USDA

United States Department of Agriculture

Cheyenne River Area Range Allotment Management Plan

Environmental Assessment

Draft Decision Notice

Draft Finding of No Significant Impact

Forest Service Nebraska National Forests and Grasslands Wall Ranger District June 2016

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Proposal to be Analyzed

We (the Forest Service, U.S. Department of Agriculture) propose to develop a management plan for the adaptive management of six grazing allotments on the Wall Ranger District, Buffalo Gap National Grassland, Nebraska National Forests and Grasslands. We propose changing current management of t these allotments to eventually attain conditions consistent with direction as specified in the Land and Resource Management Plan 2001 Revision Nebraska National Forest and Associated Units (Forest Plan).

Why We Prepared this Document

We prepared this environmental assessment to determine whether implementation of these activities would significantly affect the quality of the human environment and thereby require the preparation of an environmental impact statement. By preparing this environmental assessment, we are fulfilling agency policy and direction to comply with the National Environmental Policy Act of 1969.[1] For more details of the proposed action, see the "Alternative 3 – Proposed Action" section of this document (beginning on page 14).

Furthermore, section 504(a) of the 1995 Rescissions Act (Public Law 104-19) requires "the completion of National Environmental Policy Act analysis and decisions" on grazing allotments within the National Forest System. The act includes a schedule for completion of allotment management plans, including the analyses required by the National Environmental Policy Act. This analysis will allow us to comply with the Rescissions Act by helping us determine if livestock grazing will continue to be authorized on all, none, or portions of the six federal grazing allotments in the project area. If we determine livestock grazing is to continue, this analysis will allow us to determine how to best manage these allotments to maintain or achieve management direction (goals, objectives, standards, and guidelines) in the Forest Plan.

This environmental assessment is tiered to the Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision May 2001 and planning record and incorporates by reference the Forest Plan and its land management plan monitoring and evaluation reports. The reports are available at the Forest Supervisor's office of the Nebraska National Forests and Grasslands in Chadron, Nebraska.

This document is also tiered to the 2005 Final Environmental Impact Statement and Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, and to the 2008 Environmental Impact Statement and Record of Decision for Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units (Non-Management Areas 3.63).

Location of Proposed Activities

The allotments are located on the Wall Ranger District, Buffalo Gap National Grassland, Nebraska National Forests and Grasslands. The project area encompasses approximately 30,000 acres in Pennington County, South Dakota, approximately 25 miles southwest of the city of Wall, in Townships 3 and 4 South, Ranges 11 and 12 East, Black Hills Principal Meridian. The project is focused on the management of six

[1] Public Law 91-190, 83 Stat. 852, 42 U.S.C. 4321 et seq.; 36 CFR Part 220; and Forest Service Handbook 1909.15

federal grazing allotments shown in figure 1: Big Corral, Cheyenne, Cheyenne South, Hart Table-Spring Pasture (shown in figure 1 as “Hart Table”), Indian Creek, and Nevis Draw.

Current Allotment Management

A grazing allotment is a designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range allotment management plan. It is the basic land unit used to help manage the range resource on National Forest System lands, including national grasslands. An individual allotment can have lands under several jurisdictions, including the Forest Service, other Federal or State agencies, or private lands.

The six allotments covered by this analysis consist of approximately 30,000 acres of National Forest System lands. Interspersed within this project area are 1,550 acres of land held by the State of South Dakota, and 150 acres of private land which are not included in the proposed action. The allotments are adjoining and have been managed for grazing for more than 60 years.

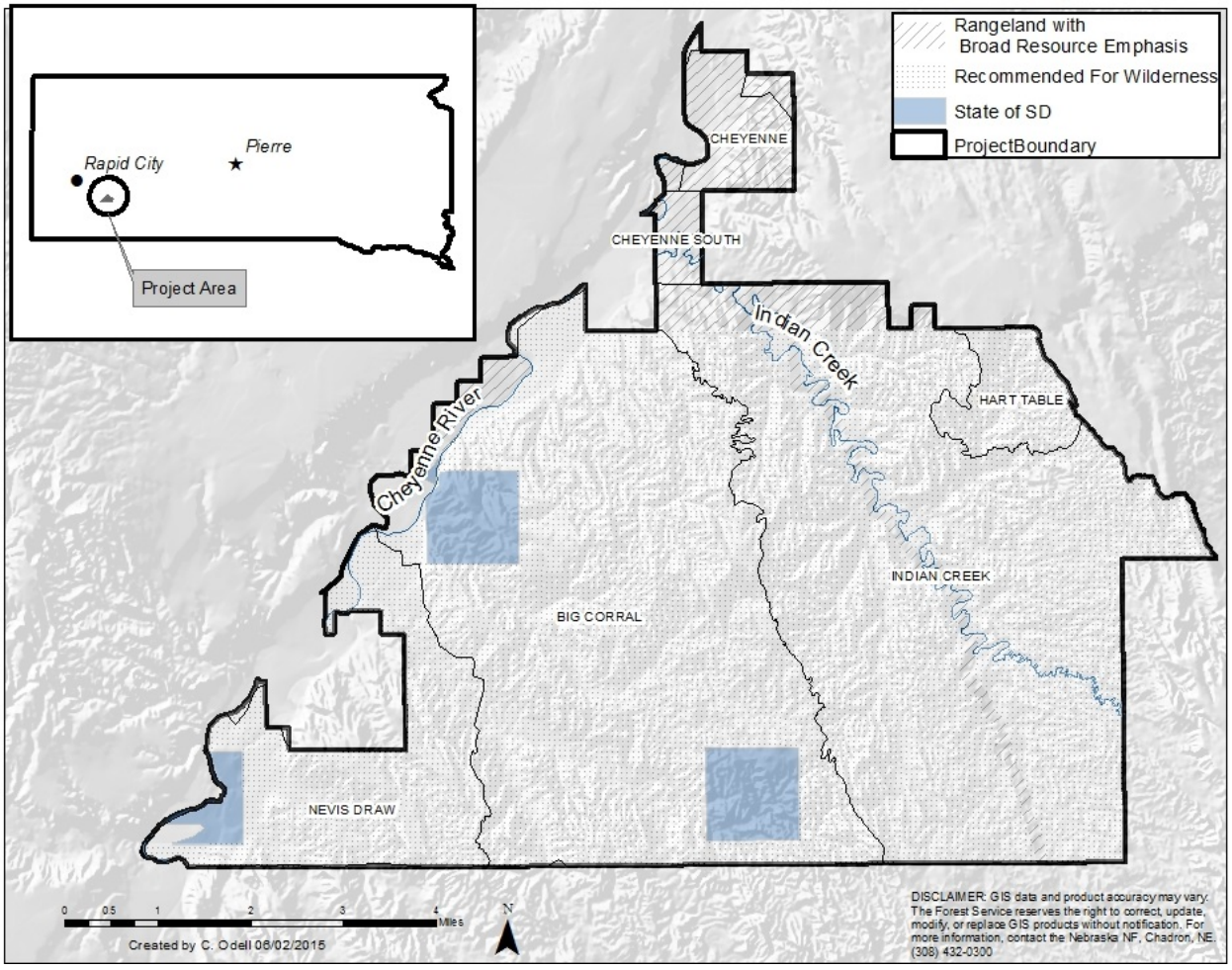

Figure 1. Vicinity map showing the location of the Cheyenne River Area Range Allotments

The Forest Plan guides the management of natural resources on the Nebraska National Forests and Grasslands and provides Forest Service staff with an overall management strategy. Direction in the Forest Plan is provided at different levels. For example, direction might apply at a forestwide or grasslandwide

level, by management area, or by geographic area. A large part of this direction describes the desired conditions for individual management areas and geographic areas.

Forest Service policy is to make forage available to qualified livestock operators from lands suitable for grazing, provided it is consistent with land management plans and meets the terms of the administrative permit (36 CFR 222.2(c); Forest Service Manual 2203.1).

The Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision May 2001 determined that the six grazing allotments are suitable for commercial livestock grazing. Grazing permittees are authorized to graze a total of 5,685 animal unit months[2] under various rotation and grazing systems (refer to table 3 on page 13).

Forest Plan Geographic Area Management Direction

The Forest Plan describes desired conditions and specifies management goals, guidelines, objectives, and standards. All of the project area is located in the Wall Southwest Geographic Area as designated by the Forest Plan (Forest Plan, pp. 1-22 to 1-23, 2-59 to 2-65). The geographic area is 102,580 acres in size. Forest Plan management area direction for this geographic area applies to the entire geographic area not only the project area.

Forest Plan Management Guidelines

Forest Plan guidelines for vegetation and grazing management in Wall Southwest Geographic Area are listed below (Forest Plan, p. 2-64). These geographic area guidelines are subordinate to more specific direction which may apply for the Forest Plan management area in which the activity is proposed to take place.

Livestock Grazing

- Guideline: Continue to emphasize combining pastures and allotments to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation).
- Guideline: In areas where sharp-tailed grouse and waterfowl production are emphasized, utilize light to moderate stocking levels on allotments with large pastures to achieve a mosaic of vegetation structure that provides high structure intermittently across the allotment. Utilize skim or rest on allotments with small pastures that fail to provide sufficient high cover levels.
- Guideline: During the [allotment management planning] process or as other opportunities arise, design and implement livestock grazing strategies to provide for thick and brushy understories and multi-layer and multi-age structure in riparian habitats, wooded draws and woody thickets, contingent on local site potential.

Infrastructure

- Guideline: New structural improvements (fences and water developments) may be constructed as needed to achieve desired condition objectives (wildlife habitat, botanical, range management, visual quality, and recreation).

[2] An animal unit month is the amount of forage required to support a mature cow for 1 month of grazing, which equates to one mature cow of approximately 1,000 pounds or its equivalent, for one month, based on a forage allowance of 26 pounds per day.

Geographic Area Desired Conditions and Objectives

The desired conditions for plant species composition across the Wall Southwest Geographic Area are as follows (Forest Plan, p. 2-61):

- Late seral – 20 to 40 percent
- Late intermediate seral – 20 to 40 percent
- Early intermediate seral – 10 to 30 percent
- Early seral – 10 to 30 percent

The vegetation structure objectives across the Wall Southwest Geographic Area are listed below (Forest Plan, p. 2-62).

- High structure – 25 to 35 percent
- Moderate structure – 35 to 45 percent
- Low structure – 25 to 35 percent

Furthermore, the Forest Plan objective for the Wall Southwest Geographic Area is to rest one to ten percent of the suitable rangeland each year (Forest Plan, p. 2-63). Rest is to leave an area of rangeland ungrazed by livestock or un-harvested by mechanical methods for at least one year (12 consecutive months).

The desired landscape condition is to maintain the undeveloped character and scenic integrity of the grasslands, intermingled prairie dog colonies, and rugged badlands.

The desired condition for the upland grassland is to perpetuate diverse and healthy mixed grass communities that provide a mixture of grassland structure levels. Grassland structure will be managed to promote prairie dog expansion, primarily adjacent to Badlands National Park and the core ferret reintroduction areas. Higher structure levels will be maintained adjacent to private land to discourage prairie dog encroachment.

The woody draws/riparian woodlands/cedar breaks will be managed to perpetuate multiple layers and age classes of vegetation including herbaceous plants, shrubs, and trees. Wetlands/aquatic areas will emphasize healthy submergent and emergent vegetative cover along the shorelines, while reducing sediment levels to maintain high quality aquatic habitat.

The Forest Plan describes desired hydrologic conditions as “streams and riparian areas are in, or are trending towards, Properly Functioning Condition …, which allows them to recover quickly from floods and support diverse native plants and animals. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows” (Forest Plan, page 2-45).

The desired condition for riparian areas is to conserve or improve their ability to absorb water, filter sediment, and sustain stream channel integrity. Figure 2 shows a riparian area in the project area that closely resembles desired condition. Figure 3 is more representative of riparian areas throughout the project area. Note the difference in the structure of streamside vegetation in the two figures.

Figure 2. A riparian area in the project area that resembles desired conditions

Figure 3. A riparian area that departs from desired conditions and shows the impacts of disturbance

Grazing management and prescribed fire will be used as tools to enhance the grass and forb vegetative diversity, stimulate woody plant regeneration, and reduce invasive or noxious weeds. Recreational opportunities will continue to emphasize dispersed recreation activities on the majority of the geographic area. Indian Creek will be managed to protect its rugged, unroaded character and its "Recommended for Wilderness" designation. Based upon public interest, a primitive campground/trailhead and trails in the Indian Creek proposed wilderness are desired.

Forest Plan Management Area Direction

The National Forest System lands in the project area are designated as either Management Area 1.2 ("Recommended for Wilderness") or Management Area 6.1 ("Rangeland with Broad Resource Emphasis") (figure 4). Management area direction for "Recommended for Wilderness" areas is described in the Forest Plan beginning on page 3-6 and for "Rangeland with Broad Resource Emphasis" areas beginning on page 3-32. The remainder of the Wall Southwest Geographic Area is Management Area 3.63 ("Black Footed Ferret Reintroduction Habitat").

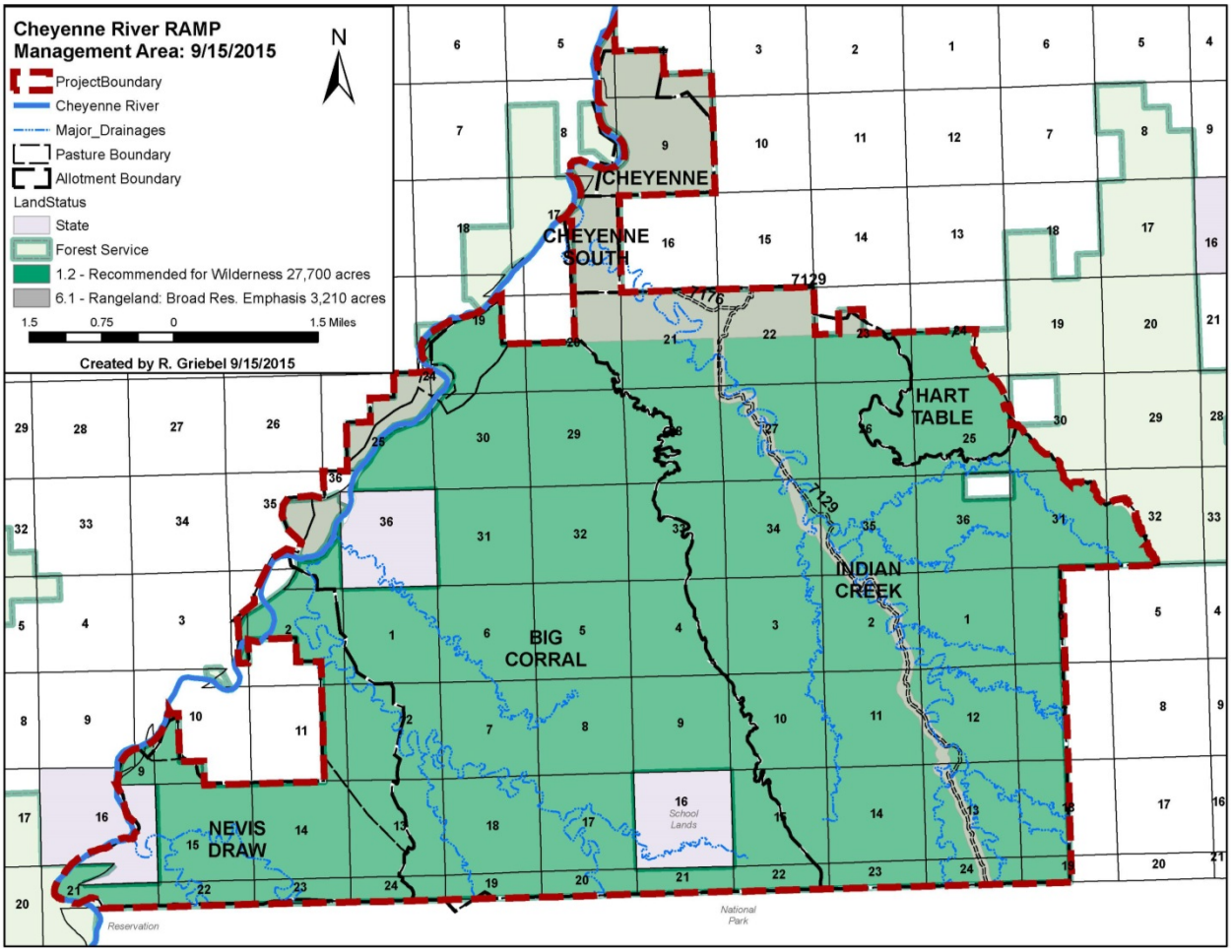

Figure 4. Forest Plan management areas within the project boundary

Recommended for Wilderness lands (Management Area 1.2) are areas the Forest Service has determined meet criteria from the Roadless Area Review and Evaluation II process. During the forest planning process, the Forest Service determined this area could be recommended to Congress for inclusion in the National Wilderness Preservation System. These areas are managed to protect wilderness characteristics

until Congressional action is taken. Nonconforming activities may be limited or restricted. Livestock grazing is consistent with management direction for this management area.

