

FINDING OF NO SIGNIFICANT IMPACT

NORTH UNIT BISON RESOURCE STEWARDSHIP PLAN

Environmental Assessment
Badlands National Park

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the National Park Service (NPS) has prepared a North Unit Bison Resource Stewardship Plan / Environmental Assessment for Badlands National Park (the park). The environmental assessment (EA) documents the results of the North Unit Bison Resource Stewardship Plan and the potential environmental impacts associated with the preferred alternative.

There are three primary purposes of an environmental assessment: (1) to help determine whether the impact of a proposed action or alternative could be significant, (2) to aid in NEPA compliance when no environmental impact statement (EIS) is required by evaluating a proposal that will have no significant impact but that may have measurable adverse impacts, and (3) to facilitate preparation of an environmental impact statement, if one is determined to be necessary.

The Council on Environmental Quality (CEQ) regulations specifically direct that “Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts” (40 *Code of Federal Regulations* [CFR] 1501.2). Additionally, both CEQ regulations and NPS policies direct that environmental assessments be prepared when compliance with the National Environmental Policy Act can be achieved through environmental analysis and preparation of an environmental impact statement is not necessary.

PURPOSE OF THE PLAN

The purpose of the Badlands National Park North Unit Bison Resource Stewardship Plan is to explore options to expand the current geographic bison range to other areas in the North Unit of the park. Expanding the geographic bison range in the North Unit would enable the NPS to protect the genetic integrity and health of the conservation bison herd in the North Unit, support the health of the mixed-grass prairie ecosystem, and provide appropriate visitor opportunities to view the herd and understand its ecological and cultural importance.

NEED FOR THE PLAN

The project accomplishes the following objectives:

- Support the “Home on the Range” goal in the NPS’s “A Call to Action” (2014), which focuses on returning the American bison, one of the nation’s iconic species, to the landscape of the United States.
- Support the US Department of the Interior’s Bison Conservation Initiative of 2008, which calls for the expansion of federal bison herds.
- Act in the spirit of NPS policy that calls for the reintroduction of bison (NPS *Management Policies* 2006 (4.1.5) “Natural Resource Management”).

1 THE SELECTED ACTION

2 Alternative 2 is the NPS preferred alternative and the selected action. The following table
3 summarizes the action that will be taken under the selected action.

ALTERNATIVE 2 (NPS-PREFERRED ALTERNATIVE AND SELECTED ACTION)	
Geographic Extent of Bison Range	<ul style="list-style-type: none"> ▪ The bison range will expand to approximately 80,193 acres (22,553 acres more than current range). See map in the environmental assessment, "Alternative 2 (NPS-Preferred Alternative)," to review the areas included in the expansion.
Visitor Use and Experience	<ul style="list-style-type: none"> ▪ Visitors will have more opportunities to view bison as they hike, camp, or ride horses in areas where bison are present such as along the majority of the northern and southern extent of South Dakota State Highway 240 Badlands Loop Road and at a distance from the Cedar Pass developed visitor area. The bison range currently extends to the Sage Creek Campground, which will continue under this alternative. Safety information will continue to be posted on the bulletin board of this campground. ▪ Visitors may be able to see bison from most of the park's existing overlooks and vehicle pullouts along Sage Creek Rim Road or Badlands Loop Road. Five strategically located vehicle pullouts will be constructed and two existing vehicle pullouts will be improved to provide more opportunities for visitors to view bison from a safe distance along park roads. These new and expanded pullouts will result in an additional 17,760 square feet of paved or gravel parallel parking spaces along the side of the road and be able to accommodate up to an additional 111 parked vehicles. Vehicle pullouts will be strategically placed to avoid wildlife populations and game trails / movement corridors. Although the proposed locations of these pullouts are identified on the map in the environmental assessment, "Alternative 2 (NPS-Preferred Alternative)," it is possible that the locations of some of the pullouts might be changed slightly to allow better viewing of the bison herd. If any of those location modifications exceed the impacts of the locations identified in this document, additional compliance analysis may be needed. ▪ Park staff will provide enhanced opportunities to educate park visitors on the ecological and cultural values of bison. This effort could include personal and non-personal interpretive media at key bison viewing areas, strategically located vehicle pullouts, web-based information and/or social media, and other education / interpretation programming in the park. Additional details of new interpretation and education opportunities will be developed after the NPS determines where the bison congregate within the expanded range. ▪ Park staff will continue current research efforts and explore enhanced opportunities for research related to bison. Possible areas of study will include increased monitoring related to movement of bison in the North Unit of the park and analysis of population trends. Park staff will explore partnership opportunities with other agencies, educational institutions, and nonprofit groups.
Visitor Safety	<ul style="list-style-type: none"> ▪ Visitor safety will continue to be of utmost importance, with a focus on visitor education. Park staff will develop regulations defining the safe distance to stay from bison and other wildlife, for example. NPS staff at entrance stations will inform visitors of the safe distance regulations, and educational signs will be posted throughout the park in strategic locations. Safe distance regulations will be enforced by law enforcement staff. ▪ Park staff will receive training on behavioral cues that indicate a bison is agitated or feeling threatened. Law enforcement staff will be trained on how to respond appropriately to visitor-bison incidents.
Bison-Related Facilities	<ul style="list-style-type: none"> ▪ The bison fence around the North Unit of the park will be upgraded to a consistent height of approximately 64 inches and constructed to contain the bison while allowing other wildlife to move freely. It will have at least 16 inches of spacing between the ground and the bottom wire to allow the passage and migration of pronghorn and other wildlife. In areas where the fence crosses ravines or draws, additional modifications could be made to further secure it during periods of heavy precipitation. Fencing may not be needed in areas

ALTERNATIVE 2 (NPS-PREFERRED ALTERNATIVE AND SELECTED ACTION)

