BUFFALO FIELD CAMPAIGN
P.O. BOX 957
WEST YELLOWSTONE, MONTANA 59758
(406) 646-0070 PHONE (406) 646-0071 FAX
http://www.buffalofieldcampaign.org
buffalo@wildrockies.org

IBMP Adjustments
Montana Fish, Wildlife & Parks
1400 S. 19th Ave
Bozeman, MT 59718
IBMPadjustments@mt.gov

January 12, 2012

Buffalo Field Campaign comments on Montana's Draft Joint Environmental Assessment Adaptive Management Adjustments to the Interagency Bison Management Plan. The responsible officials for this proposal are the FWP Region 3 Supervisor and the DoL Executive Officer.

Dear Pat Flowers and Christian Mackay,

Buffalo Field Campaign was founded in 1997 to stop the slaughter of Yellowstone's wild buffalo herd, protect the natural habitat of wild free-roaming buffalo and native wildlife, and to work with people of all Nations to honor the sacredness of the wild buffalo.

Buffalo Field Campaign is located in West Yellowstone, Gallatin County, Montana, and is supported by volunteers and citizens in Montana, Idaho and Wyoming, and by people from around the world who value America's native wildlife and the ecosystems upon which they depend, and enjoy the natural wonders of our irreplaceable public lands.

As an organization and on behalf of our members, Buffalo Field Campaign is concerned and actively involved with protecting the last remaining descendants of indigenous buffalo in North America to occupy their original range. Buffalo Field Campaign actively publicizes the plight of the buffalo, to end their

slaughter by government agencies, and to secure long-term protection for viable populations of wild buffalo and year-round habitat in their original range. Buffalo Field Campaign actively engages the American public to honor our cultural heritage by allowing wild buffalo to exist as an indigenous wildlife species and fulfill their inherent ecological role within their original range, and serve as the genetic wellspring for future wild, free ranging buffalo populations.

Montana's proposed action to capture and confine up to 300 female buffalo and their calves in traps at Corwin Springs contradict, thwarts, and is incompatible with your claimed objective to "maintain a wild, free-ranging population of bison." (State of Montana)

The claim of Montana's proposed action of "a wild, free-ranging population of bison" while confining the population to traps is false double-think intended to indoctrinate the public into accepting a gross contradiction of reality.

As part of Montana's proposed action, Yellowstone National Park intends to harass and capture migratory buffalo in traps at Stephens Creek (Yellowstone National Park, Gallatin National Forest, Animal and Plant Health Inspection Service). If last winter is any indication of the impacts of your decision, a majority of buffalo migrating into Gardiner basin will be harassed on winter range necessary for their survival, captured, tagged, crowded and confined into traps for extended periods including calving season, fed hay in feedlot conditions, and vaccinated like livestock using a vaccine developed and licensed for livestock not buffalo.

Montanans and the American people are in agreement that confining and congregating buffalo in feedlots as Montana proposes is a flagrant attack on America's last buffalo, and our natural heritage.

The alternative you cite as the basis for your analysis area contemplated treating buffalo as wildlife on its native habitat, not as feedlot livestock in pens as currently proposed (State of Montana and Yellowstone National Park).

In fact, the environmentally preferred alternative rejected by Montana and the IBMP agencies in 2000 but overwhelmingly supported by the public calls for managing buffalo as a wildlife species, conservation of historic nomadic migration to adjacent National Forests, additional habitat acquisitions, and

where habitat conflicts exist, managing domestic cattle rather than native wildlife (State of Montana and Yellowstone National Park).

The Council on Environmental Quality defines the environmentally preferred alternative as one that "causes the least damage to the biological and physical environment and best protects, preserves and enhances historic, cultural and natural resources." (State of Montana and Yellowstone National Park).

Montana's proposed action is one of the most environmentally destructive actions the state can take against wild buffalo in habitat the vast majority of people support conserving and protecting this unique population. Montana's proposed analysis fails and needs to consider and evaluate the environmentally preferred alternative articulated over a decade ago that best protects buffalo in their habitat.

A hay bale is not habitat. Montanans' and American taxpayer dollars and scarce resources should be spent purchasing habitat that connects migration corridors to public lands in Paradise valley – habitat buffalo could occupy as the migratory species sees fit just like elk.

Artificial confinement that congregates buffalo in feedlots as Montana proposes is worse than the federal and state feed grounds in Wyoming – an incubator for disease that has chronically infected and exacerbated brucellosis infection in elk and buffalo (State of Montana Office of the Governor; Smith 2011).

Confinement that congregates buffalo in feedlots as Montana proposes occurs during peak winter months when the buffalo's metabolism is adjusted to low quality forage, energetic cost is greatest, and stresses to buffalo immunity and nutritional health peaks, particularly for pregnant female buffalo seeking green-up that provides high quality milk for calf survival (Jones 2010).

Confinement that congregates buffalo in feedlots jammed into pens for months on end as Montana proposes – whether at Corwin Springs and Stephens Creek or Horse Butte and Duck Creek – could in fact lead to the spread of parasites, an outcome not addressed in your analysis (Black Wolf) and is a vector for persistent disease transmission in wildlife (Smith 2011).

Your so-called 'tool in the toolbox' threatens buffalo by confining the wild species and increasing the risk of transmitting parasites. Hines and scientists preliminary observations of gastrointestinal parasite infection in elk found that feed ground elk in Wyoming had higher rates of nematode egg counts. The agencies blind their view to brucellosis alone for the sake of the cattle but at great risk to buffalo by confining the wild species in their feces and urine for extended periods of time. It is a credit to buffalo's natural resistance and immunity to disease infection that has so far kept the worst harms of confinement at bay.

Does the State of Montana believe that your actions are immune from disastrous outcomes for wild buffalo? If so, such surety cannot be found in your analysis.

The fundamental failure of your decision is Montana's unwillingness in addressing the underlying assumption that puts the wild population at risk: that buffalo do not belong and will not be 'tolerated' beyond Yankee Jim Canyon. The fact is Gardiner basin is a small portion of buffalo's winter range extending 40 miles along the Yellowstone River to Livingston and beyond (Gates 2005).

Montana's proposed haze-back date of May 1 lacks a scientific rationale or any sound basis. Such an unnecessary provision to harass buffalo systematically denies habitat necessary for a wild population to emerge in Montana and persist as your public trust duty demands.

