purpose

It is well documented that, in cattle, *Brucella abortus* may infect calves and remain serologically undetectable or be only transiently detectable until sexual maturity. Heifers, during their first pregnancy, may seroconvert and abort an infected fetus. Anecdotal evidence in bison (three animals from a privately owned South Dakota herd and one animal originating from YNP) suggests that latent infection may occur in bison calves. It is important to determine if this commonly occurs in bison in view of possible future management actions involving capture, quarantine, and release of sero-negative animals outside YNP.

There has been a long history in North America of restoring wildlife populations by capturing animals from robust populations and transplanting them to new habitats or augmenting existing populations near extinction. In the Greater Yellowstone Ecosystem, there is an extensive history of capturing, holding, transporting and relocating wildlife as a species conservation strategy. Yellowstone elk were routinely captured and widely distributed in the mid 1900's to restore wild elk throughout North America. Bison and antelope have been captured and moved from Yellowstone to create or augment populations elsewhere. Yellowstone has also been a recipient of such transplanted wildlife during restoration efforts including Rocky Mountain wolves from Canada and bison from Texas and northern Montana.

As it applies to the management dilemma surrounding Yellowstone National Park (YNP) bison, there have been many discussions about quarantine procedures and using this growing population to establish other free-ranging bison herds. Several quarantine options have been considered, and USDA/APHIS has established a protocol that would apply to this situation (Appendix B in the Interagency Bison Management Plan). Federal funding was previously appropriated for this activity but was not been expended. Despite frequent discussions of quarantine proposals and the disbursement of federal funding for this activity a specific plan has not yet been developed or approved.

Concurrent with the discussions about quarantine in the GYA, there have also been frequent discussions and meetings regarding bison conservation strategies in North America and the potential for restoring the species to grassland ecosystems. There currently is no unified conservation plan for bison in North America. The successful development of such a plan and subsequent implementation of a conservation strategy for plains bison is contingent upon reliable and suitable source stocks for restoration efforts. The World Conservation Union (IUCN)-Bison Specialist Group of North America recently supported a project to examine the status of bison, which presents several conservation recommendations (Boyd, 2003). This project outlines the current status of bison, offers guidance for the advancement of a conservation strategy and identifies the few free-ranging and genetically pure bison herds in North America suitable for restoration projects.

There are only about 8300 plains bison, classified as free ranging and genetically pure, in 13 conservation herds and they present the best source stocks available for restoration efforts (Boyd 2003). Nearly 2/3 of these bison are from larger diseased herds, such as the Yellowstone and Grand

Teton bison, while the remainder is found in small fragmented populations with limited potential as a reliable source for restoration efforts. The larger diseased conservation herds could become suitable source stock for conservation programs provided that disease free animals could be reliably filtered from the population. If animals can be declared disease free, then bison from Yellowstone National Park could serve as a source of genetically pure bison to be reintroduced into historical habitats contributing to the continued conservation of this species. Several factors support a need to explore the feasibility for using YNP bison for conservation efforts. The Yellowstone National Park bison herd provides a very good genetically diverse source of bison that have been free ranging for many decades (Halbert 2003). Currently, the bison population in Yellowstone National Park is above the management trigger levels for aggressive removals and there are annual habitat and weather dependent movements of bison out of YNP causing conflict and concern in the states of Montana, Idaho and Wyoming (Plumb and Aune, 2002). The major elements of this conflict include the presence of brucellosis, a nationally regulated disease, in YNP bison and managing the population size and distribution of Yellowstone bison. As we attempt to eliminate brucellosis in the GYA, many bison are routinely hazed or captured, tested and slaughtered to minimize the risk of transmission to cattle. Despite the successful management of this risk there are no strategies in place to restrain the base population of bison in this conservation herd. The removal of bison through a valid quarantine program could provide some means of reducing population pressures resulting in the migration of bison from YNP.

We propose to test the possibility that some bison migrating from YNP could be placed through a quarantine program to restrain population growth, conserve genetics and ultimately provide bison for restoration projects in other portions of North America. This selected removal program using quarantine protocols along with other population regulating tools such as a limited hunting program, as well as natural mortality, could operate in consort to remove an increment of bison from the herd to help maintain a relatively stable core population yet curb the frequent range expansions of bison in this confined ecosystem.