	<p>where the topography of the badlands acts as a natural barrier to bison movement.</p> <ul style="list-style-type: none"> ▪ An additional 38.3 miles of bison fence will be constructed. The majority of the mileage of the new bison fence will be upgrading the existing boundary fence along the exterior boundary of the North Unit (36.8 miles) to meet bison fencing standards. The remaining 1.5 miles of bison fencing will be constructed as several small sections of fence in the interior of the park: <ul style="list-style-type: none"> – To the east of Big Foot Road, excluding bison access to the Big Buffalo Basin area of the park. – Intermittent fencing as needed along the Badlands Loop Road between Big Foot Road and South Dakota State Highway 240, where topographic features do not provide sufficient boundary to bison trying to enter the Big Buffalo Basin area of the park. – To the east of Old Interior Road near the southern boundary of the North Unit, connecting to topographic features south of the Badlands Loop Road in order to restrict bison movement into the eastern portions of the North Unit. – Enclosures to protect some sensitive park resources (e.g., paleontological and archeological resources); sensitive resources could be documented and removed from within the bison range when necessary. – Around inholdings in the park. ▪ A corridor along the interior of the boundary fence will be developed for administrative access by off-highway vehicles, horseback, or by foot to perform periodic inspection and maintenance of the fenceline. Inspection and maintenance will be both preventive and proactive. For the corridor within designated wilderness, the park will perform a minimum requirements analysis to determine the minimum tools necessary to perform inspection and maintenance. In some cases, to avoid impacts on designated wilderness, the park may seek permission from the adjacent property owner to access the fence from their property. ▪ Five of the eight existing cattle guards will be replaced and three additional cattle guards will be constructed in strategic locations. ▪ The existing bison holding facility will remain in its current location. A mobile corral will be needed for roundup activities in the eastern parts of the bison range. ▪ The above bison-related facilities will be strategically placed to avoid wildlife populations and game trails / movement corridors. ▪ The addition of the identified 22,553 acres to the bison range will include water sources previously unavailable to the bison herd (e.g., ephemeral streams, wetlands, or other existing water impoundments throughout the range) (see map "Vegetation (1999) and Hydrology, North Unit of Badlands National Park").
Bison Roundup	<ul style="list-style-type: none"> ▪ Park staff will continue to conduct roundups as needed. Procedures related to the use of mobile corrals will be developed during implementation of the selected action. ▪ Park staff will occasionally use horses to perform the roundup in the Sage Creek and Conata Basin Units of the designated wilderness or will wait for the bison to cross into nonwilderness and then use vehicles in nonwilderness to herd the bison to the holding facility. The roundup will likely last longer than the two weeks currently required and will involve a larger number of park employees and volunteers. ▪ As appropriate, the park may consider interagency collaboration opportunities for bison management in the future.
Trespass Bison Procedures	<ul style="list-style-type: none"> ▪ Procedures for responding to trespass bison will be formalized and added to the Superintendent's Compendium until a rule specific to the park is developed related to trespass bison protocol.

ALTERNATIVE 2 (NPS-PREFERRED ALTERNATIVE AND SELECTED ACTION)

- The park superintendent will reserve the right to use whatever means deemed appropriate for removal of problem bison.

OTHER ALTERNATIVES CONSIDERED

Alternative 1 (No-Action Alternative)

The no-action alternative is the continuation of current management actions into the future. Under this alternative, the bison range would continue to include the Sage Creek Unit of the designated wilderness in the North Unit of the park, as well as the area north of Sage Creek Rim Road from the western boundary of the park where Sage Creek Rim Road crosses the park boundary to a few miles west of the Pinnacles Entrance Station at the Pinnacles Overlook cattle guard. The current bison range would remain at approximately 57,640 acres.

The bison range is currently contained by approximately 36 miles of bison fencing, as well as by topographic features and eight cattle guards at strategic locations. Some small-scale additions and improvements to the bison fence would be performed to secure a recently acquired inholding using the park standard for boundary bison fence; cross-fencing for cattle would be removed. A small enclosure would be constructed to protect some sensitive park resources (e.g., paleontological and archeological resources); sensitive resources could be documented and removed from within the bison range when necessary. The bison fence would continue to be a mixture of different fencing types.

The majority of visitors would continue to not see bison during their visit to the North Unit of the park. A number of interpretive and education opportunities related to bison would continue to be offered to visitors, roving rangers would continue to interpret bison to visitors at various locations in the park, as appropriate, and some limited educational programs for youth groups related to bison could continue. Safety messages related to bison would continue to be posted at strategic locations throughout the park and on various park media.

The park would continue to plan a yearly roundup, which takes about two weeks and involves a large number of park employees and volunteers. Horses are used to herd animals to the holding facility in the wilderness area, and vehicles are used when not in wilderness. Park staff would continue to strive to rapidly respond to trespass bison, and the park superintendent would reserve the right to use whatever means deemed appropriate for removal of problem bison.

Why the Agency-Selected Alternative Will Not Have a Significant Effect on the Environment and Significant Criteria

As defined in 40 CFR 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that, on balance, the effect will be beneficial:

The agency-selected alternative has the potential for both beneficial and adverse impacts to paleontological resources, vegetation, and archeological resources.

1 Impacts on paleontological resources from bison trampling, fence construction and
2 maintenance, and vehicles parked in undesignated areas will be predominantly adverse and will
3 range from minor to considerable in high-use areas of bison and visitors. Fenced bison
4 exclosures will be used to mitigate impacts in known fossil rich areas, and high-use areas will be
5 monitored by qualified park staff for accelerated rates of erosion and newly exposed resources.
6 Signs and visitor education will help minimize impacts from vehicles, and a qualified
7 paleontologist will survey the proposed perimeter fence route for possible fossils prior to fence
8 installation and will monitor any excavation work associated with fence construction,
9 installation, and upkeep. Given these mitigation measures, none of the actions in the selected
10 alternative is expected to have significant impacts on paleontological resources.

11
12 Under the selected action, bison will continue to play a primarily beneficial role in the
13 maintenance of the mixed-grass prairie ecosystem through grazing and foraging and those
14 beneficial impacts will be extended to vegetation communities in the expanded range.
15 Unnatural concentrations and year-round residency of bison could continue to result in
16 disturbances to certain vegetation types, particularly in high-use areas. Adverse impacts on
17 vegetation as a result of visitor trampling and nonnative species introduction, construction of
18 new and expanded vehicle pullouts, fence installation and maintenance, and bison roundup
19 activities are expected to be minimal due to the use of construction best practices and visitor
20 education. Overall, the selected alternative will have extensive, long-term benefits on vegetation
21 and minor adverse impacts seasonally in high-use areas, but none of the impacts will be
22 significant.