Please address the following findings in your analysis and how you reached your decision to harass buffalo from habitat and remove the population from Montana by May 1 annually:

> "Brucellosis transmission risk from bison to cattle is extremely low after June 1 and negligible by June 15 because (1) parturition is essentially completed for the year, (2) parturition events rarely occur in areas that will later be occupied by cattle, (3) cattle are generally not released on summer ranges until after mid- June, (4) females meticulously consume birthing tissues, (5) ultraviolet light and heat degrade Brucella on tissues, vegetation, and soil, (6) scavengers remove fetuses and remaining birth tissues, and (7) management maintains separation between bison and cattle"

(Yellowstone National Park 2009).

> "Allowing bison to remain on essential winter ranges outside Yellowstone National Park until late-May or early June, when they typically begin migrating back into the park to high-elevation summer ranges, is unlikely to significantly increase the risk of brucellosis transmission from bison to cattle" (Yellowstone National Park 2009).

> "Allowing bison to occupy public lands outside the Park through their calving season will help conserve bison migratory behavior and reduce stress on pregnant females and their newborn calves, while still minimizing the risk of brucellosis transmission to cattle" (Jones 2010).

> "Evidence from these studies indicates that after May 15 (bison haze-back date in the IBMP), natural environmental conditions and scavenging conspire to rapidly kill or remove brucella from the environment" (Aune).

Whatever quantifiable risk exists is localized, "predominantly low", "zero under all scenarios" and can be addressed by managing livestock at a significantly reduced cost to the American people while conserving wild buffalo (Kilpatrick).

Elk freely traverse winter range buffalo are systematically denied by Montana - at great harm to buffalo - while elk infect cattle repeatedly without public outcry by the livestock industry (Beja-Pereira). It is this unjustified and unchallenged and unanalyzed assumption that the agencies lean upon to drive their public decision to capture migratory buffalo and subject them to a host of livestock management techniques: artificial feeding, unnatural crowding in traps, tagging, testing, vaccination, and human handling.

If Yankee Jim Canyon is the line beyond which buffalo will never roam under the Interagency Bison Management Plan then the ecological benefits of wild buffalo on the landscape will not only be lost, but outcomes not anticipated will fester like sores upon the earth - degrading soils, grasses, and life sources in the basin that provide and sustain its diversity.

If Montana continues to treat wild buffalo like feed livestock your decisions will continue to degrade and harm the environment in ways not imagined or addressed in your analysis. Montana needs to break with its pattern of undertaker over the indigenous species' demise and become the caretaker of public trust buffalo by providing habitat for the population's persistence for future generations.

"The use of the Corwin Springs facility would allow additional bison to be tested, vaccinated, and held outside of the park until they were returned to Yellowstone on May 1, and would avoid overcrowding at the Stephens Creek facility" (State of Montana).

"While *B. abortus* vaccine SRB51 is licensed for cattle, it has never gained label approval for bison" (Yellowstone National Park 2010).

Evaluate and disclose why SRB51 is not approved for wild buffalo. Discuss in detail why Montana and Yellowstone National Park is proceeding to use SRB51 on an experimental basis in a programmatic way.

What legal basis exists to use an experimental vaccine on wildlife?

What scientific basis exists to programmatically use SRB51 when this livestock vaccine has not been approved for wild buffalo?

Moreover, the whole idea of 'sero-prevalence reduction' and 'eradicating' brucellosis is not a desirable outcome for wild buffalo. It is just one more 'tool in the toolbox' driving artificial selection against a desirable trait in wild buffalo – immune resistance to introduced livestock diseases (Buffalo Field Campaign and Western Watersheds Project; Dobson; Meagher 1994).

According to biologist James A. Bailey, PhD, vaccination of wild buffalo has multiple, adverse consequences that Montana and Yellowstone National Park needs to pay heed to and not ignore as you are doing:

> 1. "Disease has been a natural process throughout the evolution of bison. Natural selection has been the process to develop resistance and accommodation between host bison and their diseases. (Accommodation includes evolution of the pathogen whereby the disease organism persists with little or no

impact to the host.) There is already evidence of Yellowstone bison having resistance to *Brucella* infection (p. 155 and Seabury et al. 2005). Moreover, there is considerable variation among mammals, including bison, in their reactions to *Brucella* exposure (p. 155). This variation allows natural selection to operate in developing resistance and accommodation.

2. There are many unknowns in pathogen-host relationships that may influence results of a vaccination program in unexpected ways. Bison are expected to carry populations of many competing and synergistic strains of viruses and bacteria, interacting with several humoral and cell-mediated aspects of host resistance. This micro-system is extremely complex and interrelated, such that interventions in one part of the system may cause unexpected effects elsewhere in the system. Furthermore, there is the possibility of linked genetic effects. Bison responding "positively" to RB51 could be unique in other genetically-controlled ways, some of which could be harmful. Still further, the proposed vaccination program may lead to adaptive changes in *Brucella* toward variants able to avoid immunological responses to the vaccine. This could lead to greater persistence of *Brucella* within bison and increased pathogenicity (p. 73). Our wildlife in national parks are not appropriate populations for experimenting with vaccinations.

3. Vaccination will interfere with natural selection for resistance and accommodation between bison and *Brucella*. Vaccinated animals may not experience symptoms of disease and therefore not experience reduced rates of survival and reproduction, that is, natural selection. Bison already exhibiting resistance to *Brucella* will be less favored by selection and overall resistance to *Brucella* in the bison herd could decline.

Since *Brucella* will not be eliminated from YNP, the vaccination program will be a permanent commitment to use of vaccines, and related interventions, to replace natural selection and to control brucellosis in Yellowstone bison. Lurking in the background is Montana's request that immuno-contraceptives be added to the bison biobullets" (Bailey).

Caving in to livestock industry pressure and its attendant bureaucracies, Montana and Yellowstone National Park are willing to further jeopardize our nation's last wild population of American buffalo by basing your decision to vaccinate buffalo on "uncertainty" and "incomplete and unavailable" science (Yellowstone National Park 2010).

According to Yellowstone National Park (2010):

> "… using less effective vaccines or delivering the vaccine to a relatively small proportion of the eligible animals can lead to adaptive changes in the disease pathogen that select for variants able to evade the immunological response induced by the vaccine. These vaccine-adapted variants can then spread in the population, reduce the efficiency of the vaccination program, and result in longer-term evolutionary changes in the host-pathogen association."