Prior to the development of a science-based quarantine program some preliminary research is needed to test various steps toward developing an appropriate science-based quarantine protocol and to quantitatively evaluate the risks associated with quarantine programs. If undertaken, this initial research will provide critical information needed to further explore the development of a quarantine program designed to use animals from this robust Yellowstone bison population to restore other populations in North America. An adaptive step-wise research approach will require approval from many government regulators and will require cooperation among concerned Montana publics, various conservation groups, Native Americans, and state/federal government agencies.

1.4 Relevant Plans, EISs, EAs, Regulations, and Other Documents

The Montana Legislature has designated bison that originate from YNP as a species requiring disease control. The Montana Department of Livestock (DOL) is authorized to remove or destroy publicly owned bison that enter Montana from a herd that is infected with a dangerous disease or whenever those bison jeopardize Montana's compliance with state or federally administered livestock disease control programs (Mont. Code Ann. § 81-2-120 (1)). The MDOL regulatory authority for the administration of the control of bison, which emigrate from YNP, is identified in

Montana Administrative Rule (ARM 32.3.224). The Montana Legislature has found that bison pose a significant potential for transmission of infectious disease to persons or livestock and for damage to persons or property (Mont. Code Ann. § 87-1-216 (1)). MFWP is required to cooperate with the Department of Livestock in the management of these bison (Mont. Code Ann. § 87-1-216).

The State of Montana was a joint-lead in the development of the Interagency Draft Environmental Impact Statement (DEIS) and Bison Management Plan. In November 2000 the joint state/federal Interagency Bison Management Plan (IBMP) and Final Environmental Impact Statement (FEIS) was completed. The final record of decision was published in December 2000 pursuant to the requirements of the Montana Environmental Policy Act (MEPA).

The IBMP provides a framework to manage both bison and the risk of transmission of brucellosis from bison to domestic livestock. The IBMP emphasizes measures to maintain temporal and spatial separation between bison and cattle. This plan establishes population targets for the bison herd and identifies management actions if and when bison move beyond the YNP boundary. The plan also establishes a framework for adaptive management. In the context of the IBMP, adaptive management means testing and validating with generally accepted scientific and management principles the proposed spatial and temporal separation, risk management and other management actions. Under the adaptive management approach, future management actions could be adjusted, based on feed back from implementation of the proposed risk management actions.

Both the FEIS and ROD stipulate that "seronegative bison can be sent to quarantine, if available, and if not available may be sent to slaughter or be removed for jointly approved research." The final FEIS states "DoL and MFWP agree that relocation of live bison that are certified as brucellosis-free is a sound approach for removing bison that cannot be accommodated within the Yellowstone system. However, DoL and MFWP also understand that additional work must be completed to determine the feasibility of incorporating quarantine into the long-term bison management strategy."

1.5 Agency Authority for the Proposed Action

Under current federal and state statute the National Park Service has management authority for bison within YNP. The State of Montana has management authority for bison in Montana (FEIS, P. 39).

1.6 Local, State or Federal Agencies that Have Overlapping or Additional Jurisdiction

USDA/APHIS has special regulatory authorities relative to the National Brucellosis Eradication Program. USDA/APHIS/Veterinary Services administers quarantine program oversight and establishes the requirements to determine which, if any, animals can be classified free of brucellosis.

Montana Department of Livestock in cooperation with MFWP conducts bison management field operations for the State of Montana

In 1956, Congress authorized the Secretary of Agriculture to enter into cooperative agreements with individual states for a brucellosis eradication program based upon the Recommended Brucellosis Uniform Methods and Rules (UM&R). The UM&R describes standard procedures for surveillance, testing, quarantine, and interstate transport. USDA/APHIS, alone, has federal regulatory authority to

approve quarantine protocols and has published a quarantine protocol for bison leaving the GYA (Appendix B of the Interagency Bison Management Plan). USDA/APHIS/Veterinary Services administers the quarantine program oversight and establishes the requirements to determine which, if any, animals can be classified free of brucellosis. The Montana Department of Livestock in cooperation with MFWP conducts bison management field operations for the State of Montana

The Department of Interior/National Park Service operates bison capture facilities in YNP.

1.7 Agencies Consulted During Preparation of the EA

USDA/APHIS/Veterinary Services-Fort Collins, Colorado
Department of Interior/National Park Service/Yellowstone National Park
Montana Department of Livestock-Helena, Montana
Montana Department of Fish, Wildlife and Parks-Helena, Montana

1.8 Objectives of the Action (Desired Outcomes and Conditions)

There are three main project goals described below in this proposed feasibility study of bison quarantine.