23
24 Under the selected action, bison could damage archeological resources through trampling and
25 wallowing, and visitors may also trample resources or remove artifacts in the expanded bison
26 range. Archeological resources adjacent to roadways will continue to be at risk of damage from
27 unauthorized vehicle use and parking at undesignated areas. Additional damage could occur
28 during construction projects related to constructing facilities and fencing around the expanded
29 bison range. These impacts will be mitigated through preconstruction surveys and by
30 considering significant archeological resources during the design. These impacts will mostly be
31 limited as compared with the potential impacts from bison. Significant archeological resources
32 will be protected from bison trampling and wallowing by constructing exclosures around the
33 resources. Overall, the selected action will have localized and minor, but permanent, adverse
34 impacts on archeological resources. With the use of the noted mitigation measures, none of the
35 impacts will be significant.

36
37 *The degree to which the proposed action affects public health or safety:*

38
39 As described in the environmental assessment, the expansion of the bison herd within the
40 North Unit may increase the risk of human-wildlife interactions; however, visitor safety will
41 continue to be of utmost importance and there will be an increased management effort to
42 ensure visitor safety and increased focus on visitor education. The past, ongoing, and future
43 monitoring and mitigation measures identified in the environmental assessment will also
44 address visitor safety concerns and requirements.

45
46 *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park*
47 *lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:*

48
49 There will be no impacts to prime or unique farmlands, scenic rivers, or ecologically
50 critical areas. The potential exists for adverse impacts to archeological resources; however,
51 as needed, site condition assessments, project-specific surveys, and additional section 106

1 consultation will precede any ground-disturbing activities implemented as part of the
2 selected action. The selected action could have limited, inadvertent adverse impacts on
3 archeological resources. The possibility exists for impacts on archeological resources
4 during ground-disturbing actions regardless of geophysical analysis. Qualified
5 archeologists will monitor excavation activities to prevent impacts to archeological
6 resources to the extent possible should they be discovered.

7
8 *Whether the action is related to other actions with individually insignificant but cumulatively significant*
9 *impacts:*

10
11 Cumulative impacts were determined by combining the impacts of the selected action
12 with other past, present, and reasonably foreseeable future actions, regardless of what
13 agency or person undertakes such other actions. The environmental assessment
14 determined that there will be no significant cumulative impacts associated with the selected
15 action.

16
17 *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed*
18 *in the National Register of Historic Places or may cause loss or destruction of significant scientific,*
19 *cultural, or historical resources:*

20
21 The selected action's area of potential effects does not include any national register-listed
22 properties and significant identified scientific, cultural, and historical resources within the
23 project area will be protected through the installation of exclosures and monitoring
24 procedures. The NPS consulted with the South Dakota state historic preservation officer
25 (SHPO) under section 106 of the National Historic Preservation Act of 1966, as amended,
26 and provided the environmental assessment for review on July 11, 2016. On August 1, the
27 SHPO concurred with the NPS determination of no adverse effect.

28
29 *The degree to which the action may adversely affect an endangered or threatened species or its critical*
30 *habitat:*

31
32 The selected action will have no effect on endangered or threatened species as none are
33 present (or they are unknown or unlikely to occur) in the project area. The species
34 considered included the least tern, red knot, and whooping crane. The NPS determined, and
35 on July 25, 2016, the US Fish and Wildlife Service (USFWS) concurred, that the selected
36 action may affect, but is not likely to adversely affect, the black-footed ferret and northern
37 long-eared bat, as these species will likely experience insignificant or beneficial effects due to
38 the reintroduction of bison, an important native grazer, to areas of the North Unit's
39 shortgrass prairie ecosystem.

40
41 Consultation with the US Fish and Wildlife Service

42
43 The NPS initiated informal consultation with the USFWS, South Dakota Ecological Services Field
44 Office, in a letter dated June 8, 2015. The letter notified the USFWS that the NPS was developing a
45 bison resource stewardship plan for the North Unit of the park and was initiating informal
46 consultation on the project. Section 7 of the Endangered Species Act (16 *United States Code* [USC]
47 1531 et seq.) requires that each federal agency, in consultation with the Secretary of the Interior,
48 ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the
49 continued existence of a listed species or result in the destruction or adverse modification of
50 designated critical habitat. The NPS asked the USFWS to provide a current list of federally listed
51 plant and animal species and any designated critical habitat for such species that might be present in

1 and around the project area. The USFWS replied in a letter dated June 18, 2015, and included an
2 appendix of federally listed plant and animal species that might be present in and around the North
3 Unit of the park, as generated by the USFWS Information for Planning and Conservation (IPaC)
4 system (<https://ecos.fws.gov/ipac>).
5

6 The park consulted with the USFWS for compliance with section 7 of the Endangered Species Act
7 on June 11, 2016, on evaluation of the potential impacts of the project on threatened or endangered
8 species and their habitat. The NPS determined that the preferred alternative will have “no effect” on
9 those species not present (or unknown or unlikely to occur) in the project area, including the least
10 tern, red knot, and whooping crane. The NPS determined that the preferred alternative “may affect,
11 but not likely to adversely affect” the black-footed ferret and northern long-eared bat, as these
12 species will likely experience insignificant or beneficial effects due to the reintroduction of bison, an
13 important native grazer, to areas of the North Unit’s shortgrass prairie ecosystem. On July 25, 2016,
14 the USFWS concurred with the NPS determination.
15

16 Consultation with the South Dakota Game, Fish, and Parks Department 17

18 The NPS initiated informal consultation with the South Dakota Game, Fish, and Parks Department
19 (SDGFP) in a letter dated June 8, 2015. The letter notified the SDGFP that the NPS was developing a
20 bison resource stewardship plan for the North Unit of the park and was initiating informal
21 consultation on the project. The letter also requested that the SDGFP provide a current list of state
22 listed plant and animal species that might be present in and around the project area. The SDGFP
23 replied in an electronic mail dated June 30, 2015, supplying a link to a list of state threatened,
24 endangered, or rare species by county (<http://gfp.sd.gov/wildlife/threatened-endangered/>). The
25 SDGFP was notified of the availability of the plan / environmental assessment for their review and
26 did not provide any comments.
27

28 Consultation with American Indian Tribes 29

30 In letters dated June 12, 2015, the NPS notified representatives of the park’s associated tribal
31 governments of the intent to prepare a bison resource stewardship plan / environmental assessment
32 for the North Unit of the park and to seek to consult with the tribes under section 106 of the
33 National Historic Preservation Act. The tribes were informed of the status of the project throughout
34 the planning process and in correspondence dated September 29, 2015, were provided copies of the
35 preliminary alternatives newsletter for their review and comment.
36