Additionally, Yellowstone National Park (2010) admits:

> "These aspects of SRB51 and the life history of *B. abortus* may provide a selective advantage for bacteria whereby SRB51 vaccination becomes ineffective leading to an increase in transmission potential, stronger persistence within the bison host, and greater pathogenicity (i.e., virulence or degree of intensity of the disease produced by a pathogen). This potential adaptation of *B. abortus* to SRB51 could be exacerbated if delivery via remote vaccination is hampered due to logistics or bison behavior and only a relatively small proportion of the eligible females are vaccinated."

Yellowstone National Park (2010) also found that "experiments conducted by Texas A&M University concluded that vaccination with Strain RB51 provides no protection from aborted pregnancies."

Yellowstone National Park (2010) also acknowledged vaccination is "unlikely to reduce the seroprevalence of brucellosis in wildlife sufficiently (i.e., near zero) to alter the perceptions of livestock operators, producers, and regulators regarding the risk of brucellosis transmission to cattle from wildlife."

Based on all of the foregoing concerns, and those not foreseen, Buffalo Field Campaign requests Montana to not vaccinate any buffalo with RB51.

Once again, costs borne by taxpayers are not even recognized by Montana in your analysis and needs to be addressed.

The U.S. Government Accountability Office (GAO) roundly criticized the IBMP state and federal agencies for your lack of accountability in how taxpayer moneys are spent. To our knowledge, there has been no cost information provided by the IBMP since the GAO's estimate of $3,000,000 taxpayer dollars spent annually to harass and harm buffalo in the ecosystem with a suite of livestock management techniques.

There is no transparency by Montana on how the public's tax money is spent. Without a firm idea of costs and resources expended year-to-year, it is difficult to assess alternatives that are less costly and more desirable than the decision to be made by Montana.

The assumption is the public does not need to know, hence, the public is denied knowledge on what it is paying for with millions of taxpayer dollars flowing to the IBMP without accountability whatsoever (GAO).

Montana proposes to continue a costly taxpayer subsidized program to systematically harass, capture, confine and artificially feed and vaccinate wild buffalo with a livestock vaccine for the benefit of two cattle operators in Gardiner basin.

What do these livestock operators think of the Interagency Bison Management Plan and adaptive management?

Hank Rate who has been running cattle along the Yellowstone river for 40 years said in a newspaper article (Flandro): "We can live with the animals. Buffalo are part of the overall picture. If you don't want them, go get a farm in Iowa."

"As long as the IBMP is in the state it is now, I see no resolution because it's been crafted such that it's impossible to allow buffalo to do anything but come out and be shot," he said.

Bill Hoppe, the other year round cattle operator in the Gardiner basin was also critical of Montana's role in $3.3 million spent to lease for 30 years an electrified fenced corridor through the Royal Teton Ranch to allow buffalo onto a meadow hammered by cattle grazing now in National Forest ownership acquired for $13 million dollars a decade ago: "It's a $4 million project that ain't never gonna work," Hoppe said. "I guess if you were making a Walt Disney movie, it might work."

This overwhelming repudiation by the public in Montana and nationwide and local livestock ranchers directly affected begs the question: is 'adaptive management' a suitable 'tool in the toolbox' for wild buffalo?

The most direct answer and reply to the quagmire the state of Montana and its IBMP agencies have dug, is to tell you to retreat and do your respective jobs: livestock manages livestock, wildlife manages wildlife, and land management provides habitat for viable populations of indigenous species including the wild American buffalo.

A glaring absence in your analysis is the lack of knowledge communicating to the American people and Montanans the unique and distinct traits of buffalo you claim to manage.

Publicly disclose significant facts essential to your decision and impacts to wild buffalo in Montana. Include information on how your action impacts buffalo subpopulation structure (Bruggeman; Christainson; Fuller 2006, 2007; Gardipee 2007, 2008; Geremia 2009, 2011; Gogan; Meagher 2002; O'Brien; Olexa), genetic diversity and integrity (Bailey; Derr 2006, 2009; Derr and Halbert; Gompper; Hedrick 2009, 2010, 2011; Schnabel; Yellowstone Center for Resources) migratory behavior (Berger; Epp; Fuller 2006, 2007; Geremia 2009, 2011) ecology (Augustine; Biondini; Blakeslee; Cannon 1997, 2001; Collins; Coppedge 1997, 1998; Day; Delgiudice; Fallon; Frank 1992, 1994, 1997, 1998; Gerlanc; Green; Gunther; Haroldson; Hobbs; Joern; Knapp; Lekberg; Mattson; Polley; Soukup; Steinauer) persistence and population viability (Allendorf; Frankham 2003, 2005; Plumb; Traill); cultural vitality (Bozell; Farr; Greater Yellowstone Science Learning Center; Intergovernmental-InterTribal Information Exchange; LaDuke; Looking Horse; Little Thunder; Kantor; Nabokov; Thompson Smith; Smits) threats to restoration in original habitat (Adams; Lancaster; IUCN).

Finally, and critically important, is Montana's lack of analysis and public disclosure on the conservation status of buffalo in Montana, an ecologically extinct indigenous species extirpated from greater than 99% of their original range (Sanderson; Geist).

Montana does not connect your analysis and decision to any concern over the conservation status of buffalo - casting doubt on your obligation to conserve wild buffalo in their original habitat (Adams and Dood). The scientific, hard facts that need to be evaluated and disclosed are in part as follows:

Wildlife including bison is important to the vast majority of Montanans who desire to see the wildlife species restored in their original range (Moore Information; Science Daily).

America's wild lands, wildlife (including wild bison), recreation and open spaces are cherished by Montanans and draw millions of people who annually sustain a multi-billion dollar economy (Geist).

The International Union for Conservation of Nature has Red Listed the American bison as near threatened.

Sanderson and scientists estimate American bison occupy less than 1% of their historic range.

Bison's original range spanned one-third of North America's landmass - more than two billion acres - and the wildlife species evolved in and adapted to over twenty distinct ecosystems (Sanderson; IUCN).

Freese and scientists found that "Today, the plains bison is for all practical purposes ecologically extinct within its original range."

Boyd found that greater than 95% of the 500,000 bison in North America today reside in private ownership as domestic livestock.

Less than 1.5% of bison are genetically *Bison bison* (Freese).