The Forest Plan (p. 3-32) describes Management Area 6.1 (Rangeland with Broad Resource Emphasis) as follows:

> "… primarily a rangeland ecosystem managed to meet a variety of ecological conditions and human needs. Ecological conditions will be maintained while emphasizing selected biological (grasses and other vegetation) structure and composition that consider the range of natural variability. These lands often display high levels of development, commodity uses, and activity; density of facilities; and evidence of vegetative manipulation. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common on designated roads and two-tracks".

Need for Action

This section incorporates by reference the "Range/Vegetation/Invasives Report" which is filed in the project record. That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the range management specialist relied upon to determine the need for action.

The need for the Cheyenne River Area Range Allotment Management Plan is based on the Forest Plan management direction. This action is needed because existing conditions are not meeting Forest Plan direction for desired diversity of vegetation structure and vegetation composition. These conditions are primarily due to concentrated grazing along riparian areas and lack of grazing or other disturbance in upland areas.

The differences between existing conditions and the desired conditions identified in the Forest Plan and the Forest Service's responsibility to reduce those differences through management practices define the need for action. Both the existing conditions and Forest Plan desired conditions are described in this section.

Existing Range Conditions

The project area is currently not meeting Forest Plan objectives, due in part to concentrated livestock use in the riparian areas, including the Cheyenne River, Indian Creek, and Big Corral Draw, and limited livestock use of some upland areas.

Extensive rangeland monitoring data indicates the project area (Management Areas 1.2 and 6.1) is moving towards Forest Plan objectives for the Wall Southwest Geographic Area. The remainder of the geographic area is Management Area 3.63 which emphasizes prairie dog colonies for black-footed ferret reintroduction habitat. The objectives for Management Area 3.63 result in more early or early intermediate seral communities with low structure. At 74,000 acres, Management Area 3.63 can meet the early and early intermediate seral-low structure objectives for the geographic area, leaving a need for more late intermediate and late seral communities and moderate and high structure in the project area.

Grazing livestock instinctually concentrate their activities in areas of these six allotments that are most attractive to them. These areas have the easiest access to water and to vegetation of the composition and structure livestock prefer to graze. These attractive areas are grazed the most, and there is a disproportionate lack of livestock grazing or other desirable disturbance in upland areas.

When livestock are distributed over the allotments in this manner, vegetation conditions shift further away from desired conditions for vegetative composition (in terms of seral stage) and objectives for vegetative structure as specified in the Forest Plan. Areas currently being underutilized have been identified through observations of livestock use, excessive litter buildup, and an increase of non-native cool season grasses. Current conditions are described in table 1 and table 2. Species composition is monitored using Natural Resource Conservation Service similarity index methodology. There is no seral stage data for the Hart Table-Spring Pasture (table 1) and no vegetation structure data for the Cheyenne, Cheyenne South, and Hart Table-Spring Pasture allotments (table 2).

Table 1. Comparison of species composition in terms of seral stage of the allotments in the project area with geographic area objectives

Allotment	Late Seral (%)	Late Intermediate Seral (%)	Early Intermediate Seral (%)	Early Seral (%)
Objective for Wall Southwest Geographic Area	20 to 40	20 to 40	10 to 30	10 to 30
Big Corral	10.05	49.92	37.38	2.66
Cheyenne	0	15.04	75.74	9.21
Cheyenne South	0	4.00	96.00	0
Indian Creek	0	72.82	18.71	8.47
Nevis Draw	0	31.10	43.90	25.01

Table 2. Comparison of current vegetation structure of the allotments in the project area with geographic area objectives

Allotment*	High Structure (%)	Moderate Structure (%)	Low Structure (%)
Objective for Wall Southwest Geographic Area	25 to 35	35 to 45	25 to 35
Big Corral	33.33	20.00	46.67
Indian Creek	5.56	23.53	76.47
Nevis Draw	33.33	66.67	0.00

The health of riparian systems is largely dependent on the condition of the vegetative community. Healthy riparian vegetation provides overhead cover and temperature moderation and root strength for bank stability; it filters sediment, stores water, and dissipates floodwater energy.

Riparian areas can also provide habitat for many unique plant species and many wildlife species. Where disturbance occurs in riparian areas, there is an increased risk of erosion and reduced productivity, thereby reducing the buffering effect the riparian area has on streams and the protection of beneficial uses. Nearly all riparian areas in the project area exhibit signs of livestock concentration including trampled and hoof-sheared banks; over-utilization of cottonwoods, willows, grasses and forbs; excess sediment deposition; and extensive manure within, and immediately adjacent to, stream channels.

Management Objective

The objective of the proposed management strategy is to maintain proper distribution of livestock herds on the six grazing allotments. The proper distribution of livestock is important in making progress toward achieving the Forest Plan desired conditions and objectives for vegetation composition and structure on the allotments and their associated Forest Plan management areas.

This does not mean all livestock should be equally distributed across the allotments. It means livestock should be appropriately distributed to sustain the health, diversity, and productivity of the allotments to meet the needs of present and future generations.

Success of this strategy will be measured primarily by our ability to attract grazing livestock to areas in the allotments currently not being utilized. We will also continue to monitor vegetative composition and structure.

Proposed Action

The Forest Service proposes to continue to permit livestock grazing on six allotments in the Wall Southwest Geographic Area using an adaptive management process which is intended to help make progress toward achieving the Forest Plan desired conditions and objectives on these allotments. Page 14 includes a more detailed description of the proposed action, by allotment.

Decision Framework

The responsible official for this project is Kurt Pindel, District Ranger of the Wall Ranger District. Given the need for the proposal, the responsible official will review the potential environmental impacts of the proposed action and the other alternatives in order to make the following decisions:

- Which alternative or combination of alternatives would result in the most appropriate distribution of livestock on these allotments in order to allow vegetative structure and composition in the project area to be more similar to the Forest Plan's desired conditions and objectives, and address the identified issues?
- Would the selected alternative have a significant impact on the human environment, therefore requiring preparation of an environmental impact statement?

Public Involvement and Tribal Consultation

The Cheyenne River Area Range Allotment Management Plan is not a hazardous fuel reduction activity as defined by the Healthy Forests Restoration Act of 2003, as amended (Public Law 108-148), section 101(2). Therefore, this activity is subject to pre-decisional administrative review consistent with the Consolidated Appropriations Act of 2012 (Public Law 112-74) as implemented by subparts A and B of 36 CFR Part 218 (36 CFR §218.7(a)(2)).

A comprehensive scoping package was mailed or emailed to the Wall Ranger District mailing list, including Tribal entities. The scoping package contained a description of the proposed action and the purpose and need and a map of the proposed project. On March 4, 2015, a total of 141 letters were mailed: 55 to individuals and groups; ten to elected officials at the state and national level; 29 to Federal, State, and County agencies; 39 to Tribal entities and contacts; and eight to permittees in the project area.

On March 12, 2015, twenty-nine letters were mailed to Tribal entities and contacts, specifically inviting Tribal consultation in the process. The proposal was first listed in the Forest Service's schedule of proposed actions in April 2015.

A total of 16 respondents submitted comments in response to the scoping package. Several meetings were held with interested members of the public during the development of the proposed action. Comments were recorded from 17 members of the public at these meetings. Comments from the public meetings and

a list of individuals, groups, and agencies who participated during the development of this environmental assessment are in the project record.

The scoped proposed action included the installation of an interpretive sign. This activity has been withdrawn from the proposed action. A decision on whether to install the sign will be issued after a separate analysis.

A draft of this environmental assessment was released for public comment in January 2016. The public was notified of the environmental assessment's availability for review and comment through letters and through publication of a legal notice in the Rapid City Journal on January 27, 2016.

A 30-day public comment period began on January 28, 2016 as required by 36 CFR §218.24. Public meetings were also held during the comment period on February 5 and February 12, 2016. A summary of the agency's review of all public comments received in response to this comment solicitation is in the project record. A summary of the comments received is in Appendix A of this environmental assessment.

Issues

The interdisciplinary team conducting this analysis reviewed all comments received in scoping. Using the comments from the public, the interdisciplinary team developed a list of public concerns and analysis topics to address. Public concerns were then considered in terms of whether they would be elevated to issues for analysis or for which alternatives would be developed. After considering the public concerns, the interdisciplinary team determined none would be issues requiring the development of alternatives. Reasons are provided below.

"Issues (cause-effect relationships) serve to highlight potential effects or unintended consequences that may occur from the proposed action, providing opportunities during the analysis to explore alternative ways to meet the purpose and need for the proposal, while reducing adverse effects" (Forest Service Handbook 1909.15, Section 12.42). Alternatives to the proposed action may include modified actions, new design criteria, or mitigation measures to reduce undesired impacts or unintended consequences. All alternatives brought forth into detailed analysis in this environmental assessment must address the project's purpose and need and be consistent with existing law, regulation, and policy.

The following issues were identified in scoping:

Management Restrictions Imposed by "Recommended for Wilderness" Designation

> Much of the area in the four southern allotments is designated by the Forest Plan as Management Area 1.2 ("Recommended for Wilderness"). One of the standards for management of land under this management designation requires the use of natural materials in the construction or reconstruction of livestock facilities (Forest Plan, page 3-7). This requirement may prevent the appropriate distribution of livestock because it increases the cost of building fences and limits the construction of water developments, other than dams and dugouts, because they must be constructed of natural materials within Management Area 1.2.

Forest Service Response: The Forest Service determined through the land management planning process that produced the Forest Plan, that livestock grazing is compatible with the "Recommended for Wilderness" designation and that this designation would not interfere with the appropriate management of livestock on these allotments. This determination is supported by management direction in the Forest

Plan. Therefore, a Forest Plan amendment to change the Forest Plan management area in which most of the allotments are located would be beyond the scope of this project.

Use of Prescribed Fire as an Adaptive Management Tool

> The proposed action applies prescribed fire on these allotments as a management tool. Some members of the public believe prescribed fire could get out of control, burning more livestock forage than planned, and leaving large sections of allotments without enough forage to graze. They also believe increased grazing would have the same beneficial effects as prescribed fire, with less risk of getting out of control, would provide more forage for livestock, and would manage weeds. Other members of the public support the use of prescribed fire.

Forest Service Response: Mixed grass prairies evolved with disturbances such as fire and grazing, and both are important tools to manage the vegetation. Prescribed fire has been shown as an effective tool in the management of range vegetation. Prescribed fire allows more appropriate redevelopment of vegetation than increased grazing intensity. Fire more effectively removes litter accumulation and provides more nutritious and young grass growth than increased short-term grazing. Burning, in conjunction with grazing, leads to better consumption of plant material and helps soil nutrient cycling.

On certain allotments, we may increase grazing before using prescribed fire and only use prescribed fire if increased grazing does not yield desired results.

Use of Herding as an Adaptive Management Tool

> The proposed action applies herding of livestock on these allotments to attain proper livestock distribution. Livestock permittees would be obligated to herd their livestock, and some believe herding and constant monitoring of where their livestock graze would be an unnecessary burden, costing time and money, and would reduce the weight of livestock at sale.

Forest Service Response: Herding is a standard livestock management practice and may be necessary to obtain desired disturbance. Herding plans will be discussed with individual permittees and spelled out in individual allotment management plans, in annual operating instructions, or both. Where herding is not practical or successful, other adaptive management tools and techniques will be used.

Change in Location of Authorized Use (Combining Allotments) as an Adaptive Management Tool

> Commenters expressed the concern that a change in location of authorized use (combining allotments) would adversely affect the genetic characteristics of their herds. Each livestock permittee has different times they tum bulls out. Livestock permittees select their bulls for specific traits such as calving ease, growth, and breed. Permittees prefer to use their own bulls on their cows. Livestock permittees also have different vaccination programs, and concerns were expressed that a change in location of authorized use (combining allotments) could increase the risk of disease transmission between herds.

Forest Service Response: A change in location of authorized use (combining allotments) is a tool that should be available because it would help change livestock distribution patterns and meet the Forest Plan forest-wide guideline to avoid season-long grazing in riparian areas (Forest Plan page 1-22). If other adaptive management actions are successful in improving livestock distribution, this adaptive management action would not be necessary.

Fence along the Cheyenne River

> Commenters expressed the concern that the placement of fence along the Cheyenne River to keep livestock out of riparian areas would make it difficult for livestock to access water. They also expressed the concern that this fence would restrict access to land not under Forest Service ownership, such as South Dakota School and Public Land, and privately owned parcels within the boundaries of the Buffalo Gap National Grassland.

Forest Service Response: Fencing along sections of the Cheyenne River would be consistent with existing Forest Plan direction and may be necessary if other adaptive management tools do not successfully reduce impacts along the river. It would only occur if alternative water sources are in place. It would not be used to exclude grazing along the Cheyenne River but to limit the timing and duration of grazing along the river. The Forest Service will work closely with other land owners and managers to ensure access is maintained. Under certain conditions, it may be desirable to allow livestock in riparian pastures along the river.

Other Relevant Resource Concerns

In addition to issues or public concerns, routine analysis may result in topics which evaluate the relative merits or effects of the alternatives; for example, comparing the effectiveness of the alternatives in addressing the purpose and need or determining consistency with laws, regulations, and policies. These are covered in each resource section of the "Environmental Impacts of the Proposed Action and Alternatives" (page 35):

- **Range Resources:** We considered the potential impacts of the alternatives on the distribution of livestock and the structure and composition of range vegetation, thereby addressing the need for action.
- **Wildfire Potential:** We considered the potential impacts of the alternatives on the size, severity, and frequency of future wildfires.
- **Botanical Resources:** We considered the potential impacts of the alternatives on the continued viability of Barr's milkvetch and Visher's buckwheat, sensitive species in Region 2 of the National Forest System.
- **Wildlife and Fisheries Resources:** We considered the potential impacts of the alternatives on federally endangered, threatened, candidate, and proposed species for Pennington County, South Dakota.
- **Soils Resources:** In determining the potential impacts of the alternatives on soil resources we considered how the infrastructure developments and the movement and concentration of livestock would affect the physical, chemical, biologic, and hydrologic properties of soil in the project area.
- **Water Resources:** Changes in soils conditions attributable to the alternatives would have the potential to affect annual water yield, stream flow regime, stream channel stability and floodplains, water quality, connected disturbed areas, wetlands, riparian areas, and groundwater dependent ecosystems. We also considered whether the alternatives would affect existing water rights.
- **Archaeological and Cultural Resources:** We considered the potential for all project activities to affect archaeological and cultural resources.
- **Paleontological Resources:** We considered impacts to paleontological resources based on the likelihood of fossils occurring in the geologic formations in the project area.

- **Scenery:** We considered the potential of impacts of the proposed action and alternatives on the scenic integrity in the project area. Grazing livestock, changes in vegetation composition and structure, and infrastructure developments have the potential to change the physical, biological, and cultural attributes that make each landscape in the project area identifiable or unique.
- **Recreation:** We considered the potential impacts of the alternatives on known recreation patterns.
- **Climate Change:** We considered the potential impacts of the alternatives on climate change and the potential impacts of climate change on rangeland vegetation in the project area.
- **Socioeconomic Impacts:** We considered the potential of impacts of the alternatives on economic efficiency and environmental justice.

Detailed Description of Proposed Action and Alternatives

Alternative 1 – No Grazing

The Forest Service's Grazing Permit Administration Handbook (Forest Service Handbook 2209.13) directs that "the 'no action' alternative shall always be fully developed and analyzed in detail. No action is synonymous with no grazing and means that livestock grazing would not be authorized within the project area" (Forest Service Handbook 2209.13, Sec. 92.31).

Under this alternative, no domestic livestock grazing would be authorized on National Forest System lands in the six allotments. Permittees would be allowed to use the allotments for two more years after implementation of this alternative to allow time for adjustment of their operations in response to permit cancellation (36 CFR §222.4(a)(1)). No new range improvements would be constructed. Vegetation management actions such as prescribed burning might still be carried out, where needed, to improve or enhance native plant communities.

Alternative 2 – Current Management

Table 3 describes current management of livestock herds on the allotments. Livestock graze for the equivalent of 5,685 animal unit months (AUMs) on approximately 30,000 acres. Annual fluctuations in timing and amounts of precipitation and/or changes in vegetative condition (such as by fire, flood, or hail) may result in an annual change of authorized numbers and/or season of use.