1. Develop quarantine procedures, using the best available science and adaptive research strategies, that will allow bison from Yellowstone National Park to be accepted as free of brucellosis and suitable for the establishment of new public and Native American bison herds or to augment existing populations in North America.
2. Research the feasibility of a program to conserve genetics from free-ranging Yellowstone bison by the creation of additional conservation bison herds in other habitats in North America without transmitting brucellosis onto these landscapes.
3. In a step-wise fashion examine the feasibility of quarantine protocols and the reintroduction of bison to large grassland systems as a conservation strategy that may benefit from the management of bison in the GYA where populations are expanding beyond social tolerance limits.

1.9 Decision(s) That Must Be Made

- Determine if alternatives considered meet the research project objectives.
- Determine which alternative should be selected.
- Determine if the selected alternative would cause significant effects to the human environment.

1.10 Scope of This Environmental Analysis

This EA is essentially a checklist EA. However, additional explanation was added to the checklist format because of the sensitive nature of bison issues.

This Environmental Assessment (EA) has been prepared to assess the probability that there would be effects to the human environment as a result of a proposed research study to determine if sero-negative bison calves can be tested and efficiently screened for brucellosis while maintaining them in a secure environment for 1 year. If successful, the results of this study will be used to evaluate the feasibility of amending quarantine procedures into the IBMP.

1.10.1 Public Involvement

Extensive public involvement was provided through the development of the Interagency Bison Management Plan and EIS. This process took over 10 years and involved comments from over 60,000 people from around the globe. In addition, the proposed bison quarantine project has been presented to over 20 different audiences during the past year. Included in the presentation of the study concept were scientific reviews as well as general presentations to public audiences. The Montana Fish, Wildlife and Parks Commission and the Montana Board of Livestock have been given opportunity to review the project and comment on the proposed action. The U.S. Animal Health Association-Brucellosis Committee (USAHA) and the Greater Yellowstone Interagency Brucellosis Committee (GYIBC) have both reviewed and endorsed the concept of continued research on the quarantine as a tool in the GYA. The Inter-Tribal Bison Cooperative has reviewed the proposal and encouraged support for research that may provide Yellowstone bison for bison restoration projects for Tribal Nations. Many presentations have been made to various NGO's and comments from many of them were considered in the development of the proposed research. Some groups to which the concepts of the proposed study have been presented include Greater Yellowstone Coalition, National Wildlife Federation, Boone and Crockett Club, Wildlife Conservation Society, American Prairie Foundation, World Wildlife Fund, and the Turner Endangered Species Fund. In addition, several area ranchers and local sportsmen's groups were given opportunity to examine the study proposal and provide comment on the proposed action during scoping sessions for the proposed bison hunt.

1.10.2 Duration of Comment Period for this EA

October 12, 2004 - November 11, 2004.

1.10.3 Person Responsible for Preparing EA

Keith Aune MFWP, Research and Technical Services Supervisor, P.O. Box 200701, Helena, Mt. 59620-0701, Ph. 406-444-3248

Section 2.0: Alternatives Including the Proposed Action

2.1 Introduction

The purpose of Section 2 is to compare the alternatives by summarizing the environmental consequences. Alternatives were planned by an interdisciplinary team of specialists who identified what information regarding latent expression of brucellosis was needed to meet USDA/APHIS

quarantine standards and then designed studies to acquire that information. The proposed research would follow guidance provided in the USDA/APHIS protocol published in the IBMP. This section describes the activities of the no action alternative and all action alternatives.

Since the proposed research action can be categorically excluded under NEPA and the proposed project takes place on a designated research facility, it was determined that if checklists revealed there was little or no probability of environmental impacts, the checklists would provide adequate review of the alternatives. Additional narrative information is provided due to the public interest in bison that has been evidenced in the past.

2.2 Description of Alternatives

2.2.1 Alternative 1: No Research (No Action)

No Action: If no action is taken then bison management would continue as prescribed under the interagency bison management plan and no quarantine feasibility study would be conducted. The potential application of quarantine in the current management program would not occur.

2.2.1.1 Principal Actions of Alternative 1

Sero-negative bison calves captured outside of Yellowstone National Park will most likely be sent to slaughter and there would be no management action to consider, as Yellowstone bison would not be contained at the Brogan Research Facility. The Interagency Bison Management Plan requires the periodic slaughter of large numbers of bison during years of increased migration into Montana. The decision to amend quarantine into the Interagency Bison Management Plan would be deferred. Information about the latent expression of brucellosis would not be available to address future considerations for bison quarantine. There would be no impact to the human environment.