37 On May 16, 2016, park cultural resource specialists met with the Oglala Sioux Tribe Tribal Historic
38 Preservation Officer (THPO) to discuss various projects taking place in the park, including the North
39 Unit bison resource stewardship plan and environmental assessment. The THPO was briefed on the
40 plan and its proposed actions, and agreed that the ethnographic resources impact topic did not need
41 to be retained for full analysis in this plan.
42

43 Associated tribes were provided copies of the plan / environmental assessment for their review
44 during the public comment period. No additional comments or requests for further consultation
45 were received.
46

47 Consultation with the South Dakota State Historic Preservation Office 48

49 In a letter dated June 4, 2015, the NPS notified the South Dakota state historic preservation office
50 (SHPO) of the intent to consult under section 106 of the National Historic Preservation Act
51 regarding the preparation of a bison resource stewardship plan / environmental assessment for the

1 North Unit of the park. The South Dakota SHPO responded in informal correspondence dated July
2 6, 2015, that the information provided in the letter and map initiating section 106 consultation was
3 not enough information for it to provide meaningful comments on the proposed project. The South
4 Dakota SHPO has been informed of the status of the project throughout the planning process and
5 was provided a copy of the preliminary alternatives newsletter on September 29, 2015.
6

7 In July 2016, the South Dakota SHPO was provided a review copy of the plan / environmental
8 assessment to assess the potential effects of the proposed alternatives on cultural resources
9 (archeological resources, ethnographic resources, historic structures and sites, and cultural
10 landscapes). In a letter dated August 1, 2016, the SHPO concurred with the NPS determination of no
11 adverse effect.
12
13

14 CONCLUSION

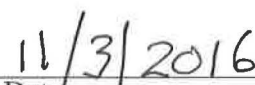
15 Based on a review of the facts and analysis contained in this environmental assessment (incorporated
16 herein), the selected alternative for the North Unit Bison Resource Stewardship Plan /
17 Environmental Assessment for the park will not have a significant impact, either by itself or in
18 consideration of cumulative impacts. Accordingly, the requirements of the National Environmental
19 Policy Act, regulations promulgated by the Council on Environmental Quality, the Department of
20 the Interior, and provisions for NPS Director's Order 12: *Conservation Planning and Environmental*
21 *Impact Analysis and Decision-making* and Handbook have been fulfilled.
22

23 I find that the selected alternative does not constitute a major federal action significantly affecting
24 the quality of the human environment. Therefore, in accordance with the National Environmental
25 Policy Act of 1969, as amended, and regulations of the Council on Environmental Quality (40 CFR
26 1508.9), an environmental impact statement will not be prepared for this project.
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Recommended:



Superintendent, Badlands National Park



Date

Approved:



Regional Director, NPS Midwest Region



Date

BADLANDS NATIONAL PARK NORTH UNIT BISON RESOURCE STEWARDSHIP PLAN / ENVIRONMENTAL ASSESSMENT

APPENDIX 1: DETERMINATION OF NONIMPAIRMENT

The NPS *Management Policies 2006* require a written analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, laws do give the NPS the management discretion to allow adverse impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS the management discretion to allow certain impacts in parks, that discretion is limited by statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specially provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values. An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

Park resources and values that are subject to the nonimpairment standard include:

- The park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act on it; scenic features; natural visibility, both in the daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resource; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals.

- Appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them.
- Any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairments may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The threshold for considering whether there could be impairment is based on whether an action will have significant effects. This determination on impairment has been prepared for the selected action described in this finding of no significant impact.

PALEONTOLOGICAL RESOURCES

The White River Badlands region, which encompasses the park, contains the largest known assembly of late Eocene and Oligocene mammal fossils in North America. Paleontological resources were a major reason for establishing Badlands National Monument in 1939 and designating the monument a national park in 1978. Marine fossils are present in the sedimentary deposits of an ancient sea that existed in the region. A great variety of land animal fossils are also present in the park due to the high diversity of species that occupied the region during the Eocene and Oligocene epochs.

The agency-selected action could have minor to considerable adverse impacts on the park's paleontological resources from bison trampling and wallowing, from fossils being crushed by bison fence maintenance activities, and from vehicular use during bison roundup/trespass bison activities. The geographic extent of these impacts will extend to resources in the expanded bison range and will be intensified by impacts related to the construction and long-term maintenance of about 40 miles of new bison fence. In addition, fossils will continue to be degraded or crushed by vehicles parked in undesignated areas or by visitors removing fossils. These impacts could occur more frequently with greater visitation and additional visitor use amenities. Fenced bison enclosures will be used to mitigate impacts in known fossil-rich areas and high-use areas will be monitored by qualified park staff for accelerated rates of erosion and newly exposed resources. Signs and visitor education will help minimize impacts from vehicles; a qualified paleontologist will survey the proposed perimeter fence route for possible fossils prior to fence installation and to monitor any excavation work associated with fence construction, installation, and upkeep. Given the finite nature of these resources, all of the potential adverse impacts, largely in the high-use areas of the park, will be permanent. However, the described mitigation measures will help limit these potential adverse impacts. Therefore, the selected action will not constitute an impairment to the park's paleontological resources.

VEGETATION

Badlands National Park supports one of the largest contiguous native mixed-grass prairies under federal protection in the United States. Grasslands are the dominant vegetation community in the North Unit of the park, covering approximately 49% of the area; shrubland (3%) and woodland (1%) communities are also present to a lesser extent. About 46% of the North Unit is sparsely vegetated or barren.

Under the selected action, bison will continue to play a primarily beneficial role in the maintenance of the mixed-grass prairie ecosystem through grazing and foraging, and those beneficial impacts will be extended to vegetation communities in the expanded range. Unnatural concentrations and year-round residency of bison will continue to result in disturbances to native soils and certain vegetation

1 types, particularly in high-use areas near water sources and trails. Those impacts will extend to the
2 expanded range; however, the severity and frequency of adverse impacts on vegetation parkwide
3 could decrease due to a lower total bison density. Impacts on vegetation from visitor trampling and
4 nonnative species introduction, as well as from construction of new and expanded vehicle pullouts,
5 fence construction and maintenance, and bison roundup activities, will continue, but the use of best
6 practices during and after construction will ensure that impacts are minor and short term. The
7 selected action will have substantial, long-term benefits on vegetation as a result of the
8 reintroduction of a native grazer to the expanded bison range. Any minor adverse impacts will occur
9 seasonally in high-use areas across the existing and expanded bison ranges. Overall, the selected
10 action will not result in impairment to the park's vegetation.
11