Table 3. Current permitted livestock use on National Forest System (NFS) land

Allotment	NFS Area (Acres)	Livestock Number	Livestock Kind/Class	On	Off	AUMs
Big Corral	11,247	115	Cow/calf	5/16	10/31	639
Big Corral		159	Bison	11/21	4/20	732
Big Corral		Unallocated Fill-ins[1]	Unallocated Fill-ins[1]			550
Big Corral NGA #3 [2, 3]	160					25
Total Big Corral						**1,946**
Cheyenne	877	360	Cow/calf	12/12	1/3	284
Cheyenne NGA #2 [3]	125		Cow/Calf	3/1	2/28	31
Total Cheyenne						**315**

Allotment	NFS Area (Acres)	Livestock Number	Livestock Kind/Class	On	Off	AUMs
Cheyenne South	305	25	Cow/Calf	5/16	10/31	**139**
Hart Table Spring	666	10	Bulls	3/16	5/15	20
Hart Table Spring		10	Bulls	10/1	12/15	25
Total Hart Table Spring						**45**
Indian Creek- Main Pasture	13,294	205	Cow/calf	5/16	10/31	1,136
Indian Creek- Main Pasture		216	Bison	11/21	4/20	750
Indian Creek NGA #1 [2, 3]			Bison	1/1	12/31	30
Indian Creek NGA #1 [2, 3]		Unallocated Fill-in[1]	Unallocated Fill-in[1]			122
Total Indian Creek						**2,008**
Nevis Draw, FS	3,401	68	Cow/calf	6/1	10/31	342
Nevis Draw, PVT [4]		97	Cow/calf	6/1	10/31	488
Nevis Draw, Temp-Filled in						402
Total Nevis Draw						**1,232**
Total for Project Area	32,389					**5,685**

[1] Unallocated fill-ins are associated with lands acquired in the Indian Creek land exchange, which specified those animal unit months would be allocated when range analysis under the National Environmental Policy Act was completed for the project area according to the grants process identified in Forest Service Handbook 2209.13.2 during allotment management plan development. The Indian Creek land exchange environmental analysis (USDA Forest Service 2009b, page 32) states, "Current stocking and season of use would not change on the federal allotments where the non-federal parcels are located. Any change would be analyzed when the allotment management plans for those allotments are updated." Permanent grant of these animal unit months may occur if monitoring under this decision shows the capacity is available on a long-term basis.

[2] After further research of grazing permits, the Big Corral #3 and Indian Creek #1 National Grassland Areas do not fit the true definition of national grassland areas and should be renamed as pastures. The Cheyenne National Grassland Area #2 is a true national grassland area. However, due to their isolated nature, management of the Big Corral and Indian Creek National Grassland Areas will not change.

[3] The White River Cooperative Grazing District rules of management define isolated tracts (another term for national grassland areas) as "a parcel of Grassland that is not practical or possible to manage as a Grassland grazing unit or a part of an existing Grassland grazing unit. The intent is to promote efficient use of intermingled land ownership within a logical grazing unit. Isolated tract permits can be issued for a variable number of livestock and a variable season of use. The permitted livestock use must not exceed the carrying capacity of the Grassland." National grassland areas are the direct permit equivalent of isolated tracts.

[4] The Nevis Draw allotment consists of two Forest Service pastures rotated in conjunction with a private allotment.

Alternative 3 – Proposed Action

We will address the purpose and need by implementing a series of adaptive management actions. The adaptive measures are meant to change the distribution of livestock to change conditions toward forest plan objectives for riparian areas, and vegetative structure and composition. For a more detailed description of adaptive measures by allotment, see the descriptions beginning on page 20. These options

are displayed and evaluated within the project-level analysis required by the National Environmental Policy Act (figure 5). The flowcharts (beginning on page 20) are the preferred order of implementation, depending on resource conditions, budgets, staffing levels, and other agency constraints.

In defining options, the interdisciplinary team has defined the "if this, then that" scenarios. In other words, if some aspect of the planned management is shown by monitoring to be ineffective or it cannot be implemented as planned, we would determine the available options from the analysis required by the National Environmental Policy Act. The responsible official would then select one or more options to implement. To the extent that these options have been evaluated through the National Environmental Policy Act process and decision, they may be implemented without further analysis.

Table 4. Adaptive management actions on the six allotments

Activity	Cheyenne	Cheyenne South	Hart Table	Indian Creek	Big Corral	Nevis Draw	Total
Number of dams to maintain	1	0	1	12	13	4	31
Number of water tanks and solar pumps	2	2 *	1	3	1	0	9
Miles of pipeline	0	1.2	0.7	0.8	0	0	2.7
Miles of new fence	2.2	0.5	0	0	2.5	0.5	5.7
Miles of fence removal	0	0	0	0	1.1	0.8	1.9
Miles of fence repair	0	0	0.2	0	10.2	5.7	16.1
Acres of prescribed burning	925	308	0	5,690	1,259	527	8,709

*Utilize same solar pump for Cheyenne Allotment.

These actions are planned to encourage livestock use in areas currently lacking sufficient disturbance and to reduce use in areas of higher disturbance. In situations where more disturbance is required, livestock use may be increased up to 20 percent above permitted use. Any increase above permitted numbers would be on a year-to-year basis and only to mitigate a resource concern approved by the District Ranger, such as excessive production and concerns over fuel loading or litter accumulation due to high precipitation, needed increase in low structure vegetation for wildlife concerns, or needed higher numbers to deal with a vegetation concern (that is, sweetclover). Annual fluctuations in timing and amounts of precipitation and/or changes in vegetative condition (such as by fire, flood, or hail) may result in an annual change of authorized numbers, season of use, or both.

To aid in making management decisions during drought, the Forest Service would continue to use the University of Nebraska-Lincoln Drought Management Handbook (on file in the project record), adapted to use local precipitation data, unless more current, more reliable methods become available. These tools are used to help adjust stocking rates during drought conditions in order to reduce livestock impacts to vegetation.

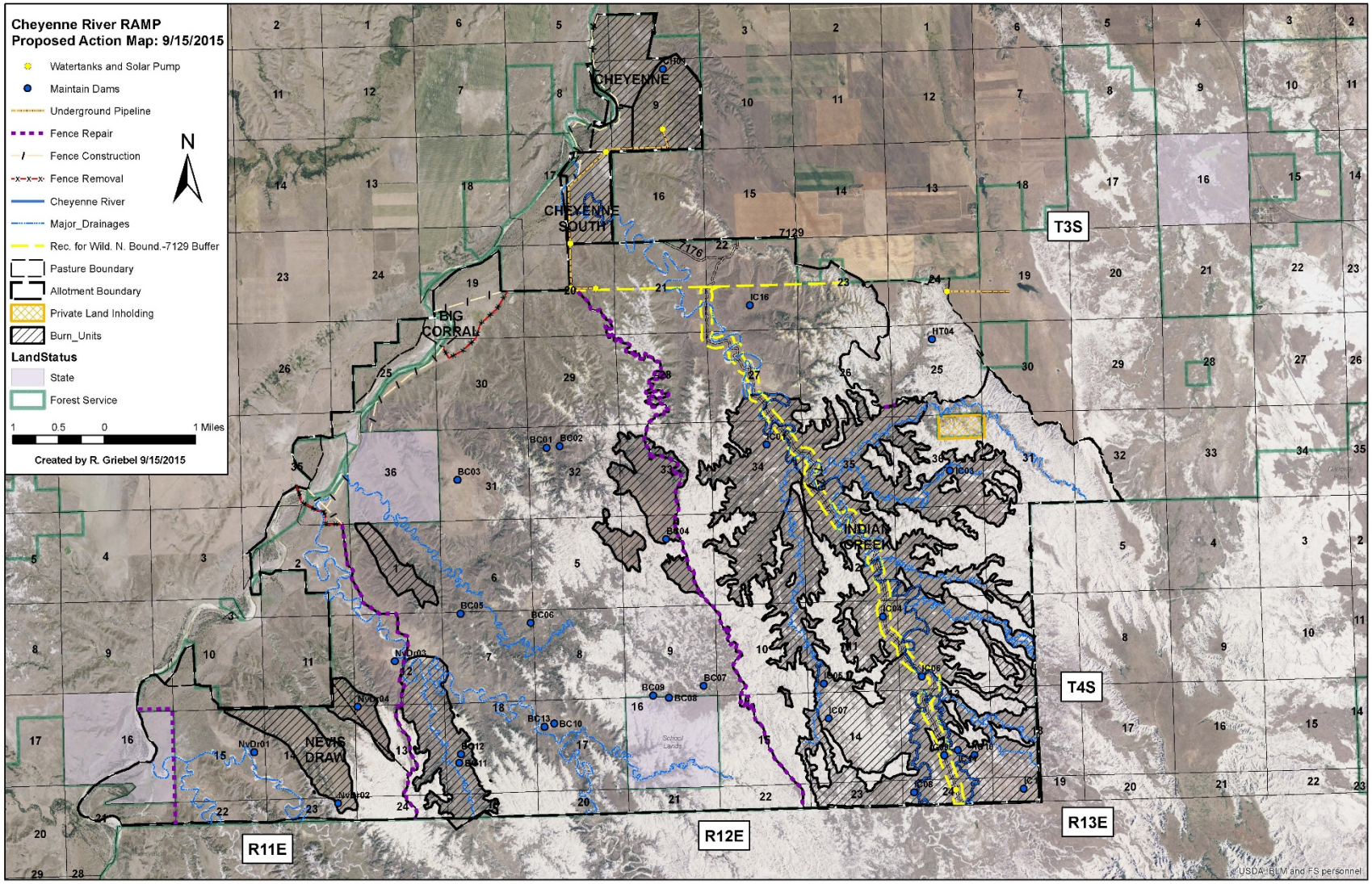

Figure 5. Map of adaptive management actions for all allotments

Adaptive Management Actions

The tools available to modify current management and adjust livestock distribution are listed in table 5. Not all available tools would be used in all allotments. All actions would be consistent with Forest Plan standards and guidelines for the management area in which they would be located. Although the actions described for each allotment appear to be in an order of occurrence, we would maintain the discretion to use any of the tools at any time due to constraints such as budget, personnel, and weather. They may also be used individually or in combination.

Adaptive management actions are defined in table 5. The individual flow charts (figure 6, figure 8, figure 10, figure 12, and figure 14) for each allotment will be used to change the conditions in the project area so they progress towards meeting Forest Plan objectives. The trigger points for moving from one adaptive management to the next in each allotment are outlined in the monitoring plan; for example, the continued utilization greater than 40 percent of riparian species, such as prairie cordgrass, and greater than 60 percent of upland species, such as western wheatgrass on key areas near riparian areas after 1 to 3 years of utilization monitoring. Tools listed in the flow charts for each allotment may continue to be utilized as additional tools are added. For instance, if salt and mineral placement are to be followed by prescribed burning, salt and mineral placement may continue once prescribed burning is implemented.

Table 5. Adaptive management tools available to modify grazing management

Action	Description
Salt and mineral placement	Use placement of salt and mineral to attract livestock to areas lacking disturbance. Specific locations will be determined annually and identified in annual operating instructions.
Herding	Slowly moving livestock away from areas of disturbance to or towards areas of little to no disturbance. Specific timing and techniques would be identified in annual operating instructions.
Prescribed burning	Burns would be focused on grassland areas with little disturbance and excessive litter buildup. The prescribed burn areas would be available as forage for livestock during the same season.
Change in authorized grazing	May involve numbers, timing, kind and/or class of livestock, authorized area of use, or a combination of any of those.
	Numbers – Change in annual authorized livestock numbers in order to meet resource objectives.
	Kind/class of livestock – May include cow/calf, bison, yearling, or any combination identified in the grazing permit.
	Area of use – Temporarily moving authorized livestock from one area to another, both within and between allotments, to address resource concerns.
	Change in rotation – May include change in timing of use of a pasture or allotment and/or movement of permitted livestock to another allotment in order to meet resource objectives.
Water development	Installation, maintenance, or decommissioning of wells, pipelines, stock tanks, etc.
Fence installation	To implement pasture rotations, protect areas of concern. Locations that may be considered are shown on the maps (figure 7, figure 9, figure 11, figure 13, and figure 15). Fencing along sections of the Cheyenne River would be consistent with existing Forest Plan direction and might be necessary if other adaptive management tools do not successfully reduce impacts along the river.
Mob grazing	Change in numbers of animals for a short period of time to increase disturbance in an area.

Key areas have been selected for each allotment. These areas contain good indicators of overall rangeland condition and would be monitored with landscape appearance ocular estimation or another appropriate, approved method. Similarity index (table 6) or another appropriate and approved method would be read approximately every five years on select key areas to determine change in species composition and seral state. Key areas are currently identified but might change over time if the interdisciplinary team determines they are no longer representative or providing necessary data to implement continued adaptive management strategies.

Table 6. Crosswalk from ecological condition expressed as seral stage identified in forest plan to similarity index methodology

Similarity Index	Successional Status
0-25%	Early seral
26-50%	Early intermediate
51-76%	Late intermediate
77-100%	Late seral

For some actions, such as herding and salt and mineral placement, specific direction and locations would be determined in the individual allotment management plans or annual operating instructions.

Only structural improvements (wells, tanks, fences, etc.) identified through this process would be constructed under this analysis. When, and if, those improvements are developed would depend on resource conditions and where the improvements might be identified in the adaptive management process.

There are existing and potential future structural improvements and management practices on private and state lands in the project area. While those improvements and practices are not analyzed in this project, the impact they have on resource conditions in the project area would be monitored.

Monitoring

Monitoring is a crucial part of the adaptive management process. The monitoring plan is described in Appendix B (page 102). Whether an adaptive management action would be applied would be based on monitoring livestock distribution and resource conditions on the allotments. If monitoring indicates plant communities are not meeting resource objectives, changes in management may be warranted.

Short-term monitoring would consist of methods such as annual landscape use mapping, livestock counts, riparian stubble height, visual obstruction readings, and photo points. This monitoring would occur at locations of adaptive management actions, such as burn sites, salt grounds, water developments, and at existing similarity index transect locations. Long-term monitoring would consist of methods such as one to two similarity index transects read or re-read every five to ten years in key areas. The following is a list of visual obstruction readings and the corresponding vegetation structure class:

- A visual obstruction reading less than 2 inches corresponds to a structure class of low.
- A visual obstruction reading of 2 inches to 3.9 inches corresponds to a structure class of moderate.
- A visual obstruction reading of 4 inches or more corresponds to a structure class of high.

Allotments Where No Change in Current Management Would Occur

No change in current management would occur in the following allotments because there is limited monitoring data to support changes in management and because the National Forest System lands are a minor part of these allotments, which consist primarily of integrated private lands.

- Cheyenne National Grassland Area #2, 125 acres
- Big Corral National Grassland Area #3, 160 acres
- Indian Creek National Grassland Area #1, 136 acres

Cheyenne Allotment Proposed Action Implementation

The Cheyenne Allotment is not meeting some Forest Plan desired conditions, in part due to poor livestock distribution. Livestock use is currently concentrated on the prairie dog colonies and along the Cheyenne River. This is leading to lower structure vegetation and earlier seral stages in those areas and higher structure and later seral stages in the less utilized uplands. Monitoring to determine effectiveness of management actions may include use pattern mapping, livestock counts, and photo points.

Figure 6 represents planned adaptive management actions, based on current resource conditions. Figure 7 shows the locations of these actions. Specific areas to be treated would depend on yearly conditions but would be within those areas identified in this document. If conditions and monitoring results indicate change is warranted, additional actions identified in table 5 may be implemented.