2.2.1.2 Past Relevant Actions

The Brogan research facility was previously a game farm licensed by the State of Montana and has been in existence for many decades so there are no additional wildlife impacts anticipated from the proposed action. The facility has been used for bison and brucellosis research by USDA/APHIS and MFWP for the past 3 years. Most migrating wildlife (Elk, Mule Deer, and Bighorn Sheep) have accommodated their movements to the long-term presence of this game farm. Upgrading the quality of the existing perimeter fence and ensuring no contact with wild ungulates is an essential element of this project and considered an important element in achieving success. The exclusion of game from this land is consistent with the long-term management prescribed for the affected property.

2.2.1.3 Mitigation and Monitoring

Grazing

Elk and horses have historically grazed this facility during commercial operations for several decades, so grazing is currently occurring in the facility. Under the no action alternative, grazing of horses that are now on the property or other livestock as desired by the landowner would continue.

Water quality
This facility is 200 meters distance from the Yellowstone River and there are no major streams or watercourses traversing through the property. Under the no action alternative, water quality issues would remain unchanged from current conditions.

Impacts to Wildlife
This facility has a game proof fence. The exclusion of wildlife from this property would continue as it does now.

Spread of Brucellosis
Brucellosis currently occurs in free-ranging wildlife in the habitat surrounding this facility. A low sero-prevalence and infection rate is persistently recorded in elk migrating to this area from Yellowstone National Park. In addition, bison will occasionally migrate to areas in Eagle Creek and Stephens Creek not far from this facility. There are no potentially infected or exposed animals within the Brogan facility under current management activities on this property.

2.2.2 Alternative 2: Conduct the Bison Quarantine Feasibility Study but terminate all study animals at the end of Phase I. No further study would be contemplated.

2.2.2.1 Principal Actions of Alternative 2

Under this alternative some information about the latent expression of brucellosis would be obtained during the research but all animals would be slaughtered for complete culture testing. We would preclude the opportunity to consider extending the research through additional steps toward developing restoration experiments. There would be no further phases of study considered or proposed under this alternative.

2.2.2.2 Past Relevant Actions

Past relevant actions are the same as Alternative 1.

2.2.2.3 Mitigation and Monitoring

Grazing
This research facility will have been rested for nearly one full vegetation-growing season prior to any proposed actions identified in this EA. The proposed study would result in grazing within the facility for 2 subsequent years during the Phase I research. The loss of vegetation due to grazing could expose soils and result in shifting or movement of soils on steep slopes. A 3 pasture grazing plan would be developed to minimize vegetation lost and pastures would be constructed to minimize grazing impacts yet retain test group separation. The timing of grazing would be adjusted to minimize impacts on vegetation resources.

Grazing impacts could temporarily impact productivity of the affected plant communities. Preferred grasses may be the primary plants impacted, however, bison are coarse grazers and

are known to be gentler on the landscape than many grazing species. The high mobility of this species and the ability to graze a wide range of habitats will minimize some localized vegetation impacts. A program to monitor weeds and control their presence through spraying or other means will be developed for the land within the facility.

Water Quality
This facility is 200 meters distance from the Yellowstone River and there are no major streams or watercourses traversing through the property. There are several ephemeral watercourses upon the property that flow only during extreme snowmelt or rainfall. Introducing bison to this property should have no detrimental effects on water quality.

Impacts to Wildlife
Little is known about nongame resources within this existing facility. The Brogan research facility was previously a game farm and has been used for bison-brucellosis research in recent years. The facility has been in existence for many decades so there are no additional wildlife impacts anticipated from the proposed action. Most migrating wildlife (Elk, Mule Deer, and Bighorn Sheep) have accommodated their movements to the long-term presence of this game farm. Upgrading the quality of the perimeter fence and ensuring no contact with wild ungulates is an essential element of this project and considered an important element in achieving success. The exclusion of game from this land is consistent with the long-term management prescribed for the affected property.

Spread of Brucellosis
Brucellosis is a contagious disease that can infect humans. However, by screening for negative animals and carefully limiting human access to these animals we can mitigate potential human health concerns. Humans occupying the habitat within this area are potentially exposed to naturally infected wildlife with limited mitigation in place. This project will carefully maintain animals behind double fences and limit any public access to these animals. Maintaining the disease free status of research animals in the facility is the basic goal of the research project.

2.2.2.4 Cumulative Effects
Under Alternative two, there should be no cumulative effects to the grazing, water quality, wildlife or spread of brucellosis. Impacts associated with other issues such as air quality, noise, community, etc. were considered unlikely to be associated with the proposed action.