Forced cattle-bison breeding experiments to commercially exploit fitness traits

of wild bison resulted in widespread introgression of cattle genes in private, public and Tribal bison herds (Polziehn; Ward 1999, 2001; Halbert; Halbert and Derr; Hedrick 2009, 2010, 2011; Schnabel).

A study by Douglas and scientists suggests that cattle genes in bison will adversely affect mitochondrial health and function, and the overall fitness of bison.

The extensive prevalence of cattle genes in bison populations (Polziehn; Ward 1999, 2001; Halbert; Halbert and Derr; Hedrick 2009, 2010, 2011), habitat fragmentation, loss of natural habitats and isolated populations, limited range and population sizes (Boyd; Boyd and Gates), artificial selection, intensive management, unnatural confinement to fenced ranges, absence of predators, introduction of non-native disease (Freese) are some of the risk factors of ecological extinction that threaten the identity and survival of American bison as a wildlife species.

Genetic testing of bison (Polziehn; Ward 1999, 2001; Halbert; Halbert and Derr; Schnabel) suggests that only bison indigenous to and descended from Yellowstone have no cattle ancestry.

The Henry Mountains bison was founded with bison solely descended from Yellowstone (Boyd).

Cattles genes have been found in American bison previously thought to have no cattle ancestry based on prior genetic testing: Wind Cave National Park, Grand Teton National Park, and Sullys Hill National Game Preserve (Dratch).

A recent report by scientists Dratch and Gogan suggests that only Yellowstone bison retain their wildlife identity. (The report did not survey Henry Mountains bison).

"The Bison of Yellowstone National Park are unique among bison herds in the United States, being descendants, in part, of the only continuously wild herd in this country." (Dr. Margaret Mary Meagher, retired Yellowstone National Park bison biologist).

"Prehistoric bison distribution in the GYE can perhaps best be summarized

simply by saying that bison appear to have been living everywhere in Greater Yellowstone where habitats were suitable." (Schullery and Whittlesey).

Scientist Joel Berger found that bison's nomadic nature and migratory behavior is still intact but they are cut-off from 100% of their historic migration corridors.

"Current management of private, state and Federal bison herds is leading towards domestication of bison that threatens their wild character and limits important natural selection processes." (Montana Chapter of The Wildlife Society).

The American bison is a land-intensive species that once roamed over great distances (Boyd and Gates).

American bison, North America's largest terrestrial mammal and historically its most numerous mammal that left behind 100 million wallows (Butler), are architects of their environment shaping their world through shared behaviors in migratory herds across diverse habitats ranging from the Chihuahuan desert to northern grasslands (IUCN).

Long distance migration, what defines wild bison as a nomadic, herd animal that once thundered across the plains, is in danger of being lost forever.

Extirpation of American bison from their native range is an indicator that the prairie ecosystem they played a part in forming is also at risk of extinction (Knapp).

Grazing by bison can reverse the loss of native grassland species and the disruption of grassland ecosystem structure and function caused by their extirpation (Collins).

Bison migrating freely in a wild state fulfill keystone ecological relationships that keep grasslands open and healthy, watersheds clean, and create habitats that support an abundance and diversity of plants, birds, and wildlife (Askins; Augustine and Frank; Fallon; Gates 2011; IUCN; Sanderson).

Bison are an important food source for bears, wolves, eagles, coyotes, ravens

and scavengers in the Yellowstone ecosystem (Mattson; Fallon).

Yellowstone is the last stronghold and wellspring of the Buffalo Nation (LaDuke).

"Yellowstone territory, the habitat of the last wild Buffalo Nation - is sacred ground, it has been a SACRED SITE for the First Nation's people, and for all humanity who hold deep respect for all Creation." (Looking Horse).

"In the end, the frontier army's well-calculated policy of destroying the buffalo in order to conquer the Plains Indians proved more effective than any other weapon in its arsenal. Too small and too inept to vanquish the plains tribes expeditiously, the army aided and was in turn aided by the "sportsmen" and professional hunters who, along with the army itself, managed to destroy the Indians' staff of life. With the mainstay of their diet gone the Indians had no choice but to accept a servile fate on a reservation where they could subsist on government handouts. From the Indian perspective the buffalo's disappearance was a shattering blow. Crow Chief Plenty Coups described its impact to Frank Linderman: "When the buffalo went away the hearts of my people fell to the ground, and they could not lift them up again. After this nothing happened. There was little singing anywhere." Sitting Bull summed up the results of the annihilation: "A cold wind blew across the prairie when the last buffalo fell-a death-wind for my people." (Smits).

Yellowstone's remnant population represents a living link to the last of our nation's wild American buffalo. Montana needs to do right by buffalo by letting them roam wild and free.

Sincerely,

Daniel Brister, MS
Executive Director, Buffalo Field Campaign

Attachments incorporated by reference for review and evaluation by the state of Montana Fish, Wildlife & Parks and Dept. of Livestock in your Draft Joint Environmental Assessment Adaptive Management Adjustments to the Interagency Bison Management Plan.

Adams, S.M. and A.R. Dood. 2011. Background Information on Issues of Concern for Montana: Plains Bison Ecology, Management, and Conservation. Montana Fish, Wildlife and Parks, Bozeman, Montana.

Allendorf, Fred W., Phillip R. England, Gordon Luikart, Peter A. Ritchie and Nils Ryman. April 2008. Genetic effects of harvest on wild animal populations. Trends in Ecology and Evolution 23(6): 327-337.

Askins, Robert A., Felipe Chavez-Ramirez, Brenda C. Dale, Carola A. Haas, James R. Herkert, Fritz L. Knopf, and Peter D. Vickery. 2007. CONSERVATION OF GRASSLAND BIRDS IN NORTH AMERICA: UNDERSTANDING ECOLOGICAL PROCESSES IN DIFFERENT REGIONS. Ornithological Monographs (64): 1-46.

Augustine, David J. and Douglas A. Frank. November 2001. Effects of Migratory Grazers on Spatial Heterogeneity of Soil Nitrogen Properties in a Grassland Ecosystem. Ecology 82(11): 3149-3162.

Aune, Keith, Dr. Jack Rhyan, Robin Russell, Dr. Tom Roffe, Dr. Barbara Corso. 2010. Environmental Persistence of Brucella in the Greater Yellowstone Area.

Bailey, James A., PhD. Genetic Diversity of Yellowstone Bison, September 9, 2008.

Bailey, James A., PhD. Comments on the Draft Environmental Impact Statement for a Brucellosis Remote Vaccination Program for Bison in Yellowstone National Park, July 4, 2010.