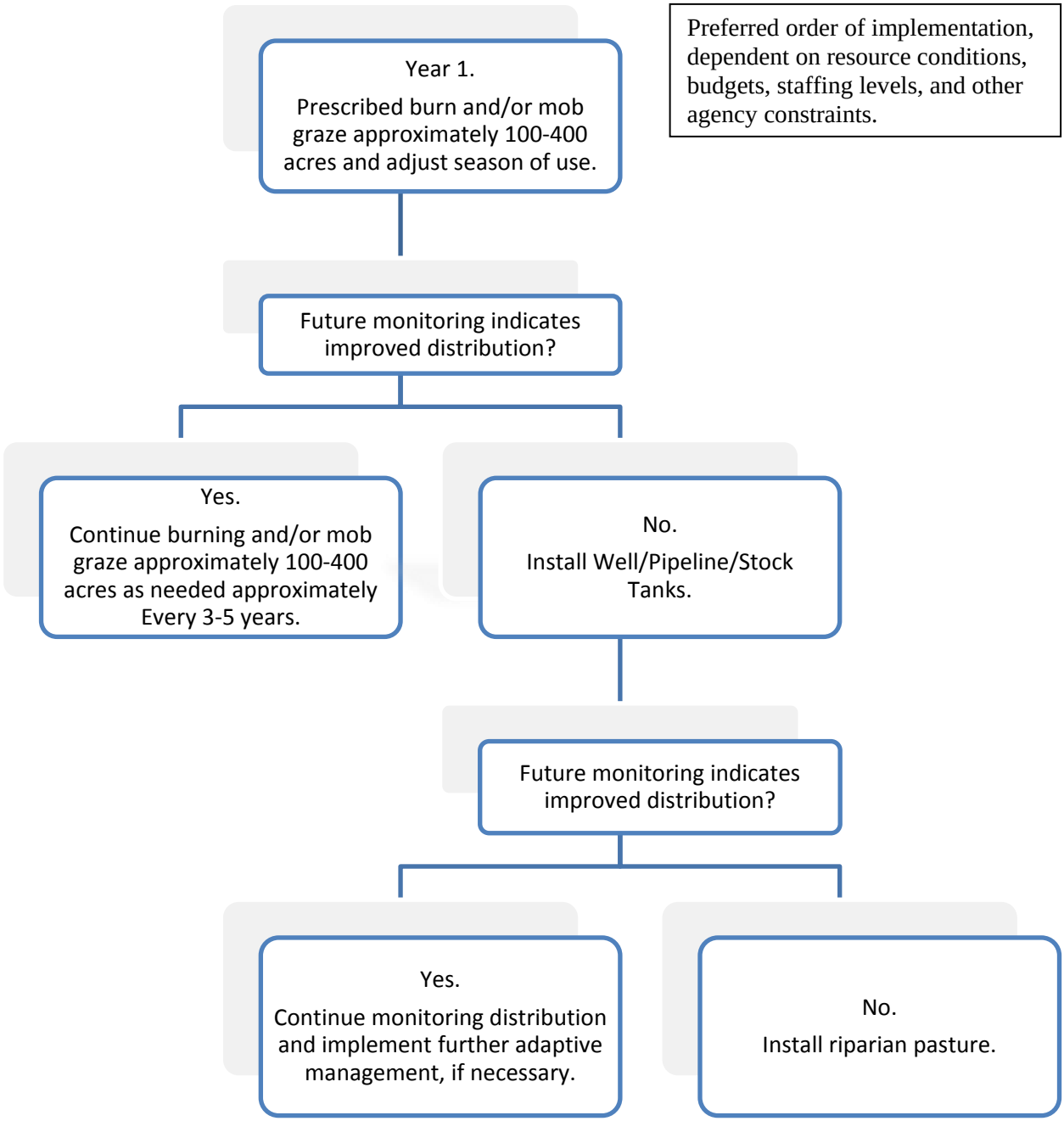

Figure 6. Adaptive management strategy for the Cheyenne Allotment.

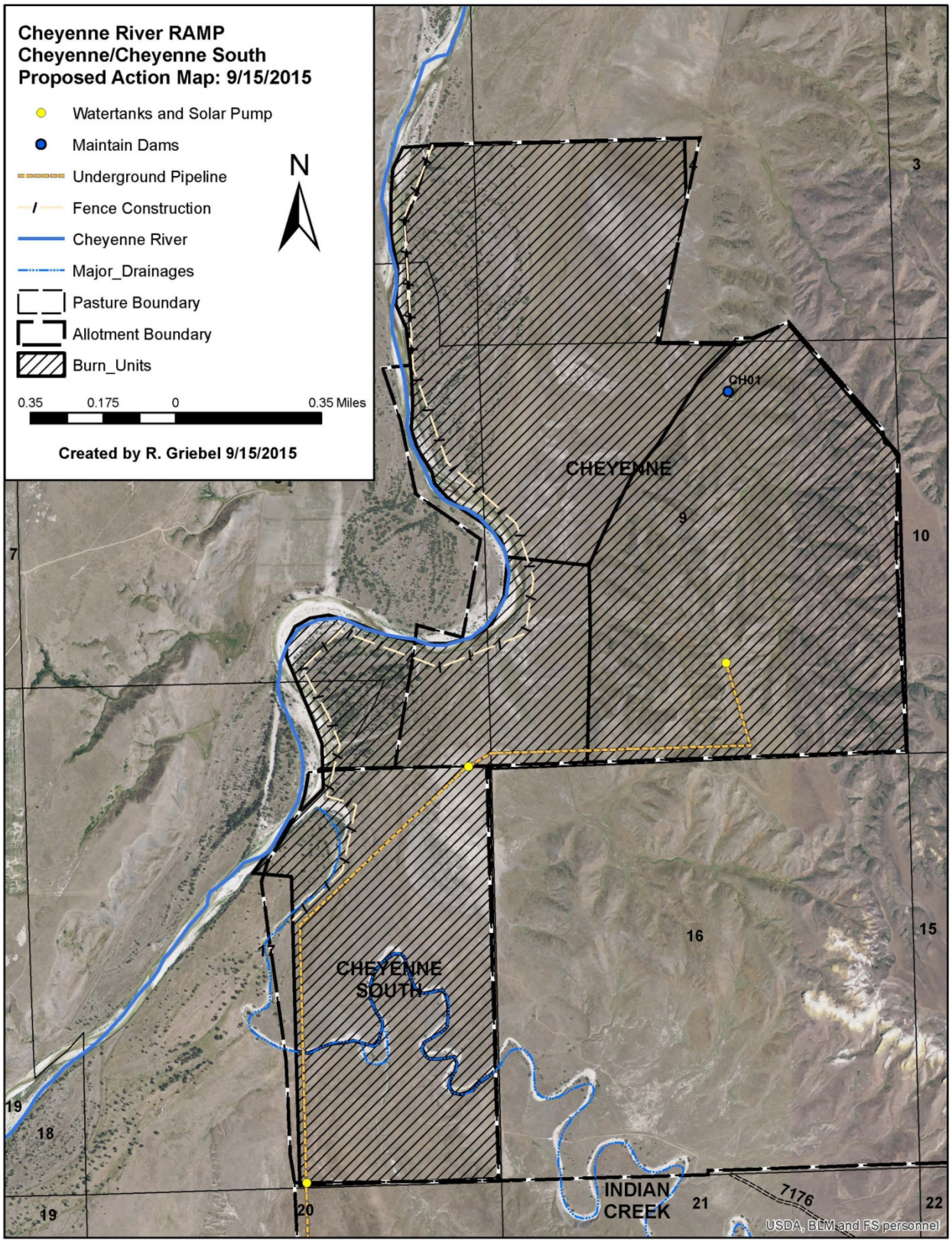

Figure 7. Locations of adaptive management actions for the Cheyenne and Cheyenne South Allotments

Cheyenne South Allotment Proposed Action Implementation

The Cheyenne South Allotment is not meeting some Forest Plan desired conditions, in part due to poor livestock distribution. Livestock use is currently concentrated on the prairie dog colonies and along Indian Creek. This is leading to lower structure vegetation and earlier seral stages in those areas and higher structure and later seral stages in the less utilized uplands. Monitoring to determine effectiveness of management actions may include use pattern mapping, livestock counts, and photo points.

Figure 8 represents planned adaptive management actions, based on current resource conditions. Figure 7 shows the locations of these actions. If conditions and monitoring results indicate change is warranted, additional actions identified in table 5 may be implemented.

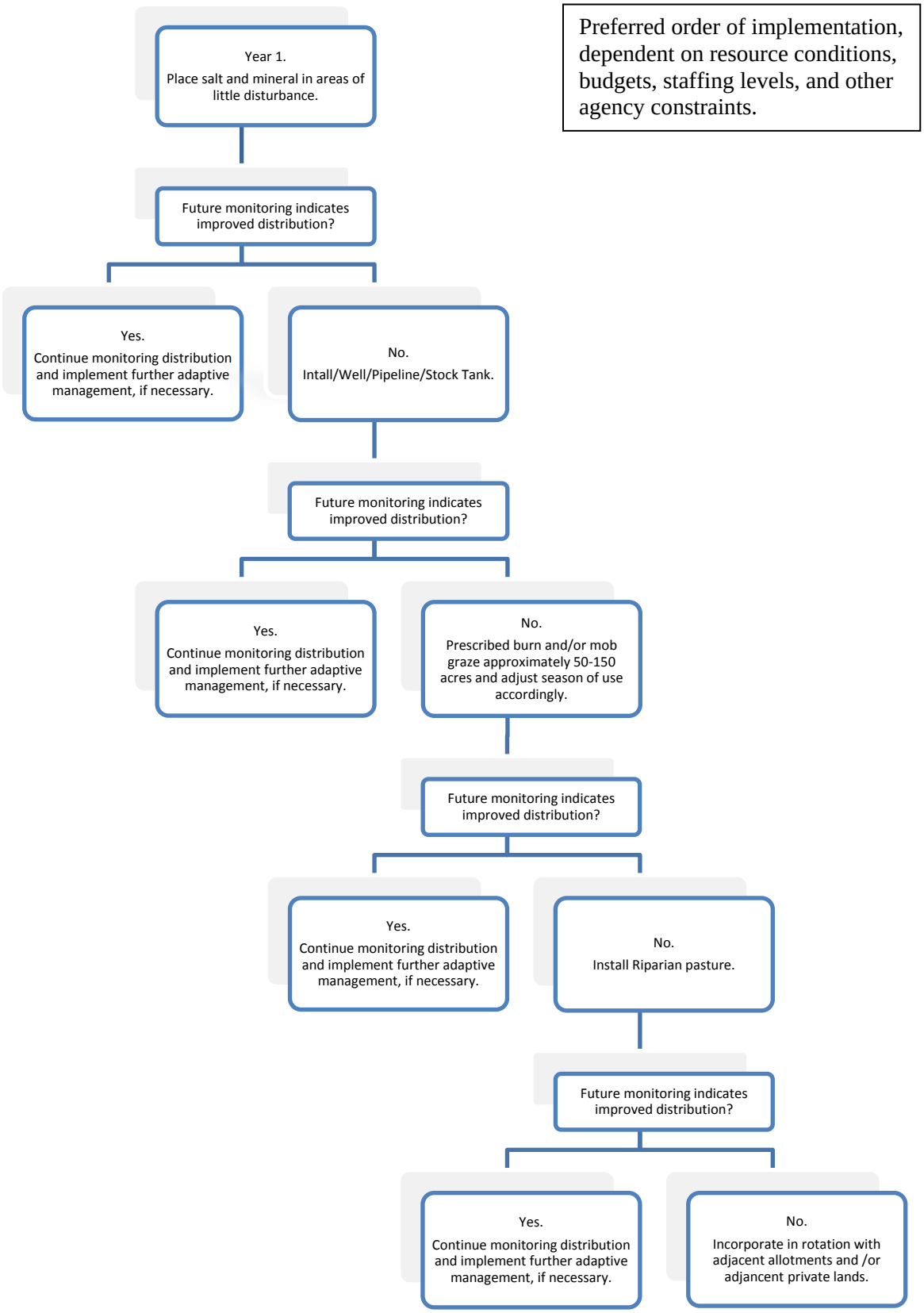

Figure 8. Adaptive management strategy for the Cheyenne South Allotment

Hart Table Allotment Proposed Action Implementation

Currently, the only water source in the Hart Table Spring Pasture is one stock dam that is not always reliable. We propose to install one stock tank and approximately one mile of pipeline in the adjacent pasture of the Hart Table Allotment (which is located in MA 6.1). These actions would also provide water to the Spring Pasture (figure 9).

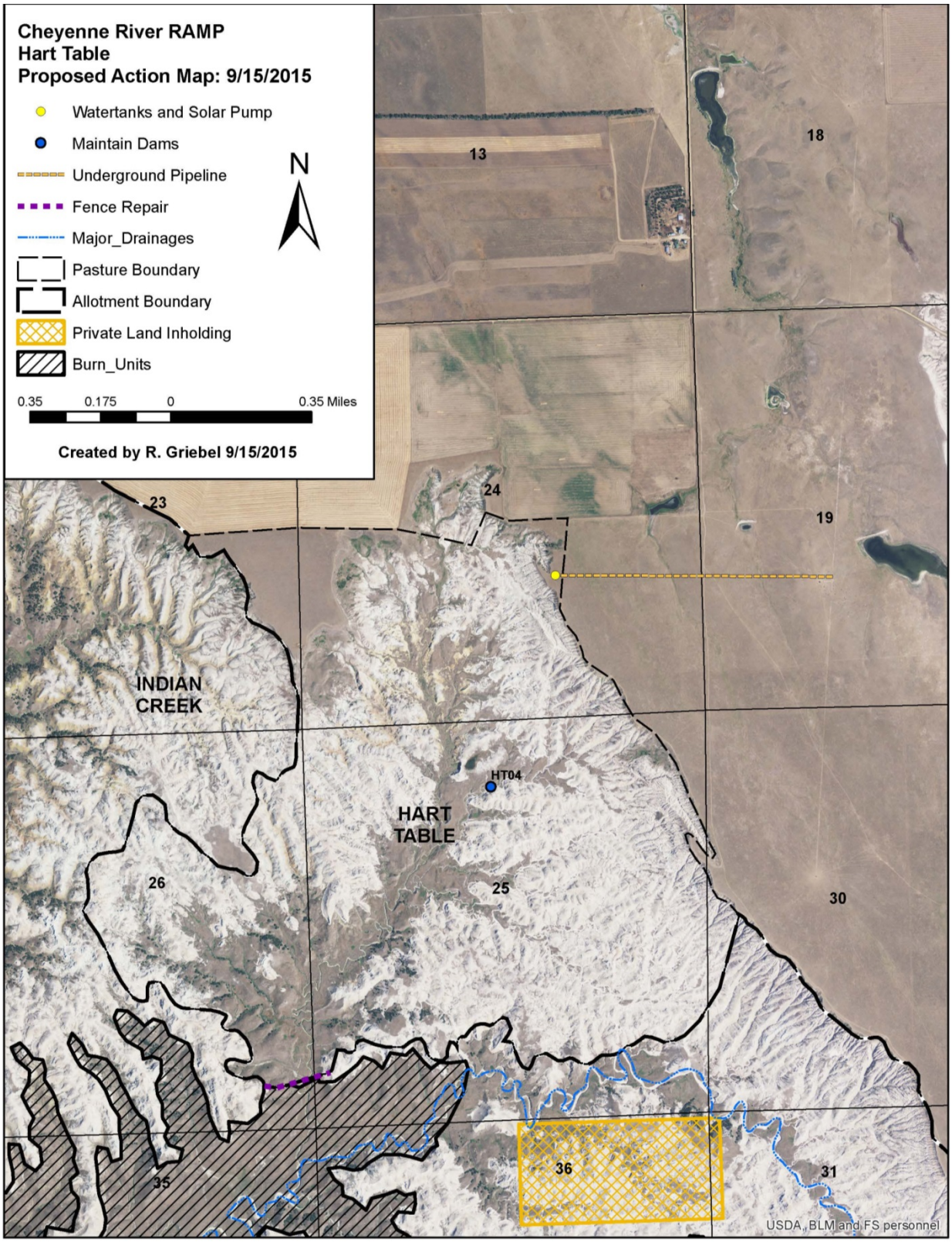

Figure 9. Locations of adaptive management actions for the Hart Table Allotment

Big Corral Allotment Proposed Action Implementation

The Big Corral Allotment is not meeting some Forest Plan desired conditions, in part due to poor livestock distribution. Livestock use is currently concentrated on the prairie dog colonies and along the Cheyenne River. This is leading to lower structure vegetation and earlier seral stages in those areas and higher structure and later seral stages in the less utilized uplands. Monitoring to determine effectiveness of management actions may include use pattern mapping, livestock counts, and photo points.

Figure 10 represents planned adaptive management actions, based on current resource conditions. Figure 11 shows the locations of these actions. If conditions and monitoring results indicate change is warranted, additional actions identified in table 5 may be implemented.