2.2.3 Alternative 3.
Conduct the Bison Quarantine Feasibility Study-Pase I at the Brogan Research Facility but terminate only a portion of the study animals at the end of Phase I. Contingent upon information gathered during Pase I, leave open the possibility of implementing Pases II and III in the future.

2.2.3.1 Principal Actions of Alternative 3
Under this alternative approximately 50% of the calves from each test group would be slaughtered and culture tested at the end of Phase I. Those animals not euthanized could then be considered for further research experiments related to quarantine procedures. The

exact number of animals euthanized and submitted to culture would be dependent on the test group size and would be established to be 95% confident of detecting infection prevalence of 5% or more. This alternative would present similar impacts to the human environment as Alternative 2. There would be no additional impacts to the human environment associated with the implementation of this alternative as compared to Alternative 2. However, research information obtained during the project would be significantly enhanced and the opportunity to consider decisions for extending the research following additional environmental analysis would be possible.

2.2.3.2 Past Relevant Actions

Past relevant actions are the same as Alternatives 1 and 2.

2.2.3.3 Mitigation and Monitoring.

The mitigation and monitoring under Alternative 3 is identical to the mitigation and monitoring for Alternative 2. However, under Alternative 3, other phases of the project could be implemented in the future, so the facility and a portion of the test animals could continue to be used for research over a longer period of time. The mitigation for grazing, water quality, impacts to wildlife and spread of disease would remain in place over a longer period of time if future phases of the project are implemented. Under Alternative 2, all the bison calves would be slaughtered at the end of the project and the facility would no longer be used whereas in Alternative 3 some animals would remain available for additional research and could be considered as suitable for bison restoration projects.

2.2.3.4 Cumulative Effects

Under Alternative three, there should be no cumulative effects to the grazing, water quality, wildlife or spread of brucellosis. Impacts associated with other issues such as air quality, noise, community, etc. were considered unlikely to be associated with the proposed action.

2.3 Checklist Summary Comparing Alternatives and Impacts

Table 1. Summary and Comparison of Predicted Environmental Effects by each Alternative Considered in the Analysis of Impacts.

Issue	No Action Alternative 1	Alternative 2	Alternative 3
Land Resources	No Change from current conditions. This privately owned property was previously managed as an elk ranch for many decades. The location already is high-fenced and recently was utilized for grazing of livestock or research bison.	The research facility would be grazed for 2 years by up to 100 bison each year. There would be some soil compaction and potential soil instability resulting from grazing intensity. These impacts will be mitigated through a rotation grazing system.	Not substantially different than Alternative 2.
Air Quality	No Change from current conditions	No Change from current conditions.	No Change from current conditions
Water Quality	No Change from current conditions. This property is 200 meters from the Yellowstone River and has no major streams or watercourse traversing the property.	No Change from current conditions. Ephemeral streams occasionally flow during high rain or snowmelt. These drain onto vegetated fields seldom reaching the Yellowstone River.	Not substantially different than Alternative 2.
Vegetation	The current and/or proposed program involves leasing the grazing rights on the lower pastures to owners of horses or other livestock. Previous use of vegetation resources included historic grazing by elk and bison.	The property will be grazed for at least 2 years, which may temporarily reduce vegetative cover. There may be minor alterations in plant cover of preferred grass species or in plant communities. Changes in the vegetative resources are not expected to be permanent. The high mobility and coarse grazing nature of bison will lessen predicted impacts. Control of noxious weeds will be implemented to mitigate impacts.	Not substantially different than Alternative 2.

Issue	No Action Alternative 1	Alternative 2	Alternative 3
Fish and Wildlife Resources	No Change from current conditions. Currently, there are no specific measures in place to prevent predator intrusion.	No Change from current conditions. Improvements will be made in existing fencing for predator defense.	No Change from current conditions. Improvements will be made in existing fencing and predator defense.
Noise/Electrical Effect	No Change from current conditions	No Change from current conditions.	No Change from current conditions.
Land Use	No Change from current conditions	No Change from current conditions.	No Change from current conditions.
Risk/Health Hazards	No Change from current conditions	Brucellosis is a contagious disease that can infect humans. Sorting for negative animals prior to stocking the facility and security measures during the quarantine study would reduce nearly all risk for transmission of this disease to the public. Animal helpers and scientists would practice safe handling of potentially infectious materials and properly dispose of them. Brucellosis presently exists in free-ranging elk and bison within or near the study area.	Not substantially different than Alternative 2. The addition of culture testing to the research protocol would enhance the understanding of latent infection of brucellosis and clarify any potential risk associated with containing these exposed but sero-negative bison in a quarantine facility.
Community Impact	The current conditions provide limited employment opportunity including one ranch helper and an intermittent manager.	The Brogan Facility is private property that previously was a game ranch. Montana law would prohibit any future game ranching opportunity at this site. The proposed research project would bring economic benefits from limited construction work and employment would be produced through a need for technical assistants for the proposed project.	Not substantially different than Alternative 2.