12 **ARCHEOLOGICAL RESOURCES**

13 Under the selected action, the potential exists for adverse impacts to archeological resources.
14 Although only limited archeological surveys have been completed in the North Unit, the NPS has
15 used this information to develop mitigation plans for inadvertent discoveries and bison-related
16 effects in the environmental assessment. Historic or archeological properties that have not yet been
17 evaluated for listing on the National Register of Historic Places have been identified in the proposed
18 expanded bison range. A number of mitigation measures will be implemented, as needed, in order to
19 lessen any adverse impact on such resources. As needed, site condition assessments, project-specific
20 archeological surveys, and additional section 106 consultation will precede any ground-disturbing
21 activities implemented as part of the selected action. Additionally, significant archeological resources
22 will be protected from bison trampling and wallowing by constructing exclosures around the
23 resources. These localized but permanent adverse impacts on archeological resources will not result
24 in impairment to the resources as a result of implementation of the noted mitigation measures which
25 include the construction of exclosures around sensitive sites, performing surveys, and additional
26 section 106 consultation as needed.
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BADLANDS NATIONAL PARK

NORTH UNIT BISON RESOURCE STEWARDSHIP PLAN / ENVIRONMENTAL ASSESSMENT

APPENDIX 2: ERRATA

The Badlands National Park Draft North Unit Bison Resource Stewardship Plan / Environmental Assessment was made available for public review during a 45-day period from July 13 through August 27, 2016. Four public meetings were held during the comment period: July 26, 2016 (Rapid City, South Dakota); July 27, 2016 (Pine Ridge, South Dakota); July 28, 2016 (Wall, South Dakota); and August 1, 2016 (Interior, South Dakota).

Ten written comment letters were received and documented in the NPS Planning, Environment and Public Comment (PEPC) website from individuals, organizations, and federal, state, and county agencies.

This appendix consists of two parts. Part 1 comprises corrections and minor revisions to the environmental assessment. Page numbers referenced pertain to the 2016 *Badlands National Park North Unit Bison Resource Stewardship Plan / Environmental Assessment* (EA). The edits and text corrections do not result in any substantive modifications being incorporated into the selected action, and it has been determined that the revisions do not require additional environmental analysis. Part 2 contains responses to substantive public comments on the plan. In some cases, the NPS also chose to respond to some nonsubstantive comments received during the review period when doing so helped to clarify aspects of the selected action.

The Errata, when combined with the North Unit Bison Resource Stewardship Plan / EA, comprises the only amendment deemed necessary for the purposes of completing the Final Badlands National Park North Unit Bison Resource Stewardship Plan.

CORRECTIONS TO THE ENVIRONMENTAL ASSESSMENT

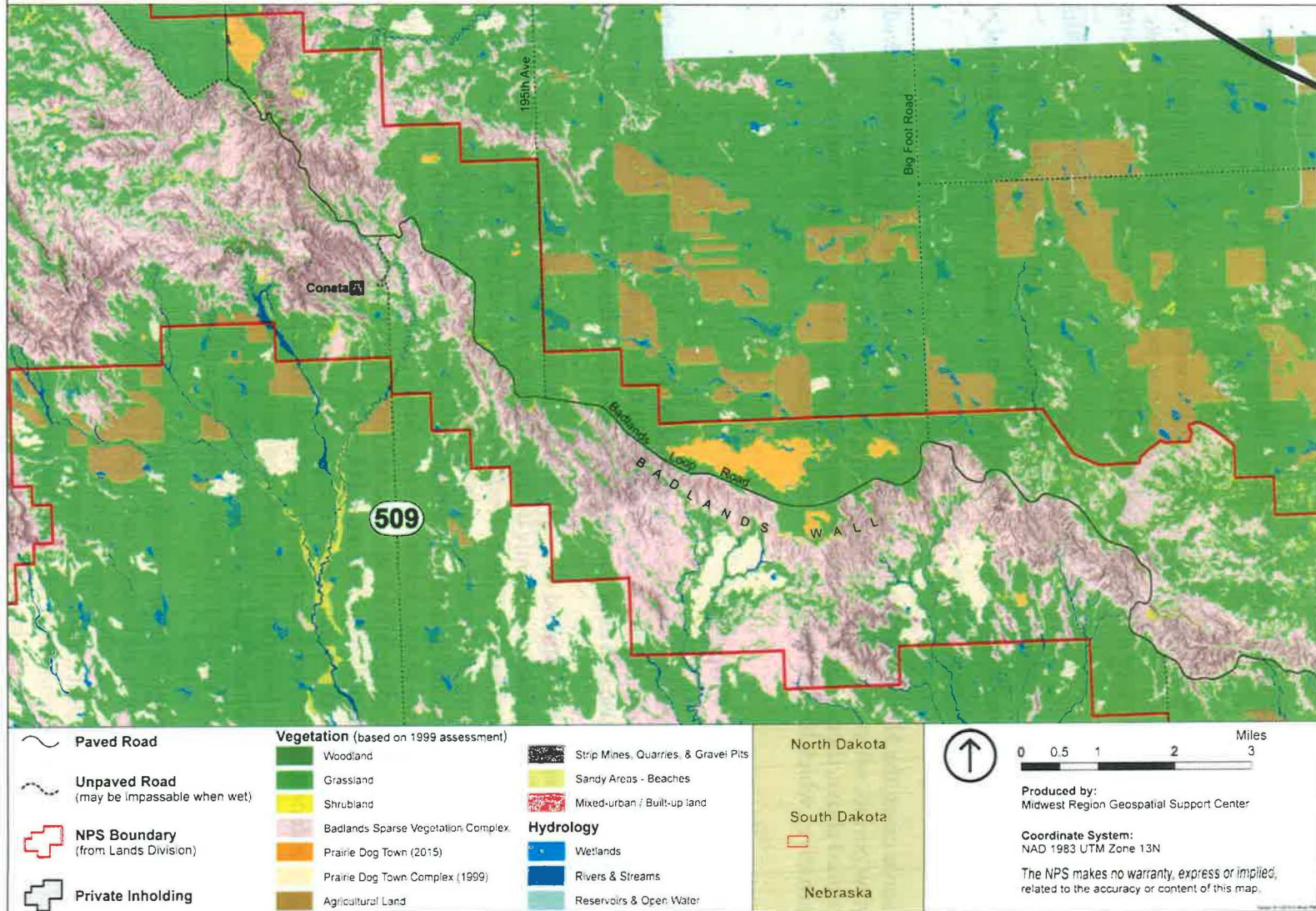
Some comments necessitated minor corrections to the environmental assessment. These minor corrections are noted below.