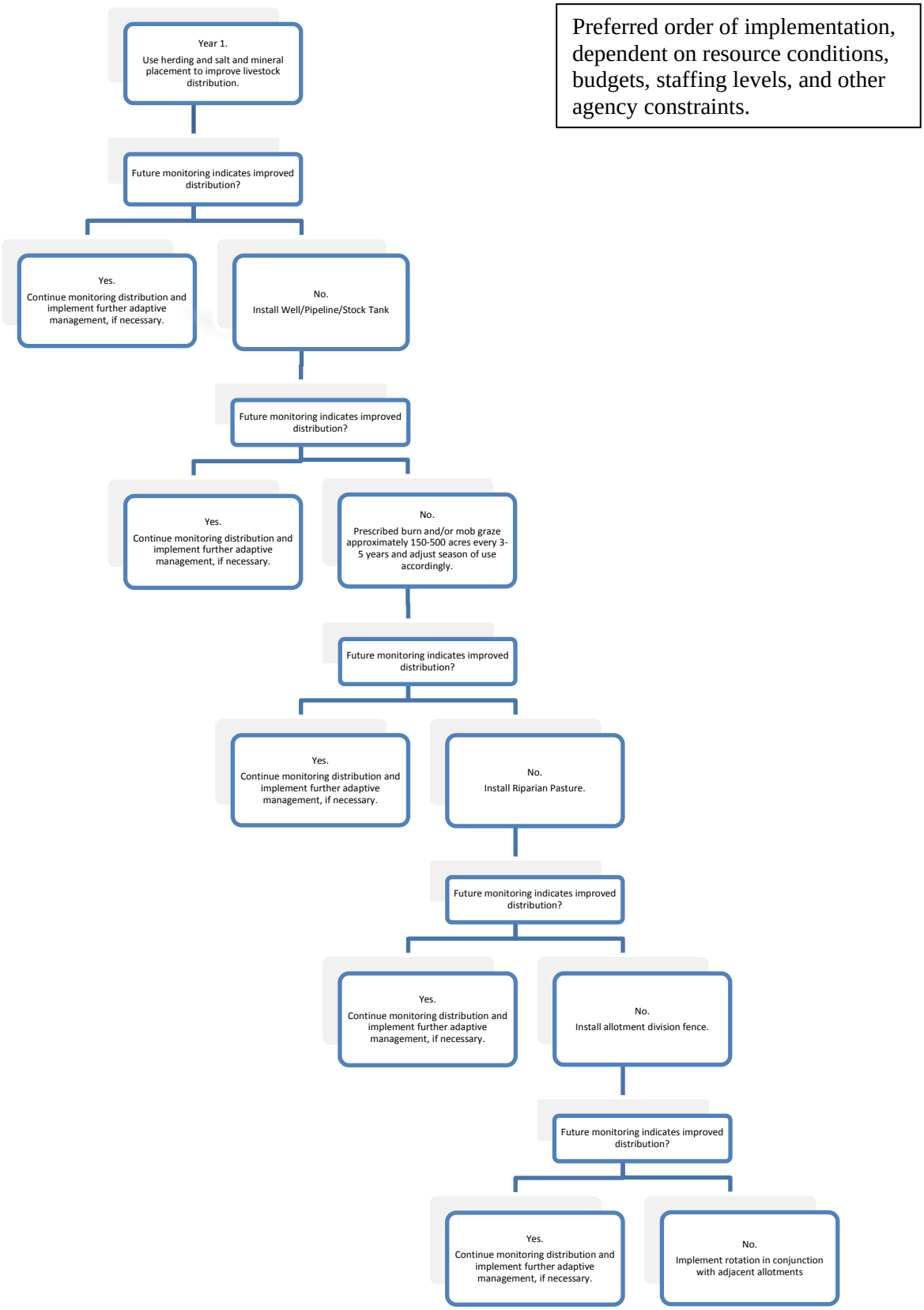

Figure 10. Adaptive management strategy for the Big Corral Allotment

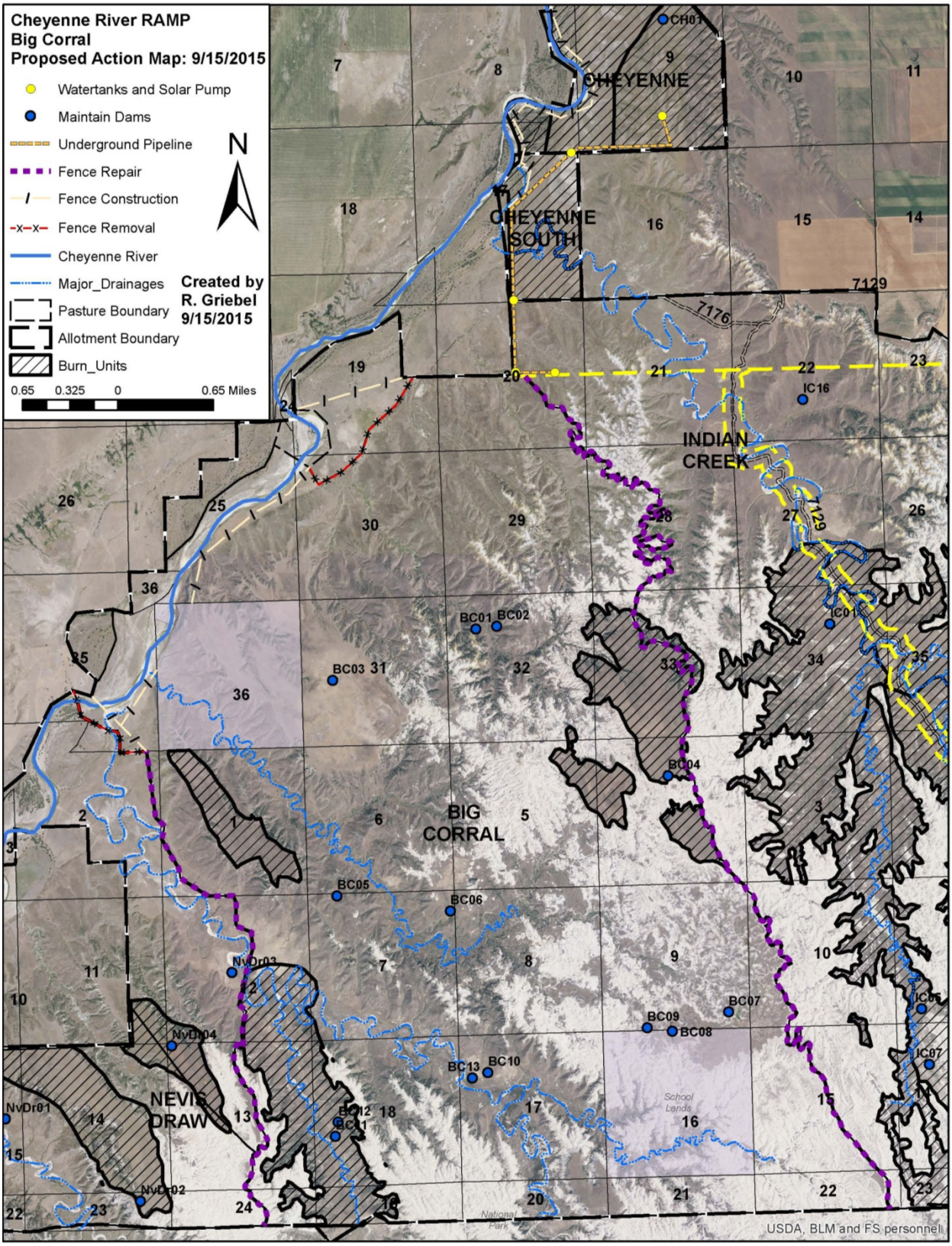

Figure 11. Locations of adaptive management actions for the Big Corral Allotment

Indian Creek Allotment Proposed Action Implementation

The Indian Creek Allotment is not meeting some Forest Plan desired conditions, in part due to poor livestock distribution. Livestock use is currently concentrated along Indian Creek. This is leading to lower structure vegetation and earlier seral stages in those areas and higher structure and later seral stages in the less utilized uplands. Monitoring to determine effectiveness of management actions may include use pattern mapping, livestock counts, and photo points.

Figure 12 represents planned adaptive management actions based on current resource conditions. Figure 13 shows the locations of these actions. If conditions and monitoring results indicate change is warranted, additional actions identified in table 5 may be implemented.

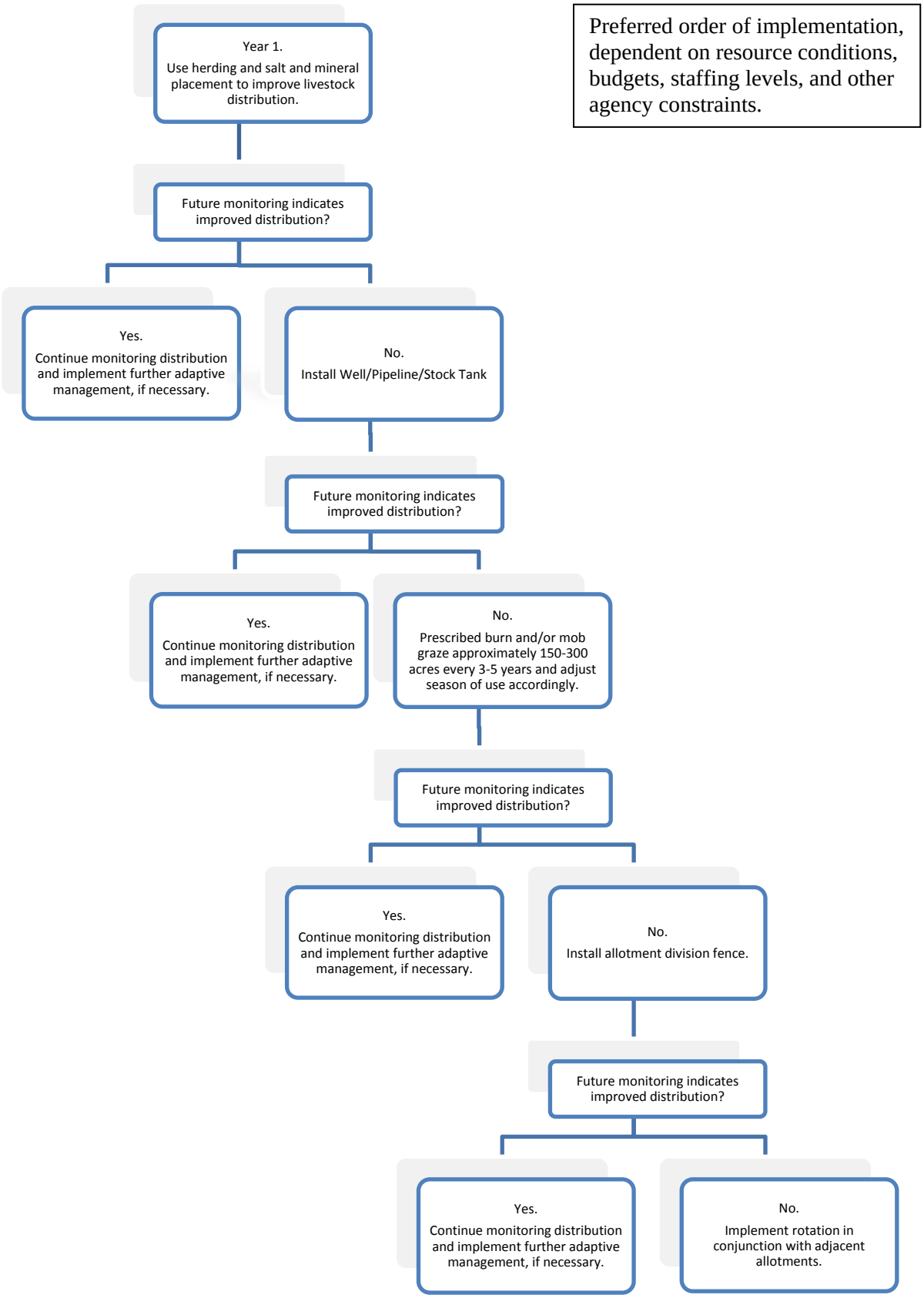

Figure 12. Adaptive management strategy for the Indian Creek Allotment

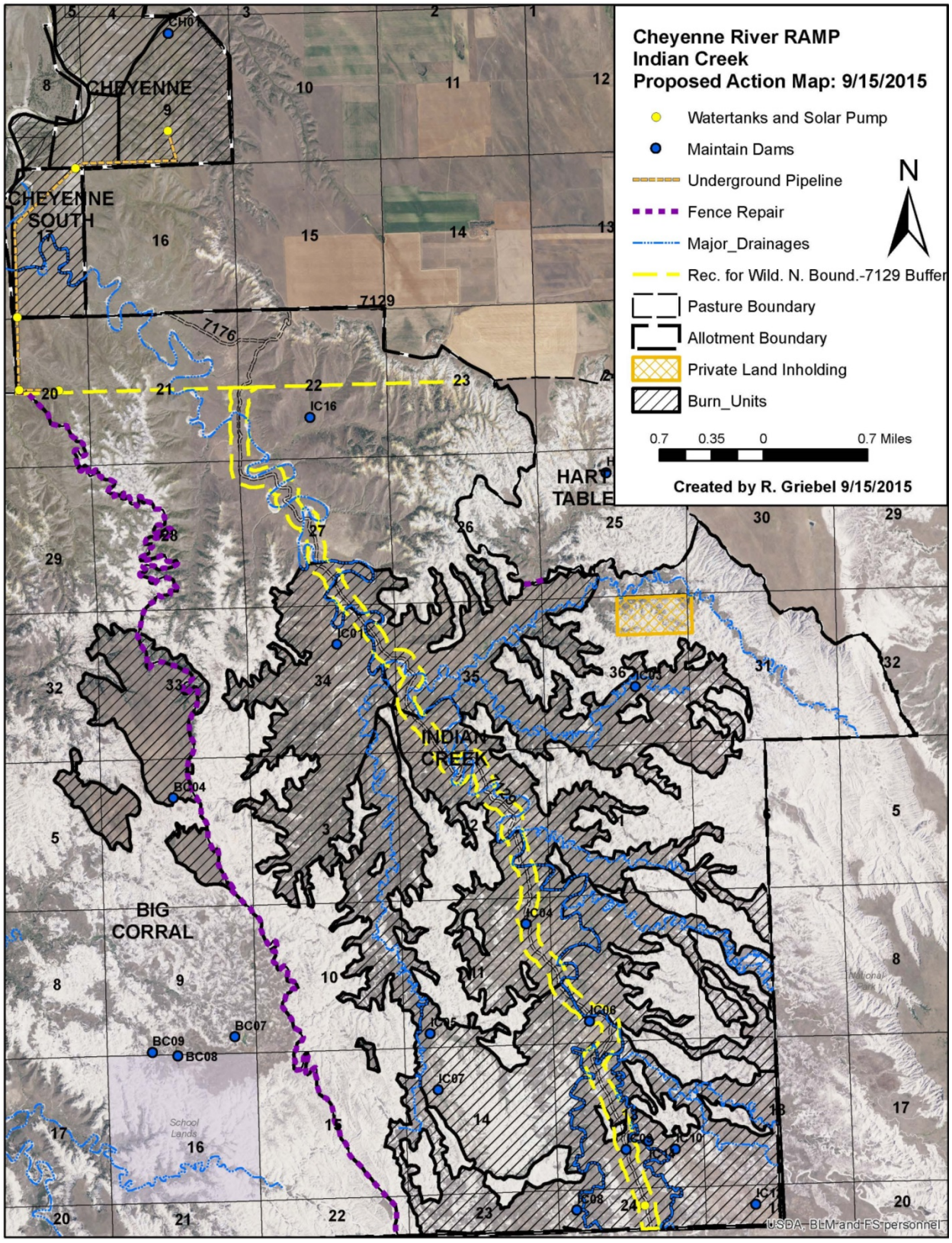

Figure 13. Locations of adaptive management actions for the Indian Creek Allotment

Nevis Draw Allotment Proposed Action Implementation

The Nevis Draw Allotment is not meeting some Forest Plan desired conditions, in part due to poor livestock distribution. Livestock use is currently concentrated on the prairie dog colonies and along Nevis Draw and Big Corral Draw. This is leading to lower structure vegetation and earlier seral stages in those areas and higher structure and later seral stages in the less utilized uplands. Monitoring to determine effectiveness of management actions may include use pattern mapping, livestock counts, and photo points.

Figure 14 represents planned adaptive management actions, based on current resource conditions. Figure 15 shows the locations of these actions. If conditions and monitoring results indicate change is warranted, additional actions identified in table 5 may be implemented.