Issue	No Action Alternative 1	Alternative 2	Alternative 3
Public Service and Taxes/ Utilities	No Change from current conditions.	Some benefits may be derived from employment opportunities and the increased income from the private property owners leasing the facility for research use.	Not substantially different than Alternative 2.
Aesthetics and Recreation	No Change from current conditions	Bison will be visible from the highway attracting some attention and offering viewing by interested publics. An opportunity to explain resource issues related to brucellosis and bison may be available through this increased public interest.	Not substantially different than Alternative 2.
Cultural and Historical Resources	No Change from current conditions.	No Change from current conditions.	No Change from current conditions.

Summary of Impacts and Significance Criteria	The no-action alternative does not produce a significant change from current conditions. Future conditions may be altered by management decisions of the existing landowner and may present future environmental challenges beyond the scope of this study.	The impacts to the human environment for this alternative are not significant. All potential minor impacts have been identified and can be mitigated through alterations of grazing programs, noxious weed control, and strict adherence to proposed quarantine protocols.	The impacts to the human environment for this alternative are not different than for Alternative 2. However, there are considerable scientific advantages to this alternative improving the overall research efforts to evaluate the feasibility of quarantine in an adaptive fashion.

2.4 Identification of the Preferred Alternative

Alternative 3 is MFWP's preferred alternative. It best achieves the goals enumerated in 1.8 without significant impacts to the human environment.

2.4.1 Alternative 3 Phase I Research Project Description

Phase I research will test the hypothesis that wild bison calves captured at West Yellowstone or Stephens Creek capture facilities can be effectively transported to the Brogan research facility and maintained in quarantine for one year. Furthermore, the study will test the hypothesis that there is a 95% certainty that fewer then 5% of these bison will sero-convert or express latent infection through culture testing. Any sero-conversion detected during the study will be documented for individual bison submitted to the facility and kept in confinement through Phase I. The probability of latent infection will be tested by euthanizing up to 50% of the calves after they have been maintained within the quarantine facility for year one and performing detailed culture studies of this sample to establish whether any animals were infected with *Brucella abortus*.

For the purposes of this checklist EA we are only analyzing potential environmental impacts of a decision to conduct the Phase I quarantine research at the Brogan Research Facility in Corwin Springs. A decision to proceed with Phase II and III is entirely contingent on initial success in Phase I. Such a decision will be made in accordance with appropriate environmental review, including an opportunity for public review and comment on the proposed Phase II and III elements of this research.

Phase I of this feasibility study will be conducted very near the northern Yellowstone boundary so there is no risk of transmitting brucellosis outside of the area where wildlife populations are already exposed. Using the existing research facility at Corwin Springs will assure that if there were failures in the procedure, brucellosis would remain inside the GYA.

A detailed analysis and review of the quarantine procedures and testing protocols will be performed at the end of Phase I for use in further environmental and decision processes relative to advancing the study to Phase II and III. The *a priori* hypothesis for Phase I research (see research proposal) is rejected if there is evidence of sero-conversion in 5% or more of each quarantine test group or *Brucella abortus* is cultured from more than 5% of the test animals euthanized during Phase I. Rejecting the Phase I hypothesis could terminate the project or would result in modifications of the subsequent research steps.

This research project is designed to remain consistent with the existing Interagency Bison Management Plan during all phases.

1) Population triggers established in the plan determine the availability of negative calves for quarantine procedures-Phase I.
2) The program maintains the availability of habitats west of the Yellowstone River for wild free-ranging bison by concentrating quarantine activities on the east side of the Yellowstone River. This geographic compartmentalization of various management activities minimizes management conflicts for implementing the IBMP.

Bison will be managed in the facility to minimize human handling and test groups will be free to pasture as much as possible to retain natural foraging behaviors. Supplemental feeding will occur as necessary to maintain the health of the bison. The programs intent is to avoid a feedlot management scenario as possible and allow natural behaviors to be expressed within the constraints of the quarantine protocol.