1. **Correction.** Change the EA, page 8, Impact Topics Retained for Full Analysis, Vegetation, and first sentence to read: Bison are an important herbivore in grassland ecosystems; an average-size lactating cow consumes about 30 pounds of *dry* forage per day.
2. **Correction.** Change the EA, page 10, Impact Topics Considered But Not Retained for Full Analysis, Water Resources, second sentence to read: ~~Bison consume about 12 gallons of water per day per adult in the summer.~~ *Individual bison water consumption varies by season and age and sex classes. When free water is available, adult prime-aged bison will consume between 10 to 15 gallons per day; bison will consume less when new growth forage with higher water content is available for consumption and sometimes more when only very dry senescent forage is available (Reynolds et al. 2003).*

- 1 3. **Correction.** Change the EA, page 21, Bison Population Management, second paragraph,
2 third sentence to read: This process *of assessing* the range of parameters prior to culling the
3 herd would allow park managers to better understand how bison use and impact the new
4 rangeland and its resources.
5
- 6 4. **Correction.** Change the EA, page 32, Monitoring Guidelines and Mitigation Measures for
7 Archeological Resources, Future monitoring guidelines and mitigation measures, first bullet
8 to read: The National Park Service (NPS) would practice good resource stewardship with
9 regard to archeological resources. Standards ~~would be developed that would signal when~~
10 ~~archeological resources were sustaining a minimally acceptable level of impact and for~~
11 ~~periodic monitoring of these resources and programs to monitor archeological site conditions~~
12 *are already in place in the NPS Midwest Region and would be used to determine if or when sites*
13 *are being adversely impacted.*
14
- 15 5. **Correction.** Change the EA, page 32, Monitoring Guidelines and Mitigation Measures for
16 Archeological Resources, Future monitoring guidelines and mitigation measures, second
17 bullet to read: ~~The National Park Service would continue, and possibly enhance, ongoing~~
18 ~~monitoring programs by its staff and partners~~ *Monitoring and condition assessments would*
19 *continue to be undertaken by a Secretary of the Interior-qualified archeologist or in consultation*
20 *with the NPS Midwest Archeological Center.*
21
- 22 6. **Correction.** Change the EA, page 32, Monitoring Guidelines and Mitigation Measures for
23 Archeological Resources, Future monitoring guidelines and mitigation measures, third bullet,
24 fourth sub-bullet to read: Archeological resources in the vicinity of the project area would be
25 identified and delineated prior to project work *by qualified archeologists as part of the section*
26 *106 process.*
27
- 28 7. **Addition.** Page 42, “Vegetation (1999) and hydrology, North Unit of Badlands National
29 Park” map: Attach additional inset map to show detail of the expanded bison range area.
30
- 31 8. **Addition.** Page 104, References: Halbert, N. and J. Derr. 2008. Development of a Genetic
32 Based Management Plan for the Badlands National Park Bison Population. Great Plains
33 CESU, National Park Service.
34
- 35 9. **Addition.** Page 104, References: National Park Service. 2003. Integrated Weed Management
36 Plan and Environmental Assessment, Badlands National Park.
37
- 38 10. **Addition.** Page 105, References: Reynolds, H. W., C. C. Gates, and R. D. Glaholt. 2003. Bison
39 (*Bison bison*). In: G. A. Feldhamer, B. C. Thompson and J. A. Chapman (eds.), *Wild Mammals*
40 *of North America: Biology, Management and Conservation*, pp.1009–1060. Johns Hopkins
41 University Press, MD.



Vegetation (1999) and Hydrology - Bison Expansion Inset



RESPONSES TO COMMENTS

Most of the verbal and written responses to the plan / EA expressed an opinion or preference; some were substantive.

The following are NPS responses to substantive comments received during the public review of the North Unit Bison Resource Stewardship Plan / Environmental Assessment. A substantive comment is defined by NPS Director's Order 12 (DO 12, section 4.6A) as one that does the following:

- question, with a reasonable basis, the accuracy of information in the environmental analysis
- question, with a reasonable basis, the adequacy of the environmental analysis
- present reasonable alternatives other than those presented in the environmental analysis
- cause change or revisions in the proposal

In some cases, the NPS also chose to respond to some nonsubstantive comments received during the review period, when doing so would help clarify aspects of the selected action.

As noted above, there were no substantial modifications required for alternative 2 (NPS-preferred alternative), which has been selected for implementation.

Other Alternative Proposals

A commenter suggested that the bison range should only be expanded to the east, using the Badlands Wall as its southern boundary. The commenter felt that this altered range expansion would still accomplish the purpose and need for the plan and would reduce fencing and maintenance costs.

NPS Response: As noted on page 34 of the environmental assessment, the NPS considered expanding the bison range only in areas north or south of the Badlands Wall and using the wall as a natural barrier. This alternative was dismissed from further consideration because the area adjacent to the wall wouldn't provide sufficient rangeland (as compared to the selected action that provides 22,553 additional acres of rangeland), nor would the Badlands Wall alone provide a sufficient barrier to bison passage. If bison were limited to areas only north of the Badlands Wall as suggested in the comment, the extent that the current range could be extended to the east would be limited due to visitor safety concerns in high visitor use areas near the visitor center, campground, and trail networks, as well as the sensitivity of paleontological resources near Bigfoot Pass. These factors were taken into account when identifying the boundary in the selected action. Furthermore, the additional fencing required along the Badlands Wall as part of this suggestion would result in a substantial adverse impact on the North Unit's cultural landscape and viewshed from the Badlands Loop Road.