Beja-Pereira, Albano, Betsy Bricker, Shanyuan Chen, Claudia Almendra, P. J. White, and Gordon Luikart. 2009. DNA Genotyping Suggests that Recent Brucellosis Outbreaks in the Greater Yellowstone Area Originated from Elk.

Journal of Wildlife Diseases 45(4): 1174-1177.

Berger, Joel. 2004. The Last Mile: How to Sustain Long-Distance Migration in Mammals. Conservation Biology 18(2): 320-331.

Biondini, Mario E., Allen A. Steuter, Robert G. Hamilton. September 1999. Bison Use of Fire-Managed Remnant Prairies. Journal of Range Management 52(5): 454-461.

Black Wolf, Michael. 2009. Quantify prevalence of lungworm species within individuals and among bison breeding groups within the Greater Yellowstone Area, University of Montana, Project IBS-CORE Undergraduate Research Fellow.

Blakeslee, Donald J. December 1996. Persistence and Change in the Natural and Cultural Landscapes of the Central Plains. Transactions of the Kansas Academy of Science 99(3-4): 86-94.

Boyd, Delaney P. 2003. Conservation of North American Bison: Status and Recommendations. Master's Dissertation, University of Calgary, Calgary, Alberta. 235 pp.

Boyd, Delaney P. and C. Cormack Gates. 2006. A Brief Review of the Status of Plains Bison in North America. JOW 45(2): 15-21.

Bozell, John R. May 1995. CULTURE, ENVIRONMENT, AND BISON POPULATIONS ON THE LATE PREHISTORIC AND EARLY HISTORIC CENTRAL PLAINS. The Plains Anthropologist 40(152): 145-163.

Bruggeman, Jason Edward. July 2006. SPATIO-TEMPORAL DYNAMICS OF THE CENTRAL BISON HERD IN YELLOWSTONE NATIONAL PARK. Dissertation, MONTANA STATE UNIVERSITY, Bozeman, Montana 310 pp.

Buffalo Field Campaign, comments on Montana IBMP Adjustments, 2011. Additional references provided and citations are incorporated as part of our comments for review and evaluation and can be found on the enclosed CD.

Buffalo Field Campaign and Western Watersheds Project, comments YNP bison vaccination, July 23, 2010. References provided and citations are incorporated as part of our comments for review and evaluation and can be found on the enclosed CD.

Butler, David R. 2006. Human-induced changes in animal populations and distributions, and the subsequent effects on fluvial systems. Geomorphology 79: 448-459.

Cannon, Kenneth P. 1997. The Analysis of a Late Holocene Bison Skull from Fawn Creek, Lemhi County, Idaho, and Its Implications for Understanding the History and Ecology of Bison in the Intermountain West. Report Prepared for The Department of Agriculture, United States Forest Service, Salmon-Challis National Forest, Salmon, Idaho. 82 pp.

Cannon, Kenneth P. 2001. WHAT THE PAST CAN PROVIDE: CONTRIBUTION OF PREHISTORIC BISON STUDIES TO MODERN BISON MANAGEMENT. Great Plains Research 11(1): 145-174.

Christianson, David A., Peter J. P. Gogan, Kevin M. Podruzny, and Edward M. Olexa. 2005. Incisor wear and age in Yellowstone bison. Wildlife Society Bulletin 33(2): 669-676.

Collins, Scott L., Alan K. Knapp, John M. Briggs, John M. Blair, Ernest M. Steinauer. 1998. Modulation of Diversity by Grazing and Mowing in Native Tallgrass Prairie. Science, New Series, 280(5364): 745-747.

Coppedge, Bryan R. and James H. Shaw. July 1997. Effects of Horning and Rubbing Behavior by Bison (Bison bison) on Woody Vegetation in a Tallgrass Prairie Landscape. American Midland Naturalist 138(1): 189-196.

Coppedge, Bryan R. and James H. Shaw. May 1998. Bison grazing patterns on seasonally burned tallgrass prairie. Journal of Range Management 51(3): 258-264.

Day, T.A. and J.K. Detling. January 1990. Changes in Grass Leaf Water Relations Following Bison Urine Deposition. American Midland Naturalist 123(1): 171-178.

DelGiudice, Glenn D., Francis J. Singer, Ulysses S. Seal, Gillian Bowser. January, 1994. Physiological Responses of Yellowstone Bison to Winter Nutritional Deprivation. The Journal of Wildlife Management 58(1): 24-34.

Derr, James N. October 24, 2006. American Bison: The Ultimate Genetic Survivor. The Ecological Future of North American Bison, Denver, Colorado. pp. 38.

Derr, James N. 2009. Bison Conservation Genetics and Disease presentation. Department of Veterinary Pathobiology and the Graduate Faculty of Genetics Texas AgriLIFE Research, Texas A&M University, College of Veterinary Medicine.

Derr, James N. and Natalie D. Halbert. November 18, 2008. Is Genetic Integrity Important in the Ecological Restoration of Bison? Wildlife Conservation Society meeting, Rapid City, South Dakota. pp. 32.

Dobson, Andrew and Mary Meagher. 1996. THE POPULATION DYNAMICS OF BRUCELLOSIS IN THE YELLOWSTONE NATIONAL PARK. Ecology 77(4): 1026-1036.

Douglas, K.C., et al. 2011. Complete mitochondrial DNA sequence analysis of *Bison bison* and bison–cattle hybrids: Function and phylogeny. Mitochondrion 11: 166-175.

Dratch, Peter A. 2011. Management of bison conservation herds with historic cattle ancestry. U.S. Fish & Wildlife Service Inventory and Monitoring Initiative. American Bison Society Meeting on Bison Ecological Restoration March 23-25, 2011, Tulsa Marriott Southern Hills, Tulsa, Oklahoma.

Dratch, P. A., and P. J. P. Gogan. Bison Conservation Initiative: Bison Conservation Genetics Workshop: report and recommendations. Natural Resource Report NPS/NRPC/BRMD/NRR—2010/257. National Park Service, Fort Collins, Colorado.

Epp, Henry T. August 1988. WAY OF THE MIGRANT HERDS: DUAL DISPERSION STRATEGY AMONG BISON. The Plains Anthropologist 33(121): 309-320.

Fallon, Sylvia PhD. 2009. The ecological importance of bison in mixed-grass prairie ecosystems.