It is not known if Phase I of this research project will be successful and lead to further research efforts. Implementing additional bison quarantine research would be contingent upon the evaluation and analysis of research data from Phase I. A decision to extend quarantine research to additional phases (II and III) would be contingent upon completion of the appropriate environmental analysis of impacts associated with any additional proposed actions.

2.4.2 Alternative 3. Description of the Existing Phase 1 Facility and Proposed Research Protocol.

The Brogan Bison Research Facility near Corwin Springs encloses 400 acres of grassland and steep rocky slopes. The facility includes several lower sorting pens and a large upper pasture (see map and photo). The lower pastures are irrigated grassland and a large upper pasture is composed of grass benches in rough broken terrain. An 8-foot game proof fence surrounds the perimeter and in some instances the outer boundary fence is double fenced. A series of small two-track roads transect the area so ATV or 4-wheel vehicle access is available to all pastures. The residence and outbuildings on the property are not incorporated into the lease and will be occupied by the current property owner. Use of the Brogan Research Facility to pasture bison does not represent a change in land use. Prior to the establishment of the research facility, the Brogan property was managed as an alternative livestock operation. Phase I facility development needs include:

1) Improve containment capabilities of the existing fenced facility.
2) Upgrade original exterior fence to maintain its game proof character.
3) Develop cross fencing as necessary to maintain test group separations.
4) Improve the handling equipment inside the facility.

Initial program will begin this winter (2004-2005) by introducing the first group of up to 100 calves into 2-4 sorting pens-separated in lower portions of the facility. The quarantine feasibility study phase I procedures will include processing two groups of about 100 bison calves through the quarantine facility for each year of the study.

1. Initial testing will be performed each year of the study at the Duck Creek and/or Gardiner bison capture facilities where up to 100 sero-negative calves will be sorted.
2. All calves will be tested and held at these field capture facilities until the FP and Card serologic tests are completed (approximately 1-2 days)
3. Negative bison will be assembled in a holding pasture at the Brogan Bison Facility for Phase I research.
   a) After the final assembly, bison will be retested using a broad spectrum of serologic test methodologies to sort them into two groups of 40-50 bison and remove all suspect or positive animals.
   b) The test Panel may include-Card, BAPA, Standard Plate, Standard Tube, CF, Rivanol, PCFIA, and FP.
      1) Blood samples will be collected and sent to NVSL for culture.
      2) Additional tests, such as PCR, may be added as they become available.
4. Animals negative on this full panel testing protocol will be placed into two large pastures in test groups held through the winter-spring.
   a) The management system will include moving the animals through a three pasture rotation system while maintaining group separation until the fall.
      1) Bison will be retested and blood cultured in late summer.
      2) Up to 50% of each test group will be euthanized and detailed tissue collections will be conducted to determine culture status. The sample size will be established to assure a 95% certainty that the latent infection rate would be less than 5%.
5. Test results from all serologic testing and culture evaluations will be closely examined and integrated into an interim decision process before moving into Phase II of the proposed research. Failure to accept the tested hypothesis in Phase I could result in the termination of this feasibility study or substantial modifications of the research protocols.

Section 3.0: EA Checklist Review of Alternative 3

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Soil instability or changes in geologic substructure?			X		X	1a
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil that would reduce productivity or fertility?			X		X	1a
c. **Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other:		X				

1a. The research facility has been rested for one year prior to any proposed actions identified in this EA. The loss of vegetation due to grazing could expose soils and result in shifting or movement of soils on steep slopes. A grazing plan will be developed to minimize vegetation lost and pastures will be constructed to minimize grazing impacts yet retain test group separation. The timing of grazing will be adjusted to minimize impacts on vegetation resources.

2. AIR Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. ***For P-R/D-J projects, will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a)		X				
f. Other:		X				

3. WATER Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. *Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				3a
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				

g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. ****For P-R/D-J, will the project affect a designated floodplain? (Also see 3c)		X				
m. ***For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		X				
n. Other:		X				

3a. This facility is 200 meters distant from the Yellowstone River and has no major stream or watercourse traversing through the property.

4. VEGETATION Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X		X	4a
b. Alteration of a plant community?			X		X	4a
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?			X		X	4a
f. ****For P-R/D-J, will the project affect wetlands, or prime and unique farmland?		X				
g. Other:		X				

4a. Grazing impacts could temporarily impact productivity of the grazed plant communities. Preferred grasses may be impacted, however, bison are coarse grazers and gentler on the landscape than many species. The high mobility of this species and ability to graze a wide range of habitats will minimize some vegetation impacts. A program to monitor weeds and control them through spraying or other means will be developed for the facility.