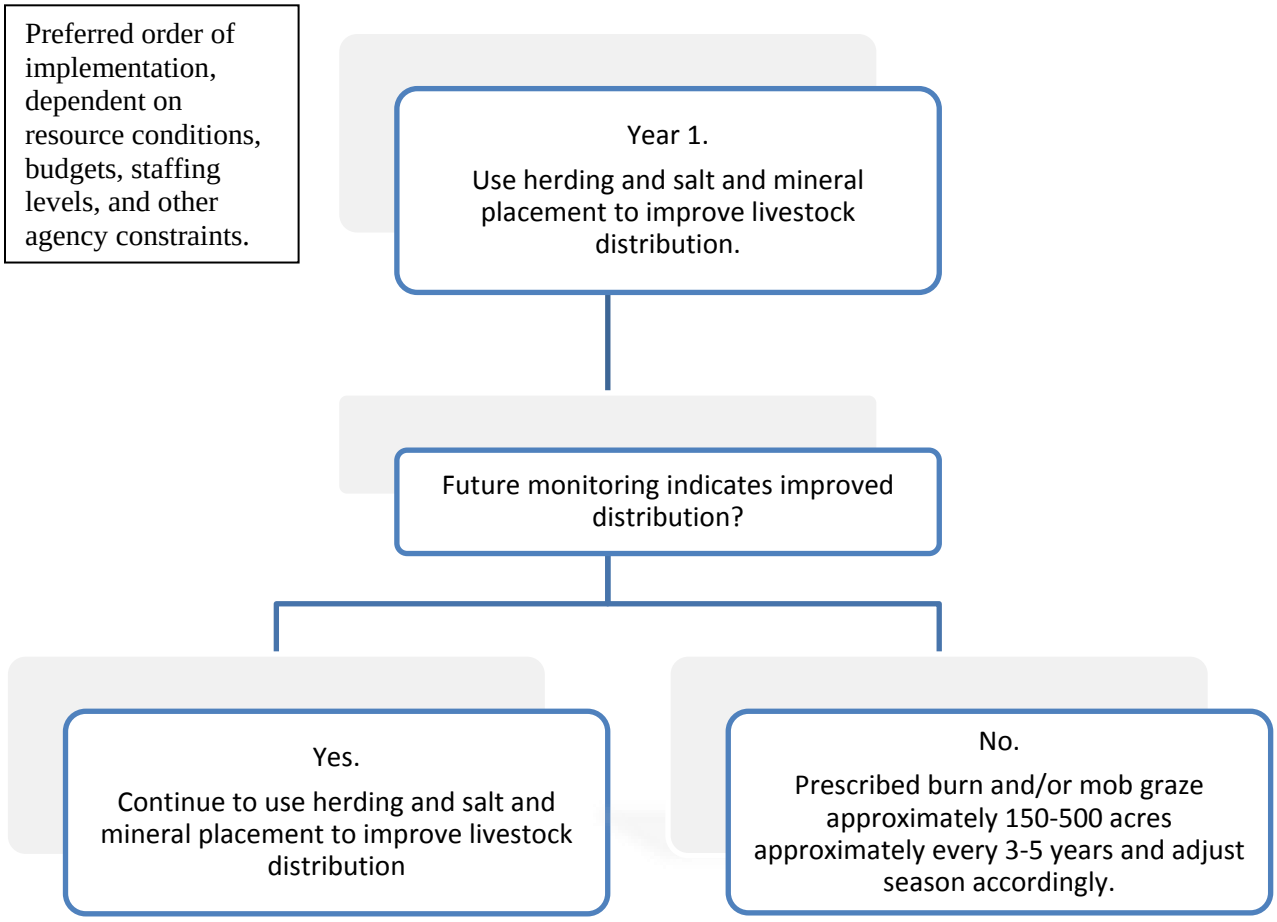

Figure 14. Adaptive management strategy for the Nevis Draw Allotment

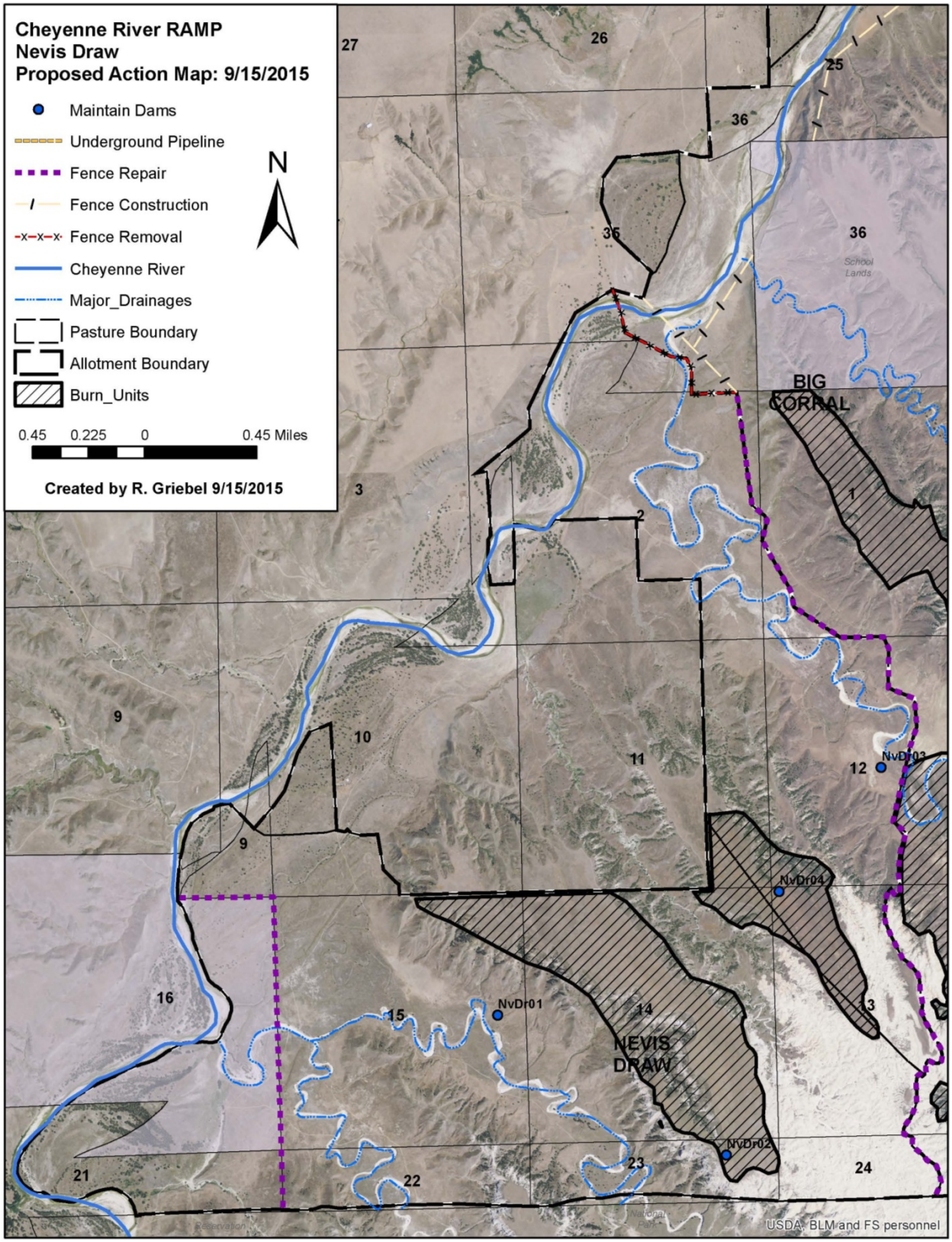

Figure 15. Locations of adaptive management actions for the Nevis Draw Allotment

Forest Plan Design Direction

Standards and guidelines for the design of components of the alternatives are described in Forest Plan management area direction. Management area direction for "Recommended for Wilderness" areas is described in the Forest Plan beginning on page 3-6 and for "Rangeland with Broad Resource Emphasis" areas beginning on page 3-32.

General Design Features Common to All Action Alternatives

All activities will be consistent with the Forest Plan and Forest Service range management directives (Forest Service Handbook 2209.13). Additionally, the following design features will apply to the proposed action and all action alternatives except no grazing. Resource-specific design features for all action alternatives are described in Appendix C (page 109).

- Herding plans will be discussed with individual permittees and clarified in individual allotment management plans, in annual operating instructions, or both. Where herding is not practical or successful, other adaptive management tools and techniques will be used.
- Before any fencing of the river is constructed, alternative water sources would be developed.
- Fencing would be consistent with Forest Plan direction which currently requires natural materials to be used in Management Area 1.2.
- Grazing shortly after prescribed fire would be allowed where appropriate in addressing the need for action.
- The Forest Service will coordinate with private landowners and the South Dakota School and Public Land Commissioner to ensure continued public access resulting from fence repair and construction.
- All existing improvements in these allotments can be repaired to maintain their effectiveness consistent with Forest Plan direction.
- Prescribed burning identified in this analysis will avoid woody draws.
- Grazing schedules generally remain the same. However, there is flexibility in the annual operating instructions, and adaptive management will be used to redistribute livestock to improve conditions.
- Resource conditions will be assessed on an annual basis. Expense estimates for range improvements and assignment of the party responsible for constructing those improvements will be discussed in each review of annual operating instructions with permittees.
- Control of invasive plants will continue in accordance with existing Forest Plan direction, laws, and regulations.
- Road maintenance activities on the allotments will continue according to Forest Service transportation directives (Forest Service Handbook 7709.58).
- Prescribed fire will be kept at least 50 feet from State or private land (see comment 11.05, page 89).

Comparative Summary of Alternatives Analyzed in Detail

This section provides a summary of the impacts of implementing each alternative. Information in the following table is focused on activities and impacts where different levels of impacts or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 7. Summary of project alternatives in terms of activities

Activity	Alternative 1 (No Grazing)	Alternative 2 (Current Management)	Alternative 3 (Proposed Action)
Number of dams to maintain	0	31	31
Number of water tanks and solar pumps	0	0	9
Miles of pipeline	0	0	2.7
Miles of new fence	0	0	5.7
Miles of fence removal	0	0	1.9
Miles of fence repair	0	16.1	16.1
Acres of prescribed burning	0	0	8,709

Environmental Impacts of the Proposed Action and Alternatives

This section summarizes the potential impacts of the proposed action and alternatives for each impacted resource.

How We Considered Potential Cumulative Impacts

We considered whether the potential impacts of the alternatives would overlap and accumulate with the impacts of past, other present, and reasonably foreseeable future actions in both time and geographic space (Forest Service Handbook 1909.15, Sec. 15.2). If the proposed action or alternatives being analyzed in this environmental assessment would result in no direct or indirect impacts, there would be no cumulative impacts. If the direct and indirect impacts of the action would occur in a different context than the impacts of past, present, and reasonably foreseeable future actions, there would also be no potential for impacts to overlap and accumulate in time and geographic space.

Consideration of Past Actions

The analysis of cumulative impacts begins with consideration of the direct and indirect impacts on the environment that are expected or likely to result from the proposed action and alternatives. Once the direct and indirect impacts are determined, we look for existing (residual indirect) impacts of past actions.

Only those residual impacts from past actions that are of the same type, occur within the same geographic area, and have a cause-and-effect relationship with the direct and indirect impacts of the proposed action and the alternatives are considered relevant and useful for the cumulative impacts analysis.

To understand the contribution of past actions to the cumulative impacts of the alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative impacts.

The cumulative impacts analysis does not attempt to quantify the impacts of past human actions by adding up all individual residual impacts of prior actions on an action-by-action basis. There are practical reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions in the past, and isolating the impacts of each individual past action that might continue to have residual impacts would be nearly impossible.

Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative impacts of the proposed action and alternatives. In fact, focusing on individual impacts of past actions would be less accurate than looking at existing conditions. This is because there is limited information on the environmental impacts of individual past actions and one cannot reasonably identify each and every past action that has incrementally contributed to current conditions. By looking at current conditions, we are sure to capture all the residual impacts of past human actions and natural events, regardless of which particular action or event contributed those impacts.

This practice adheres to direction in the Council on Environmental Quality's interpretive memorandum of June 24, 2005, regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions" (Connaughton 2005). For these reasons, our analysis of past actions in this section is based on current environmental conditions.

Consideration of Reasonably Foreseeable Future Actions

Cumulative impacts can only occur when the likely impacts resulting from the proposed action or alternatives overlap spatially and temporally with the likely impacts of reasonably foreseeable future actions (Forest Service Handbook 1909.15, Sec. 15.2).

The Code of Federal Regulations at 36 CFR Part 220 (project record) provides direction for identifying reasonably foreseeable future actions that should be considered in the analysis of cumulative impacts. Reasonably foreseeable future actions are those federal or non-federal activities not yet undertaken, for which there are existing decisions, funding, or identified proposals" (36 CFR §220.3).

"Identified proposals for Forest Service actions are those for which the Forest Service has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated (40 CFR §1508.23)" (36 CFR §220.4(a)(1)).

Other Present and Reasonably Foreseeable Future Actions Considered in Cumulative Impacts Analyses

The interdisciplinary team determined there are no existing decisions, funding, or identified proposals (36 CFR §220.3) whose existing or potential impacts would accumulate with the direct and indirect impacts of the proposed action or alternatives to result in cumulative impacts. Information considered in making this determination included the team's knowledge of whether there are other management actions in the vicinity of the project area and a review of the schedule of proposed actions for the Nebraska National Forests and Grasslands.[3]

The team determined that other human-initiated events or activities could occur in the future that might result in impacts that overlap and accumulate with the impacts of the proposed action and alternatives for managing grazing on these six allotments. The relevance and usefulness of other ongoing or reasonably foreseeable future activities or events that might result in impacts that would accumulate with the specific direct and indirect impacts to specific resources depends on the context in which those direct and indirect impacts are considered. Those actions and events are discussed in the relevant resource sections, below.

However, specific times or locations of these events are unpredictable and the times and locations of these events determine whether their impacts would accumulate with the impacts of the actions being analyzed.

[3] http://www.fs.fed.us/sopa/components/reports/sopa-110207-2015-10.pdf, accessed on November 4, 2015.

Therefore, the accumulation of the impacts of these events with the direct and indirect impacts of the project could only be discussed in general terms.

Range Resources

This section incorporates by reference the "Range/Vegetation/Invasives Report" on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the range management specialist relied on to reach the conclusions shown here.

Impacts of Alternative 1 on Range Resources

If livestock grazing is removed from the project area, it is anticipated that initially, areas in an early and early intermediate seral community would move to a later seral community. As vegetation became decadent and was reduced in vigor and regeneration, due to lack of disturbance, the majority of the project area would move into an earlier seral community.

If livestock grazing were to be removed from the project area, the majority of the area would move towards moderate and high structure. Noxious weed spread by permitted livestock would no longer occur. However, there would still be seed spread due to wildlife, wind, and other factors. Disturbance from range improvement maintenance might decrease, resulting in reduced invasive species establishment. Existing and new infestations would still be treated. Overall, noxious weed infestations would remain near current levels.

Impacts of Alternative 2 on Range Resources

If current management continues, it is anticipated that seral states in the project area would remain as displayed in figure 16. Current livestock disturbance would continue but would likely maintain the same seral states in most of the same areas. The exception would be in those areas currently in late intermediate and late seral communities, away from the riparian areas, where they might eventually move to earlier seral states due to decadence, poor plant vigor, and lack of regeneration.

Currently, the project area is close to meeting Forest Plan objectives for vegetative structure. However, high structure vegetation is currently found primarily in the uplands, with low structure along the riparian areas and prairie dog towns. If current management continues, these impacts would be expected to continue and the project area would continue to not meet, and may move further away from, the desired condition. All current methods of noxious weed seed spread would remain. Existing and new noxious weed infestations would still be treated. Overall, noxious weed infestations would remain near current levels.