Farr, William E. Winter 2003. Going to Buffalo: Indian Hunting Migrations across the Rocky Mountains: Part 1, Making Meat and Taking Robes. Montana: The Magazine of Western History 53(4): 2-21.

Farr, William E. Spring 2004. Going Buffalo: Indian Hunting Migrations across the Rocky Mountains: Part 2, Civilian Permits, Army Escorts. Montana: The Magazine of Western History 54(1): 26-43.

Carly Flandro, Gardiner-area ranchers weigh in on nearby bison, Bozeman Chronicle, January 31, 2011.

Frank, Douglas A. and Samuel J. McNaughton. December 1992. The Ecology of Plants, Large Mammalian Herbivores, and Drought in Yellowstone National Park. Ecology 73(6): 2043-2058.

Frank, Douglas A., Richard S. Inouye, Nancy Huntly, G. Wayne Minshall, Jay E. Anderson. 1994. The Biogeochemistry of a North-Temperate Grassland with Native Ungulates: Nitrogen Dynamics in Yellowstone National Park. Biogeochemistry 26(3): 163-188.

Frank, Douglas A. and R. David Evans. 1997. EFFECTS OF NATIVE GRAZERS ON GRASSLAND N CYCLING IN YELLOWSTONE NATIONAL PARK. Ecology 78(7): 2238-2248.

Frank, Douglas A., Samuel J. McNaughton, Benjamin F. Tracy. July 1998. The Ecology of the Earth's Grazing Ecosystems. BioScience 48(7): 513-521.

Frank, Douglas A. Autumn 1998. Ungulate Regulation of Ecosystem Processes in Yellowstone National Park: Direct and Feedback Effects. Wildlife Society Bulletin 26(3): 410-418.

Frankham, Richard. 2003. Genetics and conservation biology. C. R. Biologies

326: S22-S29.

Frankham, Richard. 2005. Genetics and extinction. Biological Conservation 126: 131-140.

Frankham, Richard. 2005. Stress and adaptation in conservation genetics. Journal of Evolutionary Biology 18: 750–755

Freese, Curtis H., Keith E. Aune, Delaney P. Boyd, James N. Derr, Steve C. Forrest, C. Cormack Gates, Peter J.P. Gogan, Shaun M. Grassel, Natalie D. Halbert, Kyran Kunkel, Kent H. Redford. 2007. Second chance for the plains bison. Biological Conservation 136(2): 175-184.

Fuller, Julie Ann. April 2006. POPULATION DEMOGRAPHY OF THE YELLOWSTONE NATIONAL PARK BISON HERDS. Thesis, MONTANA STATE UNIVERSITY, Bozeman, Montana. 97 pp.

FULLER, JULIE A., ROBERT A. GARROTT, P. J. WHITE. 2007. Emigration and Density Dependence in Yellowstone Bison. JOURNAL OF WILDLIFE MANAGEMENT 71(6): 1924-1933.

Gardipee, Florence M. 2007. DEVELOPMENT OF FECAL DNA SAMPLING METHODS TO ASSESS GENETIC POPULATION STRUCTURE OF GREATER YELLOWSTONE BISON. Master's Thesis, University of Montana, Missoula, Montana. 63 pp.

Gardipee, Florence M., Richard L. Wallen, Michael P. O'Brien, Gordon Luikart, and Fred W. Allendorf. June 2008. Strong substructure of Greater Yellowstone Area bison revealed by mitochondrial DNA from fecal samples. The University of Montana and National Park Service. pp. 28.

Gates, C. Cormack, Brad Stelfox, Tyler Muhly, Tom Chowns and Robert J. Hudson, THE ECOLOGY OF BISON MOVEMENTS AND DISTRIBUTION IN AND BEYOND YELLOWSTONE NATIONAL PARK A Critical Review With Implications for Winter Use and Transboundary Population Management, April 2005.

Gates, C. Cormack, Chris Hugenholtz, Bill Ripple. 2011. FROM THE

GROUND UP Cascading ecological effects of bison. Faculty of Environmental Design University of Calgary, Department of Forest Ecosystems and Society Oregon State University. American Bison Society Meeting on Bison Ecological Restoration March 23-25, 2011, Tulsa Marriott Southern Hills, Tulsa, Oklahoma.

Darrell Geist, Buffalo Field Campaign, The endangered circumstances and status of wild American bison in North America today, December 2011.

Darrell Geist, Buffalo Field Campaign, A Glimpse at the Economy Generated by Montana's Wildlands, Wildlife, Recreation and Open Spaces, April 2011.

Geremia, Chris, P. J. White, Robert A. Garrott, Rick W. Wallen, Keith E. Aune, John Treanor, and Julie A. Fuller. 2009. Demography of Central Yellowstone Bison: Effects of Climate, Density, and Disease. The Ecology of Large Mammals in Central Yellowstone eds. R. Garrott, P. J. White and F. Watson. Elsevier Inc.

Geremia, Chris, P. J. White, Rick L. Wallen, Fred G. R. Watson, John J. Treanor, John Borkowski, Christopher S. Potter, Robert L. Crabtree. February 2011. Predicting Bison Migration out of Yellowstone National Park Using Bayesian Models. PLoS ONE 6(2): e16848.

Gerlanc, Nicole M. and Glennis A. Kaufman. June 2005. Habitat of Origin and Changes in Water Chemistry Influence Development of Western Chorus Frogs. Journal of Herpetology 39(2): 254-265.

GOGAN, PETER J. P., KEVIN M. PODRUZNY, EDWARD M. OLEXA, HELGA IHSLE PAC, KEVIN L. FREY. 2005. Yellowstone Bison Fetal Development and Phenology of Parturition. JOURNAL OF WILDLIFE MANAGEMENT 69(4): 1716–1730.

Gompper, Matthew E., Peter B. Stacey, Joel Berger. August 1997. Conservation Implications of the Natural Loss of Lineages in Wild Mammals and Birds. Conservation Biology 11(4): 857-867.

Greater Yellowstone Science Learning Center. 2006. Yellowstone National Park Ethnography Overview. 9 pp

Green, Gerald I., David J. Mattson, James M. Peek. October 1997. Spring Feeding on Ungulate Carcasses by Grizzly Bears in Yellowstone National Park. The Journal of Wildlife Management 61(4): 1040-1055.

Gunther, Kerry and Mark Haroldson. November 1997. Comments on the importance of bison to grizzly bears in the Yellowstone ecosystem. Yellowstone National Park and Interagency Grizzly Bear Study Team. pp. 2.