As noted on page 27 of the environmental assessment, though an additional 38.3 miles of bison fence would be constructed as part of the selected action, the majority of the new bison fence mileage would be upgrading the existing boundary fence along the exterior boundary of the North Unit (36.8 miles) to meet bison fencing standards. Upgrading the existing boundary fence to bison fence will initially require a substantial investment. The specifications for the bison fence, as detailed in the selected action, include the use of woven wire, which costs approximately \$6,400 per mile in materials, as compared to the \$1,200 per mile in materials for the existing boundary fence. However, this woven wire bison fence lasts longer and requires less ongoing maintenance costs than the existing boundary fence

1 because it is much sturdier and therefore does not succumb to heavy winter snows, as the
2 boundary fence often does. The remaining 1.5 miles of bison fencing would be constructed
3 as several small sections in areas previously undisturbed by fencing in the interior of the park,
4 representing a very minimal portion of the overall fence upgrades. The park is developing a
5 new plan for improved fence maintenance that will include funding a small crew to address
6 routine cyclic fence maintenance as well as provide a prompt response to unexpected and
7 immediate breaches. This upgraded fence maintenance program will be implemented prior
8 to the expansion of bison range in the North Unit.
9

10 A commenter suggested that the main objectives of having more visitors see bison and to improve
11 bison herd management could be accomplished by paving the 12 miles of Sage Creek Road and
12 developing additional water resources in the Sage Creek area.
13

14 **NPS Response:** One of the priorities of the plan is to identify appropriate visitor experiences
15 related to viewing bison, but this objective has to be addressed in the context of the full set of
16 objectives of the plan. While paving Sage Creek Road may improve bison viewing, it would
17 not help to maintain a healthy bison herd and its genetic integrity or benefit the larger prairie
18 ecosystem of the North Unit of the park. Additionally, paving Sage Creek Road would likely
19 increase traffic to that area of the park, thus resulting in new challenges related to visitor use
20 management and protection of wilderness character in that area of the North Unit. The
21 agency-selected alternative will better address the full purpose and need for the plan.
22
23

24 **Water and Forage Availability in the Expanded Bison Range**

25 Several commenters expressed concern about the availability of natural water sources in the
26 expanded bison range, or asked for additional information about what natural and human-made
27 water sources are available in the expanded bison range. A commenter suggested that the NPS
28 develop a range analysis for water availability prior to allowing bison into the expanded bison range
29 because conflicts may arise related to bison searching for water during periods of low water
30 availability. The commenter also questioned the information on page 8 of the environmental
31 assessment, which states that “an average-size lactating cow consumes about 30 pounds of forage per
32 day” and on page 10 of the environmental assessment that states, “bison consume about 12 gallons of
33 water per day per adult in the summer.” The commenter suggested that these estimates seem low.
34

35 **NPS Response:** As noted in the plan on page 22, the NPS does not plan to supplement water
36 resources with new dams or impoundments. During times of low water availability, the NPS
37 will fill existing impoundments and water tanks in the bison holding facility with water and
38 open the gates so that bison could access these impoundments. Bison often stay close to
39 water sources during times of low water availability, so bison will likely stay north of
40 Highway 240 Badlands Loop Road, near the bison holding facility and its water tanks during
41 these times. Water availability and other constraints will be factored into culling parameters
42 so that the bison population doesn’t exceed the capacity of the landscape for either forage or
43 water. Additionally, the park will work closely with its neighbors, including local ranchers
44 and landowners, to develop trespass bison protocol, which will be prioritized as part of the
45 first phase of the plan. This protocol will be followed should a bison trespass onto a
46 neighbor’s land in search of water during times of low water availability. The trespass bison
47 protocol will be formalized and added to the Superintendent’s Compendium until a rule
48 specific to the park could be developed related to trespass bison protocol.
49

1 In response to comments for a more detailed map, the NPS has prepared a map at a finer
2 scale to more clearly show the existing water resources of the expanded bison range. Please
3 refer to the section in this appendix titled "Corrections to the Environmental Assessment"
4 for this map.

5
6 As noted in "Corrections to the Environmental Assessment," text has been changed to clarify
7 that the daily forage consumption estimate pertains to the amount of *dry* forage consumed
8 by an average-size lactating cow. Text has also been changed to further clarify average water
9 consumption, noting that adult prime-aged bison will consume between 10 to 15 gallons per
10 day.

11 12 13 **Fence Maintenance and Bison Trespass Protocol**

14 Several commenters noted that the park should be a good neighbor to neighboring landowners and
15 promptly and efficiently address problems resulting from required fence maintenance or bison
16 trespass. Commenters suggested that the trespass bison protocol, as called for in the selected action,
17 be prioritized as an immediate need prior to implementation of other portions of the selected action.
18 Some of these commenters specifically mentioned this need because they felt that during times of
19 low natural water availability, bison would be more likely to trespass onto neighboring land in search
20 of water.

21
22 **NPS Response:** The park will work closely with its neighbors, including local ranchers and
23 landowners, to develop trespass bison protocol, which will be prioritized as part of the first
24 phase of the plan. The trespass bison protocol will be formalized and added to the
25 Superintendent's Compendium until a rule specific to the park is developed related to
26 trespass bison protocol. Additionally, as noted in the plan on page 22, during times of low
27 water availability, the NPS will fill existing impoundments and water tanks in the bison
28 holding facility with water and open the gates so that bison could access these
29 impoundments. Bison often stay close to water sources during times of low water availability,
30 so bison will likely stay north of Highway 240 Badlands Loop Road, close to the bison
31 holding facility and its water tanks during these times. Water availability and other
32 constraints will be factored into culling parameters so that the bison population doesn't
33 exceed the capacity of the landscape for either forage or water. The park is developing a new
34 plan for improved fence maintenance that will include funding a small crew to address
35 routine fence maintenance as well as provide a prompt response to unexpected and
36 immediate breaches. This upgraded fence maintenance program will be implemented prior
37 to the expansion of bison range in the North Unit. These considerations should greatly
38 reduce the chances of water shortage and resulting bison trespass issues. However,
39 implementation of the trespass bison protocol should help promptly and efficiently any
40 trespass bison events.

41 42 43 **Bison Population Management**

44 The National Parks Conservation Association and Defenders of Wildlife suggested that the
45 environmental assessment clarify the management goal for the bison herd size, noting that the
46 Department of the Interior's (USDI) Bison Conservation Initiative states that the Department of the
47 Interior will seek to "coordinate opportunities to increase existing USDI herds to 1,000 or more
48 bison, or establish new herds or metapopulations that can reach that size, without impacts from
49 nonnative diseases and with little or no cattle allele introgression."