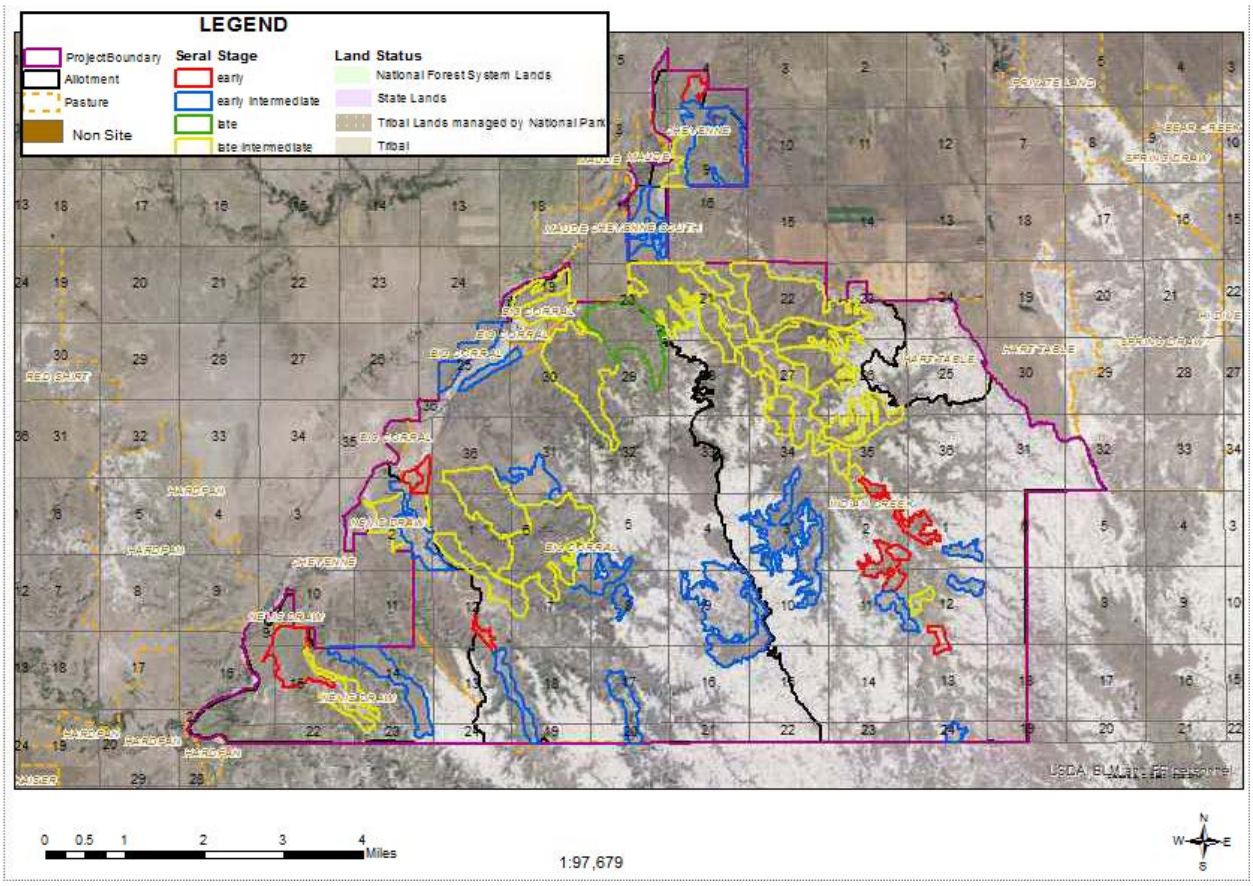

Figure 16. Existing seral stages in the project area

Impacts of Alternative 3 on Range Resources

The proposed adaptive management actions would be used to change livestock distribution and re-introduce fire to the landscape. Implementation of adaptive management actions would shift plant communities and associated seral stages based on level of livestock use or disturbance. This would help to create a shifting mosaic of seral stages as outlined in the Forest Plan.

Currently, areas receiving heavier use by livestock are typically in an early or early intermediate seral stage. Conversely, areas that are receiving little to no livestock use are in an early intermediate or late intermediate seral stage. It is anticipated areas (such as along Cheyenne River and Indian Creek) receiving heavier use by livestock would shift from an early or early intermediate seral stage to a late intermediate to late seral stage over time, with better livestock distribution and less use in these areas. In the uplands and areas currently receiving little to no livestock use, the vegetation is becoming decadent and lacks vigor or regeneration. It is anticipated the increase in use would help stimulate the vegetation and increase its vigor. This additional disturbance could also alter the species composition of these sites and move them towards a later seral stage.

Currently, the project area is close to meeting Forest Plan objectives for vegetative structure. However, high structure vegetation is found primarily in the uplands, with low structure along the riparian areas and in prairie dog towns. Under adaptive management, more diversity among the structural classes across the project area would be expected. Primarily, there should be an increase in moderate and high structure in the riparian areas and an increase in lower structure in portions of the uplands that see more livestock use.

All current methods of noxious weed seed spread would remain. Some adaptive management actions, such as improvement construction and prescribed burning, might increase the potential for new infestations. All existing and new infestations would continue to be treated. Overall, invasive species infestations would remain near current levels but may have small increases in new areas of disturbance, such as proposed water tanks.

The following is a list of anticipated outcomes of the individual adaptive management actions:

- The use of salt and mineral to influence livestock distribution has been shown as an effective tool for livestock management (George et. al. 2008). Herding livestock towards areas of salt and mineral placement might help to improve livestock distribution and control or manage the time they spend on riparian areas or other areas of concern. Herding on a somewhat daily basis has been successful in limiting the number of livestock that visit stream bottoms and improving utilization of upland areas. (Kauffman and Krueger 1984, p. 435).
- Prescribed burning is an important tool for maintaining the desirable attributes of grasslands. In grasslands, prescribed fire can increase grass nutritive quality, palatability, availability, and yield; reduce hazardous fuels; suppress unwanted plants; and improve wildlife habitat (Stubbendieck et al. 2007). The mixed grass prairie evolved with disturbance by both fire and grazing (Willms et al. 2002). In the absence of these disturbances, rangeland health can deteriorate. Prescribed burning could encourage new, fresh growth of grasses, attracting livestock, thereby increasing use of those areas and decreasing use of other previously heavily disturbed areas.
- Water is a useful tool to control or manipulate the time livestock spend in an area. Water is often a limiting factor in achieving desirable distribution away from riparian areas or other areas of concern. Providing water away from riparian areas has been shown to reduce impacts from livestock to riparian areas by reducing the amount of time that livestock spend in these areas (Miner et al. 1992, Godwin and Minor 1996, Wyoming DEQ 2013). The areas immediately adjacent to water tanks might receive heavier use.
- Fencing can be a useful tool in controlling livestock access to areas where grazing or other impacts from livestock are not desirable (Wyoming Department of Environmental Quality 2013). The exclusion of livestock from these areas might alter normal distribution of livestock, which, in turn, could have negative or positive impacts to other portions of the allotment. Occasionally, trailing may occur along a fence line and may cause livestock to concentrate along fences. Fencing requires a financial commitment in both the long and short term.
- Changes in grazing systems can have positive effects on vegetative condition. If monitoring indicates the plant communities are not meeting resource objectives, changes in management might be warranted. Altering the timing and intensity of livestock grazing might have beneficial impacts on the vegetation. One way to alter timing and intensity is to implement a different grazing system. This might include developing more pastures or changing from a season-long system to a deferred rotation system. This would also alter the distribution of the livestock by concentrating them in a smaller area for a shorter duration. Utilization might increase in areas that currently receive little or no use. Vegetation would only be grazed during one portion of the year and then have the opportunity for regrowth, reproduction, or both. Most rotational grazing systems are designed so the vegetation in one pasture is not grazed at the same time each year.

Cumulative Impacts to Range Resources

Recreational activities also occur in the project area. These activities can increase disturbance and bare ground, which could increase the potential for invasive species establishment. Livestock may avoid recreational users, thus altering distribution patterns. The cumulative impacts of this would be greater

with alternatives 2 and 3, where livestock grazing could add to these effects, than under alternative 1, where no livestock grazing would occur.

Private and state lands occur adjacent to, and within, the project area. The possibility exists for development of livestock water sources on these lands. If they are made available to livestock that graze on National Forest System lands in the project area, they could alter livestock distribution, which in turn could affect vegetative structure and species composition. The cumulative impacts of this would be greater with alternatives 2 and 3, where livestock grazing could add to these effects, than under alternative 1, where no livestock grazing would occur.

Fire and Fuels Resources

This section incorporates by reference the “Fire and Fuels Report” on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the fuels specialist relied on to reach the conclusions shown here.

We considered the potential impacts of the three alternatives on the size, severity, and frequency of future wildfires. The size, intensity, and severity of wildfires are dependent on conditions of fuels, weather, and topography. Any treatment such as grazing, which reduces available fuel loading in the project area, can be expected to reduce wildfire intensity and resistance to control. The frequency of lighting- and human-caused ignitions would not be affected by any of the alternatives. The use of prescribed fire as a management tools on specific portions of the planning area is also discussed.

Impacts of Alternative 1 on Fire and Fuels Resources

Alternative 1 would prohibit livestock grazing on the National Forest System lands in the analysis area which would increase fine fuel loading. The removal of permitted livestock grazing from these allotments would also result in lack of maintenance and repair of existing water developments. Water sources that are now available for wildfire suppression activities would be reduced or eliminated.

Although dependent on weather factors as well, an increase in fuel loading on the area would generally result in larger and more intense wildfires. The analysis area is remote and difficult to access. The increase in fine fuel loading could result in larger, more continuous, and all-consuming wildland fires rather than a mosaic effect. Without livestock grazing, natural fuel breaks would also be reduced due to the continuous fuel bed.

The removal of permitted livestock grazing in the analysis area might compound the problem presented by drought by accumulating additional fuel loads on top of often critical fire weather conditions. Additional suppression resources might be required to provide the level of public, natural resource, and property protection required by the Fire Management Plan for the Nebraska National Forests and Grasslands.

Impacts of Alternative 2 on Fire and Fuels Resources

Alternative 2 would continue the current level of livestock grazing on the National Forest System lands in the analysis area, which would remove a portion of the fine fuels that would otherwise be available for combustion in a wildfire. Due to the remote and difficult-to-access nature of the analysis area, fuel reduction from livestock grazing would continue to be beneficial to the suppression to wildland fires. Livestock water developments would continue to be maintained and would continue to provide secondary benefit as water sources for fire suppression activities.

The annual removal of a portion of the fine fuels through grazing would result in a reduction in wildfire intensity in those pastures where grazing would occur. Although dependent on weather factors as well, removal of a portion of the fine fuels on a site would generally result in smaller, less intense fires that would be more easily contained. Although the frequency of ignitions would remain unaffected, wildfires that did start would generally be easier to control as less fuel would be available for combustion. We would expect less resource damage and less risk to improvements and private property.

Impacts of Alternative 3 on Fire and Fuels Resources

Alternative 3 would continue livestock grazing on the National Forest System lands in the analysis area under an adaptive management strategy. This activity would remove a portion of the fine fuels that would otherwise be available for combustion in a wildfire. Livestock water developments would continue to be maintained and would continue to provide secondary benefit as water sources for fire suppression activities. The use of prescribe fire would reduce the fine fuel load in remote areas away from the Cheyenne River and encourage new growth after thatch is removed. Ideally, a mosaic burn pattern would reduce up to 80 percent of the fine fuel cured grass and encourage native range grasses to flourish after completion of the prescribed fire.

The annual removal of a portion of the fine fuels through grazing under an adaptive management strategy would result in a reduction in wildfire intensity in those pastures. Although dependent on weather factors as well, removal of a portion of the fine fuels on a site would generally result in smaller, less intense fires that would be more easily contained. Although the frequency of ignitions would remain unaffected, wildfires that did start would be easier to control as less fuel would be available for combustion. Less resource damage and less risk to improvements and private property would generally be expected.

Botanical Resources

This section incorporates by reference the “Biological Assessment/Biological Evaluation” for botanical resources on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the botanist relied on to reach the conclusions shown here.

In determining potential impacts of the alternatives on botanical resources, we considered how terrain, forage condition, and the availability of water typically influence the movement and concentration of livestock on these allotments. We also considered the impacts of the adaptive management actions, such as infrastructure development and prescribed fire, on botanical resources. These actions would cause ground disturbance with the potential to affect botanical resources. More indirectly, these actions would also change the behavior of livestock by influencing their movement and areas of concentration on the allotments which also could potentially affect botanical resources.

There are no federally listed botanical species present in project area. Therefore, the proposed action and alternatives would not affect threatened, endangered, or proposed species under the Endangered Species Act. Two species in the project area are considered sensitive in Region 2 of the National Forest System: Barr’s milkvetch (*Astragalus barrii)* and Visher’s buckwheat (*Eriogonum visheri)*. Only the likely impacts on these two species were analyzed in this environmental assessment.

Impacts of Alternative 1 on Botanical Resources

Under alternative 1, livestock would be allowed to graze under current management for up to two years before being removed from the allotments. Discontinuing livestock grazing would decrease trampling and direct herbivory of the Region 2 sensitive plants and habitat.

Over time, if no grazing is permitted, vegetation adjacent to the badland habitat type could encroach into Barr's milkvetch and Visher's buckwheat habitat. Encroachment of vegetation from adjacent habitats could be detrimental for the species, especially in marginal areas of badlands outcrops and outwashes where Region 2 sensitive species could occur in conjunction with greater cover of other grassland species. Both Barr's milkvetch and Visher's buckwheat are suspected of being poor competitors (Ladyman 2006, Ladyman 2006b).

Impacts of Alternative 2 on Botanical Resources

Direct impacts of alternative 2 on Region 2 sensitive plant species known to occur within the project area include herbivory and trampling of individuals. The impacts of direct grazing on Barr's milkvetch and Visher's buckwheat are unknown. On-site investigation and inventory has not indicated cattle regularly graze these plants (Schmoller 1993, Warnke 2014). Limited cropping, browsing, or trampling of individuals of these species by livestock would likely not have a negative impact on occurrences in the project area. However, regular and repeated cropping, browsing, or trampling could have negative impacts on the persistence of occurrences.

Alternative 2 includes continued maintenance of 16.1 miles of fence and 31 dams and dugouts. Current management also includes salting, mineral placement, and herding. Herding is only occasionally being used as a tool to distribute livestock within the allotments. None of the dams, dugouts, or fences coincide with known populations of Region 2 sensitive plant species. Therefore, impacts would be limited to individuals not detected during surveys. Impacts to Region 2 plants adjacent to fences, dams, and dugouts could include trampling, burial, or uprooting during maintenance activities.

Herding has the potential to move livestock away from the riparian area to the less utilized upland areas. This could increase the chance that Barr's milkvetch or Visher's buckwheat could experience trampling or herbivory. Placement of salt or minerals can result in localized trampling of vegetation. If salt or minerals were placed within Barr's milkvetch or Visher's buckwheat occurrences, the plants could be damaged or destroyed.

Impacts of Alternative 3 on Botanical Resources

Alternative 3 is the same as alternative 2 with the addition of adaptive management options including water developments (water tanks, solar pumps, and pipeline) fence installation, fence removal, mob grazing, incorporation of rotation with adjacent allotments or private land, and prescribed burning. The impacts of livestock grazing range improvement maintenance, herding, and salt and mineral placement would be the same as alternative 2.

Water developments (water tanks, solar pumps, and pipelines), fence installation, and fence removal are not expected to have any impacts to Region 2 sensitive species because they do not coincide with suitable habitat.

Mob grazing could be used in late seral areas that have thick thatch. Mob grazing would not likely occur within suitable habitat because thick thatch and late seral vegetation are not present. However, if mob grazing were to occur in areas of suitable habitat, Barr's milkvetch and Visher's buckwheat would be negatively impacted by the increase in grazing and trampling.

Prescribed burning during the growing season would destroy the current year's seed crop and therefore could decrease the likelihood of the population persistence in the area. Low fuel loads at known populations suggest that, historically, both species were only infrequently exposed to fire (Dingman 2005, Ladyman 2006, Ladyman 2006b). Dingman (2005) identifies prescribed fire as a threat to Barr's

milkvetch and recommends known populations be excluded from prescribed burning units. Therefore, to minimize impacts, the following design features would be implemented:

- Prescribed burning activities and control lines will avoid Barr's milkvetch and Visher's buckwheat populations.
- Mob grazing will avoid Barr's milkvetch and Visher's buckwheat populations.
- Ten percent of known Barr's milkvetch occurrences will be visited every 5 to 7 years to determine impact of livestock grazing on the population. If negative impacts (for example, direct grazing, trampling, encroachment of vegetation, or noxious weed invasion) are noted, adaptive measures may be taken to ensure persistence of Barr's milkvetch in the project area. During range monitoring, known occurrences of Region 2 sensitive plant species would be monitored and reported to a botanist, ecologist, or other qualified personnel as needed.

Because suitable habitat for Visher's buckwheat coincides with Barr's milkvetch, both species would be protected by these design features. With implementation of the Forest Plan and all of the standards and guidelines adopted therein, and project specific design criteria listed above, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for Barr's milkvetch and Visher's buckwheat for all three alternatives.

Cumulative Impacts

The cumulative impacts are bound in space by an area half a mile outside the project area because populations of Region 2 sensitive species may be able to cross-pollinate within this range. The cumulative impacts are bound in time ten years prior to the decision and 30 years after the decision or until such a time that there is a change in condition that would require further National Environmental Policy Act analysis.

The direct and indirect impacts of livestock grazing and associated activities to Region 2 sensitive plant species in the project area could add to impacts from other activities or events including recreation and grazing on adjacent land. These activities could contribute to further soil disturbance, changes in microsite moisture and hydrology regimes, introduction of invasive species, and other changes in vegetation quality (including increased competition from non-native species).