Halbert, Natalie D. 2003. THE UTILIZATION OF GENETIC MARKERS TO RESOLVE MODERN MANAGEMENT ISSUES IN HISTORIC BISON POPULATIONS - IMPLICATIONS FOR SPECIES CONSERVATION. Ph.D. Dissertation, Texas A&M University, College Station, Texas. 213 pp.

Halbert, Natalie D. and James N. Derr. 2007. A Comprehensive Evaluation of Cattle Introgression into US Federal Bison Herds. Journal of Heredity 98(1): 1-12.

Haroldson, M.A., M. Ternent, G. Holm, R.A. Swalley, S. Podruzny, D. Moody, and C.C. Schwartz. 1998. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 1997. U.S. Geological Survey, Bozeman, Montana.

Hedrick, Philip, W. 2009. Conservation Genetics and North American Bison (*Bison bison*). Journal of Heredity 100(4): 411–420.

Hedrick, Philip, W. 2010. Cattle ancestry in bison: explanations for higher mtDNA than autosomal ancestry. Molecular Ecology 19: 3328–3335.

Hedrick, Philip W. Bison Conservation Genetics. American Bison Society Meeting on Bison Ecological Restoration March 23-25, 2011, Tulsa Marriott Southern Hills, Tulsa, Oklahoma.

Hines, Alicia M., Vanessa O. Ezenwa, Paul Cross, and Jared D. Rogerson. 2007. Effects of supplemental feeding on gastrointestinal parasite infection in elk (*Cervus elaphus*): Preliminary observations. Veterinary Parasitology 148: 350-355.

Hobbs, N. Thompson. October 1996. Modification of Ecosystems by Ungulates. The Journal of Wildlife Management 60(4): 695-713.

Intergovernmental-InterTribal Information Exchange Meeting for Yellowstone National Park. June 5, 2008. Transcript of the Proceedings Held at Mammoth Elementary School Yellowstone National Park, Mammoth, Wyoming.

IUCN. 2010. American Bison Status Survey and Conservation Guidelines 2010. Edited by C. Cormack Gates, Curtis H. Freese, Peter J.P. Gogan, and Mandy Kotzman. Gland Switzerland, IUCN. pp 154.

Joern, Anthony. April 2005. Disturbance by Fire Frequency and Bison Grazing Modulate Grasshopper Assemblages in Tallgrass Prairie. Ecology 86(4): 861-873.

Jones, Jennifer D., John J. Treanor, Rick L. Wallen. February 2009. Parturition in Yellowstone Bison. National Park Service, Yellowstone National Park, Wyoming Final Report to the Bison Ecology and Management Office Yellowstone Center for Resources.

Jones, Jennifer D., John J. Treanor, Rick L. Wallen, and Patrick J. White. 2010. Timing of parturition events in Yellowstone bison *Bison bison*: implications for bison conservation and brucellosis transmission risk to cattle. Wildlife Biology 16: 333-339.

Kantor, Isaac. 2007. Ethnic Cleansing and America's Creation of National Parks. Public Land & Resources Law Review 28: 41-64.

Kilpatrick, A. Marm, Colin M. Gillin, and Peter Daszak. 2009. Wildlife-livestock conflict: the risk of pathogen transmission from bison to cattle outside Yellowstone National Park. Journal of Applied Ecology. pp. 10

Knapp, Alan K., John M. Blair, John M. Briggs, Scott L. Collins, David C. Hartnett, Loretta C. Johnson, E. Gene Towne. 1999. The Keystone Role of Bison in North American Tallgrass Prairie, Bison increase habitat heterogeneity and alter a broad array of plant, community, and ecosystem processes. BioScience 49(1): 39-50.

Winona LaDuke. May/June 2000. buffalo nation. Sierra: 66-73.

Lancaster, Zachary L. Spring 2005. RESTRAINING YELLOWSTONE'S ROAMING BISON. JOURNAL OF LAND USE 20(2): 427-454.

LEKBERG, YLVA, JAMES MEADOW, JASON R. ROHR, DIRK REDECKER, and CATHERINE A. ZABINSKI. 2011. Importance of dispersal and thermal environment for mycorrhizal communities: lessons from Yellowstone National Park. Ecology 92(6): 1292-1302.

Chief Arvol Looking Horse. April 2008. To Save the Buffalo Nation. pp 2.

Rosalie Little Thunder. DECLARATION OF ROSALIE LITTLE THUNDER Western Watersheds Project v. Salazar, June 30, 2010.

Mattson and Merrill. August 2002. Extirpations of Grizzly Bears in the Contiguous United States, 1850–2000. Conservation Biology 16(4): 1123-1136.

Meagher, Margaret M. 1973. The Bison of Yellowstone National Park. Scientific Monograph Series Number One. National Park Service, Washington, D.C. 161 pp.

Meagher, M. and Margaret E. Meyer. 1994. On the Origin of Brucellosis in Bison of Yellowstone National Park: A Review. Conservation Biology 8(3): 645-653.

Meagher, Margaret M., Mark L. Taper, and Christopher L. Jerde. 2002. Recent Changes in Population Distribution: The Pelican Bison and the Domino Effect. Anderson, R.J., and D. Harmon, eds. Yellowstone Lake: Hotbed of Chaos or Reservoir of Resilience? Proceedings of the 6th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. October 8–10, 2001, Mammoth Hot Springs Hotel, Yellowstone National Park. Yellowstone National Park, Wyo., and Hancock, Mich.: Yellowstone Center for Resources and The George Wright Society.

State of Montana Office of the Governor, Brian Schweitzer Executive Order No. 16-2011, EXECUTIVE ORDER PROHIBITING THE TRANSPORT

OF LIVE FISH AND WILDLIFE IN MONTANA TO OR FROM ANY DEPARTMENT OF THE INTERIOR-MANAGED LANDS OR FACILITIES, December 13, 2011.

State of Montana, Draft Joint Environmental Assessment Adaptive Management Adjustments to the Interagency Bison Management Plan, December 2011.

State of Montana and Yellowstone National Park, Record of Decision, Final EIS and Bison Management Plan, December 20, 2000.

The Wildlife Society. Position Statement of the Montana Chapter of The Wildlife Society on Wild Bison in Montana, April 11, 2000.