1
2 A suggestion was made by the World Wildlife Fund and Defenders of Wildlife that a geneticist be
3 consulted to assist in the decision-making process for culling the bison herd, or that a genetic
4 management strategy be developed to maximize the retention of existing genetic variation if a cull
5 takes place prior to expansion.
6

7 **NPS Response:** It is not possible to provide a discrete or explicit herd size management goal
8 because population management actions would depend on environmental factors and the
9 size of the metapopulation. The plan aims to support the USDI Bison Conservation Initiative,
10 which will seek to “coordinate opportunities to increase existing USDI herds to 1,000 or
11 more bison, or establish new herds or metapopulations that can reach that size, without
12 impacts from nonnative diseases and with little or no cattle allele introgression.”
13

14 Also, as noted on page 21, “The bison population would continue to be managed according
15 to a range of parameters. These include resources available to support the bison such as
16 water and forage; condition of resources that could be impacted by bison; and cost and time
17 required by park staff to perform bison management activities as well as visitor
18 interpretation, education, and safety; and visitor experience and opportunities to view and
19 learn about bison. In the past, the use of these parameters typically has resulted in a herd of
20 approximately 500–1,500 animals. Monitoring would inform park managers regarding
21 appropriate bison population and strategies to ensure both resource and visitor protection.”
22

23 These operational actions would depend on environmental conditions at the time of
24 implementation and the impacts would not be more than those described in the
25 environmental assessment. The NPS intends to limit the incursion of cattle genes into bison
26 in the North Unit by not introducing bison from other herds into the Badlands herd. The
27 NPS will continue to use best practices and best available information to inform bison
28 genetic conservation in consultation with NPS biologists and geneticists and in accordance
29 with the report titled “Development of a Genetic Based Management Plan for the Badlands
30 National Park Bison Population” (2008), based on DNA data collected from the Badlands
31 bison population. This report has been added to the references section of the environmental
32 assessment via the “Corrections to the Environmental Assessment” section of this appendix.
33
34

35 **Disease Management**

36 The National Parks Conservation Association requested that the NPS describe the protocol should
37 disease be discovered in the park’s bison herd.
38

39 **NPS Response:** As noted on page 22, if the potential for disease is detected or determined,
40 additional testing may be conducted if the situation warrants. If an animal is injured or
41 appears unhealthy, resource management staff would follow up with additional data
42 collection/necropsies and, for disease purposes, consult with NPS Biological Resources
43 Division wildlife veterinarians. The circumstances would be reviewed with the veterinary
44 staff and a determination made regarding further actions to be taken. These could include
45 continued monitoring and/or euthanizing the animal. Additional implementation level
46 decisions regarding disease protocol may be established prior to, or during, implementation
47 of the selected action.
48

Bison Movement into Expanded Bison Range

A commenter asked the NPS to describe how bison would move from the Sage Creek Unit to the expanded bison range in the selected action.

NPS Response: The park will rely initially on natural movements of bison to pioneer the expanded range. If natural movements do not occur, the NPS will physically move bison into the expanded range.

Management of Invasive Nonnative Plants

The National Parks Conservation Association appreciated the mitigation measures described to minimize or avoid the spread of invasive nonnative plants as a result of the selected action and asked the park to further describe how the park currently treats invasive nonnative plant infestations in the park.

NPS Response: The environmental assessment does not propose to change the way in which the park currently manages invasive nonnative plants, and the park would continue to follow the recommendations of the Northern Great Plains Exotic Plant Management Plan / Environmental Assessment. The park also follows the recommendations of its *Integrated Weed Management Plan and Environmental Assessment* (2003), as well as the Plant Community Composition and Structure Monitoring annual reports. The Integrated Weed Management Plan has been added to the references via the "Corrections to the Environmental Assessment" section of this appendix.

Bison Fence Specifications

The National Parks Conservation Association asked that the park consider additional modifications to the bison fence specifications in the selected action in order to provide a visual barrier to bison and to replace the need for using woven wire fencing, including PVC on the top wire, flagging, etc.

NPS Response: The NPS explored national standards for wildlife-friendly fencing and a variety of potential fence materials and designs while preparing the environmental assessment. The current design provides an appropriate balance of wildlife-friendly considerations with the need for effective bison containment. The fence design identified in the selected action has been supported by several commenters and organizations as an appropriate selection.

Offset Fencing Near Probable Prairie Dog Expansion Areas

The Defenders of Wildlife suggested offsetting fencing adjacent to existing and probable prairie dog expansion areas adjacent to private lands to reduce prairie dog colony expansion across boundaries with private lands. They suggested that the NPS consider, in those very few areas where prairie dog expansion across private land boundaries has or could be a problem now or in the future, an offset of the bison fence interior to the park by 90 feet to allow a grass buffer to develop between prairie dogs and existing fence adjacent private lands where they may be expanding.

1 **NPS Response:** The recommendation to offset fencing to establish a “prairie dog buffer
2 zone” was discussed when initially received during public review of the draft alternatives in
3 fall 2015. However, if the bison fence was offset to the interior of the park boundary by 90
4 feet, the park would still maintain its normal boundary fence as well. Two parallel fences in
5 some areas of the park (bison fence and boundary fence) would result in additional impacts
6 to archeological and paleontological resources by disturbing previously undisturbed areas
7 and would also adversely impact park viewsheds. Additionally, the cost and labor associated
8 with fence maintenance would likely double in these areas where parallel fences would
9 occur. Given these considerations, this suggestion was not included in the selected action.
10 The park will work closely with its neighbors, including local ranchers and landowners, to
11 develop trespass bison protocols that may address conflicts over unwanted prairie dog
12 habitat expansion onto private land.
13
14

15 **Visitor Education**

16 The National Parks Conservation Association suggested that the visitor education program of the
17 selected action should include behavioral cues from bison.
18

19 **NPS Response:** As noted on page 33 of the environmental assessment, “A visitor education
20 program with consistent messaging on wildlife safety and appropriate behaviors when in the
21 vicinity of wildlife would continue to be supported. This information would also be shared
22 through additional appropriate signs, park staff and volunteer messaging, and printed/visual
23 materials available to visitors throughout the park. Visitor surveys could be done to evaluate
24 visitor understanding of safety information related to wildlife. When visitors inquire with a
25 ranger or in the visitor center about backcountry travel or camping, safety and leave no trace
26 information would be provided to minimize resource impacts on backcountry areas and
27 prepare visitors for potential wildlife interactions.” Specifically, the park will distribute bison
28 flyers to all visitors as they enter the park through an entrance station warning visitors to
29 view bison from a safe distance. A section in the park newspaper will be dedicated to bison
30 safety, and waysides exhibits will be updated to include education on behavioral cues from
31 bison. Interpretive programs at the park will include safety messages on bison and the NPS
32 will work with the US Forest Service to include bison safety messages in programs at nearby
33 Buffalo Gap National Grasslands as well. Consistent messages on wildlife safety would help
34 visitors understand behavioral cues of bison that may indicate dangerous situations.
35
36