** 5. FISH/WILDLIFE Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Deterioration of critical fish or wildlife habitat?		X				5a
b. Changes in the diversity or abundance of game animals or bird species?		X				
c. Changes in the diversity or abundance of nongame species?		X				
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				5b

f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. ****For P-R/D-J, will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. ***For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		X				
j. Other:		X				

5a. Little is known about the nongame resources within this existing facility. The Brogan research facility was previously a game farm and has been in existence for many decades.
5b. Most migrating wildlife (Elk, Mule Deer, and Bighorn Sheep) have accommodated their movements to the presence of this game farm. Upgrading the quality of the perimeter fence and ensuring no contact with wild ungulates is an essential element of this project and considered an important element in achieving success

B. HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Increases in existing noise levels?		X				
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other:		X				

7. LAND USE Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Other:		X				

8. RISK/HEALTH HAZARDS Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?			X		X	8c
d. ***For P-R/D-J, will any chemical toxicants be used? (Also see 8a)		X				
e. Other:		X				

8c. Brucellosis is a contagious disease that can infect humans. However, by screening for negative animals and carefully limiting human access to these animals we can mitigate human health concerns. Humans occupying the habitat within this area are potentially exposed by naturally infected wildlife without mitigation. This project will carefully maintain animals behind double fences and limit public access to these animals. Maintaining a disease free status of the research animals is the basic goal of the project.

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other:		X				

10. PUBLIC SERVICES/TAXES/UTILITIES Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased use of any energy source?		X				
e. **Define projected revenue sources		X				
f. **Define projected maintenance costs.		X				
g. Other:						

** 11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				

c. **Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)		X				
d. ***For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
e. Other:		X				

12. CULTURAL/HISTORICAL RESOURCES **Will the proposed action result in:**	**IMPACT ***				**Can Impact Be Mitigated ***	**Comment Index**
	Unknown *	**None**	**Minor ***	**Potentially Significant**		
a. **Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. ****For P-R/D-J, will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		X				
e. Other:		X				

13. SUMMARY EVALUATION OF SIGNIFICANCE **Will the proposed action, considered as a whole:**	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Significant		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. ***For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. ****For P-R/D-J, list any federal or state permits required.		X				

Section 4.0: Conclusion

An EIS is not required because the Phase I research effort is being conducted within and existing facility and no significant impacts to the human environment are associated with the proposed action. In addition, previous analysis in the Interagency Bison Management Plan evaluated the impacts of sending bison to research facilities or quarantine when the bison population exceeded 3000. The current population of bison in YNP is over 4000 animals. The removal of up to 200 negative calves (Up to100 in each of 2 years) from this population for research and their transport to an experimental quarantine facility is not considered significant and was previously evaluated under the IBMP and EIS. These same animals could otherwise be sent to slaughter according to provisions of the IBMP.

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Appendix A-Definition of Acronyms Used in the Environmental Assessment

APHIS - Animal and Plant Health Inspection Service
ARM - Administrative Rules of Montana
ATV - All Terrain Vehicle
BAPA - Buffered-Acidified Plate Antigen Test
CEAH - Centers for Epidemiology and Animal Health
CF - Complement Fixation Test
DEIS - Draft Environmental Impact Statement
DoL - Montana Department of Livestock
EA - Environmental Assessment
EIS - Environmental Impact Statement
FEIS - Final Environmental Impact Statement
FP - Fluorescent Polarization Test
FWP - Montana Department of Fish, Wildlife and Parks
GYA - Greater Yellowstone Area
GYIBC - Greater Yellowstone Interagency Brucellosis Committee
IBMP - Interagency Bison Management Plan
ITBC - Inter-Tribal Bison Cooperative
IUCN - The World Conservation Union
MCA - Montana Code Annotated
MEPA - Montana Environmental Policy Act
NEPA - National Environmental Policy Act
NGO - Non-Governmental Organization
NVSL - National Veterinary Services Lab
PCFIA - Particle Concentrate Fluorescent Immunoassay
PCR - Polymerase Chain Reaction
P-R/D-J - Pitman-Robertson/Dingle-Johnson
ROD - Record of Decision
SHPO - State Historic Preservation Office
UM&R - Brucellosis Uniform Methods and Rules
USAHA - United States Animal Health Association
USDA - United States Department of Agriculture
USGS - United States Geological Survey
YNP - Yellowstone National Park