Moore Information, Inc. by telephone interviews among a representative sample of 400 registered voters statewide February 23-24, 2011. Commissioned by National Wildlife Federation online: http://www.nwf.org/Wildlife/What-We-Do/Wildlife-Conservation/Bison-Restoration.aspx

Nabokov, Peter and Lawrence Loendorf. 2000. American Indians and Yellowstone National Park. A Documentary Overview submitted to the National Park Service, Rocky Mountain Regional Office, Denver, Colorado. pp. 397.

O'Brien, Michael, Florence Gardipee, Gordon Luikart. June 2008. Non-invasive Fecal DNA Sampling Methods for Conservation Genetics Studies of Bison In Grand Teton and Yellowstone National Parks.

Olexa, Edward M. and Peter J.P. Gogan. 2007. Spatial Population Structure of Yellowstone Bison. The Journal of Wildlife Management 71(5): 1531-1538.

Plumb, Glenn E., P.J. White, Michael B. Coughenour, Rick L. Wallen. 2009. Carrying capacity, migration, and dispersal in Yellowstone bison. Biological Conservation 142: 2377-2387.

Polley, H. Wayne and Linda L. Wallace. November 10, 1986. The Relationship of Plant Species Heterogeneity to Soil Variation in Buffalo Wallows. The Southwestern Naturalist 31(4): 493-501.

Polziehn, R. O., C. M. Strobeck, J. Sheraton, R. Beech. 1995. Bovine mtDNA discovered in North American bison populations. Conservation Biology 9(6): 1638-1643.

Rosas, Claudia A., David M. Engle, James H. Shaw, Michael W. Palmer. 2008. Seed dispersal by *Bison bison* in a tallgrass prairie. Journal of Vegetation Science 19: 769-778.

SANDERSON, ERIC W., KENT H. REDFORD, BILL WEBER, KEITH AUNE, DICK BALDES, JOEL BERGER, DAVE CARTER, CHARLES CURTIN, JAMES DERR, STEVE DOBROTT, EVA FEARN, CRAIG FLEENER, STEVE FORREST, CRAIG GERLACH, C. CORMACK GATES, JOHN E. GROSS, PETER GOGAN, SHAUN GRASSEL, JODI A. HILTY, MARV JENSEN, KYRAN KUNKEL, DUANE LAMMERS, RURIK LIST, KAREN MINKOWSKI, TOM OLSON, CHRIS PAGUE, PAUL B. ROBERTSON, AND BOB STEPHENSON. 2008. The Ecological Future of the North American Bison: Conceiving Long-Term, Large-Scale Conservation of Wildlife. Conservation Biology 22(2): 252-266.

Schnabel, Robert. 2011. High Throughput Genomic Technologies for Bison. American Bison Society Meeting on Bison Ecological Restoration March 23-25, 2011, Tulsa Marriott Southern Hills, Tulsa, Oklahoma.

Schullery, Paul and L. Whittlesey. 2006. Greater Yellowstone bison distribution and abundance in the early historical period. Pages 135–140 in A. Wondrak Biel, editors, Greater Yellowstone Public Lands: A Century of Discovery, Hard Lessons, and Bright Prospects. Proceedings of the 8th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. October 17–19, 2005, Mammoth Hot Springs Hotel, Yellowstone National Park. Yellowstone National Park, Wyoming, Yellowstone Center for Resources.

Science Daily, New National Survey Says Public Reveres Bison, November 29, 2008. Commissioned by Wildlife Conservation Society online: http://www.sciencedaily.com/releases/2008/11/081118131857.htm

Smith, Bruce L. 2011. Where Elk Roam: Conservation and Biopolitics of Our National Elk Herd. Globe Pequot/Lyons Press. 266 pp. Online: http://www.brucesmithwildlife.com/

Smith,Thompson, Salish-Pend d'Oreille Culture Committee Confederated Salish & Kootenai Tribes. August 4, 2011. Bison and the Salish and Pend d'Oreille People, presentation for Interagency Bison Management Plan Partners, Salish Kootenai College, Pablo, Montana.

Smits. Autumn 1994. The Frontier Army and the Destruction of the Buffalo: 1865-1883. The Western Historical Quarterly 25(3): 312-338.

Soukup. October 23, 2006. The ecological future of North American bison. Mike Soukup, NPS associate director for Natural Resource Stewardship and Science, Wildlife Conservation Society meeting on the ecological future of North American bison Denver, Colorado. Park Science, National Park Service, U.S. Department of the Interior. pp 3.

Steinauer and Collins. May 2001. Feedback Loops in Ecological Hierarchies Following Urine Deposition in Tallgrass Prairie. Ecology 82(5): 1319-1329.

Traill, Lochran W., Barry W. Brook, Richard R. Frankham, Corey J.A. Bradshaw. 2010. Pragmatic population viability targets in a rapidly changing world. Biological Conservation 143: 28–34.

U.S. Government Accountability Office. March 2008. YELLOWSTONE BISON Interagency Plan and Agencies' Management Need Improvement to Better Address Bison-Cattle Brucellosis Controversy. Report to Congressional Requesters, United States Government Accountability Office. pp. 52.

Ward, T. J., J. P. Bielawski, S. K. Davis, J. W. Templeton, J. N. Derr. 1999. Identification of domestic cattle hybrids in wild cattle and bison species: a general approach using mtDNA markers and the parametric bootstrap. Animal Conservation 2: 51-57.

Ward, T. J., L. C. Skow, D. S. Gallagher, R. D. Schnabel, C. A. Nall, C. E. Kolenda, S. K. Davis, J. F. Taylor and J. N. Derr. 2001. Differential

introgression of uniparentally inherited markers in bison populations with hybrid ancestries. Animal Genetics 32: 89-91.

Yellowstone Center for Resources. 2010. Conserving Genetic Diversity in Yellowstone Bison: Effects of population fluctuations and variance in male reproductive success in age structured populations. Technical Report for the National Park Service, June 2010. Mammoth Hot Springs, Wyoming, YCR-2010-07.

Yellowstone National Park, Brucellosis Remote Vaccination Program for Bison in Yellowstone National Park DRAFT Environmental Impact Statement, March 24, 2010.

Yellowstone National Park, Implications of Bison Birth Synchrony and Brucella Persistence on Adaptive Management, November 9, 2009.

Yellowstone National Park, Gallatin National Forest, Animal and Plant Health Inspection Service, Adequacy of National Environmental Policy Act Documentation, March 31, 2011.