Invasive Plant Species

The range specialist considered the three alternatives' potential impacts on risk of introduction and intensification of infestations of noxious and invasive plant species in the project area.

In the Big Corral allotment, there are small Canada thistle patches around stock dams, scattered saltcedar along the Big Corral drainage, and some annual brome on most ecological sites.

In the Cheyenne and Cheyenne South allotments, there are small Canada thistle patches around stock dams and scattered saltcedar along the Cheyenne River. The Cheyenne allotment has some annual grasses on most ecological sites, but the species are not documented. The Cheyenne South allotment has excessive annual grasses, especially annual bromes on most ecological sites. There is also extensive Russian olive where Indian Creek runs into the Cheyenne River.

In the Indian Creek allotment, there are small Canada thistle patches around stock dams. This allotment also has excessive annual brome, especially on clayey ecological sites.

There are no recorded invasive species infestations in the Hart Table Spring and Nevis Draw allotments. The Nevis Draw allotment has some annual brome. There is no data on other potential invasive species in the Hart Table Spring allotment.

Under alternative 1, noxious weed spread by permitted livestock would no longer occur. However, there would still be seed spread due to wildlife, wind, and other factors. Existing and new infestations would still be treated. Overall, noxious weed infestations would remain near current levels. For other potential invasive species, initially native species would outcompete non-native cool-season species. As disturbance is removed and litter builds up, non-native cool season grass species would likely become dominant.

Under alternative 2, all current methods of seed spread would remain. Existing and new infestations would still be treated. Overall, noxious weed infestations would remain near current levels. For other potential invasive species, non-native, cool-season species might move throughout the project area but would likely stay near current levels.

Under alternative 3, all current methods of seed spread would remain. Some adaptive management actions, (for example, construction of range improvements or prescribed burning) could increase the potential for new infestations. All existing and new infestations would continue to be treated. Overall, noxious weed infestations would remain near current levels but might have small increases in new areas of disturbance, such as proposed water tanks. For other potential invasive species, some adaptive management actions would target non-native, cool-season species. However, others action could promote them. Overall, non-native, cool-season species would be expected to remain at current levels or decline slightly.

Wildlife and Fisheries

This section incorporates by reference the “Wildlife and Fisheries Report” on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the wildlife biologist relied on to reach the conclusions shown here. Impacts to mammals, birds, amphibians, fish, and invertebrates are discussed in the report and summarized here.

We considered the potential impacts of the three alternatives on seven federally endangered, threatened, candidate, and proposed species for Pennington County, South Dakota (table 8). One of those species is American burying beetle. This beetle is not known, or suspected, to be present and has no suitable habitat in the project area. Impacts to the American burying beetle were not further analyzed because this species would not be affected by any of the alternatives.

No designated or proposed critical habitat under the Endangered Species Act has been proposed or designated on the Wall Ranger District.

Determinations of potential impacts to endangered, threatened, and proposed species in the project area are summarized in table 9. We consulted with the U.S. Fish and Wildlife Service for potential effects to the following listed species: least tern, northern long-eared bat, rufa red knot, and whooping crane. Our determinations are that the alternatives “may affect, not likely to adversely affect” these species. The Fish and Wildlife Service concurred with these determinations in a letter dated March 9, 2016. We also analyzed effects to the black-footed ferret which is proposed for listing under the Endangered Species Act. The determination was that the action alternative was “not likely to jeopardize continued existence of the species.” We received concurrence with this determination in conferencing with the U.S. Fish and Wildlife Service.

Table 8. Federally endangered, threatened, candidate, and proposed species for Pennington County, South Dakota

Common Name (Scientific Name)	Status	Known or Suspected in Project Area*	Suitable Habitat Present**
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Yes	Yes
Black-footed ferret (*Mustela nigripes*)	Proposed	No	Yes
Least tern (*Sterna antillarum*)	Endangered	No	Yes
Rufa red knot (*Calidris canutus rufa*)	Threatened	No	Yes
Sprague's pipit (*Anthus spragueii*)	Candidate	No	Yes
Whooping crane (*Grus americana*)	Endangered	No	Yes
American burying beetle (*Nicrophorus americanus*)	Endangered	No	No

*Species presence known or suspected in the project area. **Potentially suitable habitat present in the project area.

Sprague's pipit is both a candidate species under the Endangered Species Act and a sensitive species in Region 2 of the National Forest System. Therefore, effects determinations for Sprague's pipit are shown in table 11 which summarizes effects determinations for sensitive species (see page 53).

Table 9. Effects determinations for endangered, threatened, and proposed species in the project area by alternative

Common Name (Scientific Name) (Status)	Alternative	Effects Summary	Determination
Black-footed ferret *(Mustela nigripes)* (Proposed)	1	This species would be less likely to colonize due to an increase in woody and taller vegetation; due to a lack of grazing and no prescribed burning. Prairie dog colonies would not be established, which is the ferret's primary habitat and food source.	Not likely to jeopardize continued existence of the species
	2 and 3	Livestock grazing and prescribed burning could be conducive for colonization and expansion due to shorter vegetation, allowing prairie dog's the opportunity to colonize.	Not likely to jeopardize continued existence of the species
Least tern *(Sterna antillarum)* (Endangered)	1	Potential increase in standing water sources and increase in prey habitat and availability.	No Effect
	2 and 3	Maintenance to existing dams could enhance potential habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May affect, not likely to adversely affect
Northern long-eared bat *(Myotis septentrionalis)* (Threatened)	1	Increase in deciduous riparian species could provide cover, habitat for prey species. Potential increase in water table would improve riparian habitat.	No Effect

Common Name (Scientific Name) (Status)	Alternative	Effects Summary	Determination
	2 and 3	Grazing in riparian areas could reduce vegetative cover and potentially reduce prey species for northern long-eared bat. Possible decrease of water table would decrease riparian habitat potential. Possible decline in roosting habitat through prescribed burning in the short term.	May affect, not likely to adversely affect
Rufa red knot *(Calidris canutus rufa)* (Threatened)	1	Potential increase in standing water sources and increase in prey habitat and availability.	No Effect
	2 and 3	Maintenance to existing dams could enhance habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May affect, not likely to adversely affect
Whooping crane *(Grus americana)* (Endangered)	1	Potential increase in standing water sources and increase in prey habitat and availability.	No Effect
	2 and 3	Maintenance to existing dams could enhance potential habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May affect, not likely to adversely affect

We also considered the potential impacts of the three alternatives on 33 species considered sensitive in Region 2 of the National Forest System (table 10). One of those species is Lewis's woodpecker. This woodpecker is not known or suspected to be present and has no suitable habitat present in the project area. Impacts to the Lewis's woodpecker were not further analyzed because this species would not be affected by any of the alternatives.

Table 10. Sensitive species considered in the analysis

Common Name (Scientific Name)	Known or Suspected in Project Area	Suitable Habitat Present
Black-tailed prairie dog (*Cynomys ludovicianus)*	Yes	Yes
Fringed myotis (*Myotis thysanodes)*	Yes	Yes
Hoary bat (*Lasirus cinereus)*	Yes	Yes
Rocky Mountain bighorn sheep *(Ovis canadensis canadensis)*	Yes	Yes
Swift fox *(Vulpes velox)*	No	Yes
Townsend's big-eared bat (*Corynorhinus townsendii)*	Yes	Yes
American bittern (*Botaurus lentiginosus*)	No	Yes
American peregrine falcon (*Falco peregrinus)*	No	Yes

Common Name (Scientific Name)	Known or Suspected in Project Area	Suitable Habitat Present
Bald eagle *(Haliaeetus leucocephalus)*	Yes	Yes
Black tern *(Chlidonias niger)*	No	Yes
Brewer's sparrow *(Spizella breweri)*	No	Yes
Burrowing owl (*Athene cunicularia)*	Yes	Yes
Chestnut-collard longspur (*Calcarius ornatus*)	No	Yes
Ferruginous hawk *(Buteo regalis)*	No	Yes
Grasshopper sparrow (*Ammodramus savannarum*)	Yes	Yes
Loggerhead shrike (*Lanius ludovicianus)*	No	Yes
Long-billed curlew *(Numenius americanus)*	No	Yes
McCown's longspur (*Calcarius mccownii)*	No	Yes
Mountain plover (*Charadrius montanus*)	No	Yes
Northern harrier (*Circus cyaneus*)	Yes	Yes
Short-eared owl *(Asio flammeus)*	No	Yes
Sprague's pipit (*Anthus spragueii*)	No	Yes
Trumpeter swan *(Cygnus buccinators)*	Yes	Yes
Yellow-billed cuckoo *(Coccyzus americanus)*	No	Yes
Lewis's woodpecker (*Melanerpes lewis)*	No	No
Northern leopard frog (*Rana pipiens)*	Yes	Yes
Flathead chub *(Platygobio gracilis)*	Yes	Yes
Plains minnow *(Hybognathus placitus)*	Yes	Yes
Plains topminnow *(Fundulus sciadicus)*	Yes	Yes
Sturgeon chub *(Macrhybopsis gelida)*	Yes	Yes

Common Name (Scientific Name)	Known or Suspected in Project Area	Suitable Habitat Present
Monarch butterfly *(Danaus plexippus)*	Yes	Yes
Ottoe skipper (*Hesperia ottoe*)	No	Yes
Regal fritillary butterfly (*Speyeria idalia)*	No	Yes
Western bumblebee *(Bombus occidentalis)*	Yes	Yes

Determinations of potential direct and indirect effects to Region 2 sensitive species in the project area are summarized in table 11.

Table 11. Effects determinations for species considered sensitive in Region 2 of the National Forest System by alternative

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
Black-tailed prairie dog *(Cynomys ludovicianus)*	1	This species is less likely to colonize due to an increase in woody and taller vegetation due to a lack of grazing and prescribed burning.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Livestock grazing and prescribed burning could be conducive for colonization and expansion due to shorter vegetation.	Beneficial impact
Fringed myotis *(Myotis thysanodes)*	1	Increase in deciduous riparian species could provide cover, habitat for prey species. Potential increase in water table would improve riparian habitat.	Beneficial impact
	2 and 3	Grazing in riparian areas could reduce vegetative cover and potentially reduce prey species. Possible decrease of water table would decrease riparian habitat potential. Possible decline in roosting habitat through prescribed burning in the short term.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Hoary bat (*Lasirus cinereus)*	1	Increase in deciduous riparian species could provide cover, habitat for prey species. Potential increase in water table would improve riparian habitat.	Beneficial impact

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
	2 and 3	Grazing in riparian areas could reduce vegetative cover and potentially reduce prey species. Possible decrease of water table would decrease riparian habitat potential. Possible decline in roosting habitat through prescribed burning in the short term.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Rocky Mountain bighorn sheep *(Ovis canadensis canadensis)*	1	No competition for forage could increase carrying capacity of use areas. Potential increase in water tables would improve riparian habitat and provide water sources.	Beneficial impact
	2 and 3	Competition for forage, especially close to escape cover and lambing areas could reduce carrying capacity of use areas. Potential decrease of water table would decrease riparian habitat potential.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Swift fox *(Vulpes velox)*	1	Potential increase in woody and taller vegetation structure due to a lack of grazing and prescribed burning. This could result in a loss of suitable habitat and an increase in predation.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Prescribed burning would modify the availability of cover in the short term. Burning could also change the composition and abundance of prey species in the short term	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Townsend's big-eared bat *(Plecotus townsendii)*	1	Increase in deciduous riparian species could provide cover, habitat for prey species. Potential increase in water table would improve riparian habitat.	Beneficial impact
	2 and 3	Grazing in riparian areas could reduce vegetative cover and potentially reduce prey species. Possible decrease of water table would decrease riparian habitat potential. Possible decline in roosting habitat through prescribed burning in the short term.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
American bittern *(Contopus cooperi)*	1	Potential increase in standing water sources and increase in prey habitat and availability.	Beneficial impact
	2 and 3	Maintenance of existing dams could enhance habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
American peregrine falcon *(Falco peregrinus anatum)*	1	Possible increase in prey habitat and prey availability and decreased potential for foraging success due to increased vegetation structure.	Beneficial impact
	2 and 3	Reduced prey habitat that may reduce prey availability. Increase in foraging success due to reduction in vegetative structure.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Bald eagle *(Haliaeetus leucocephalus)*	1	Potential for improved riparian communities, reducing potential sediment into lakes and streams. Increase aquatic prey availability and foraging success.	Beneficial impact
	2 and 3	Potential decrease in prey availability and foraging success due impaired riparian conditions that would affect water quality.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Black tern *(Chlidonias niger)*	1	Potential increase in standing water sources and increase in prey habitat and availability.	Beneficial impact
	2 and 3	Maintenance of existing dams could enhance potential habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Brewer's sparrow *(Spizella breweri)*	1	Potential of loss of native grasslands due to an increase in woody vegetation and invasive plant species. Potential reduction in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Loss of nests, eggs, and young due to trampling. Decline of nesting and foraging habitat due to utilization in grasslands. Increase chance of predation. Potential increase in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Burrowing owl *(Athene cunicularia)*	1	This species would be less likely to colonize due to an increase in woody and taller vegetation from a lack of grazing and no prescribed burning. Prairie dog colonies would not be established, which is considered primary habitat.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Livestock grazing and prescribed burning could be conducive for colonization and expansion due to shorter vegetation, allowing prairie dog's the opportunity to colonize.	Beneficial impact

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
Chestnut-collard longspur (*Calcarius ornatus*)	1	Potential loss of native grasslands due to an increase in woody vegetation and invasive plant species. Potential reduction in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Loss of nests, eggs, and young due to trampling. Decline of nesting and foraging habitat due to utilization in grasslands. Increase chance of predation. Potential increase in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Ferruginous hawk *(Buteo regalis)*	1	Potential increase in nest site availability; due to an increase in woody vegetation. Increased chance of predation at nest site. Possible decrease in foraging success due to increased vegetation structure. Decrease potential for nest abandonment due to human disturbance.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Potential increase in prey habitat and availability (moderate to light grazing). Increase in foraging success, especially in riparian areas. Increase potential for nest abandonment due to human disturbance.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Grasshopper sparrow *(Ammodramus savannarum)*	1	Potential loss of native grasslands due to an increase in woody vegetation and invasive plant species. Potential reduction in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Loss of nests, eggs, and young due to trampling. Decline of nesting and foraging habitat due to utilization in grasslands. Increase chance of predation. Potential increase in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Loggerhead shrike *(Lanius ludovicianus)*	1	Possible increase in potential shrub thickets and hardwoods used for nesting and foraging. Increase in prey habitat and availability.	Beneficial impact
	2 and 3	Potential loss of nests, eggs, and young due to trampling. Loss of suitable nesting and foraging habitat due to grazing and burning. Possible decrease in prey habitat and availability.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
Long-billed curlew *(Numenius americanus)*	1	This species is less likely to colonize due to an increase in woody and taller vegetation from a lack of grazing. Increase in predation rate. Potential decrease in suitable nesting and foraging habitat due higher vegetation structure.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Loss of nests, eggs, and young due to trampling. Livestock grazing is conducive for colonization and expansion due to shorter vegetation. Decrease in predation rates. Potential decrease in suitable nesting and foraging habitat due to grazing.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal.
McCown's longspur (*Calcarius mccownii)*	1	Potential loss of native grasslands due to an increase in woody vegetation and invasive plant species. Potential reduction in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Loss of nests, eggs, and young due to trampling. Decline of nesting and foraging habitat due to utilization in grasslands. Increase chance of predation. Potential increase in productivity and nutrient cycling in grasslands.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Mountain plover (*Charadrius montanus*)	1	This species would be less likely to colonize due to an increase in woody and taller vegetation; due to a lack of grazing and no prescribed burning. Prairie dog colonies would not be established, which is considered primary habitat	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Livestock grazing and prescribed burning could be conducive for colonization and expansion due to shorter vegetation, allowing prairie dog's the opportunity to colonize.	Beneficial impact
Northern harrier *(Circus cyaneus)*	1	Potential increase in water table would improve riparian habitat potential. Increase in nesting habitat and prey habitat and availability.	Beneficial impact
	2 and 3	Potential increase in prey habitat and availability (moderate to light grazing). Increase in foraging success, especially in riparian areas. Increase potential for nest abandonment due to human disturbance.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Short-eared owl *(Asio flammeus)*	1	Vegetation structure could increase, potentially improving the composition and abundance of prey species.	Beneficial impact

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
	2 and 3	Prescribed burning would modify the availability of cover in the short term. Burning could also change the composition and abundance of prey species in the short term.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Sprague's pipit *(Anthus spragueii)*	1	Potential increase in standing water sources and increase in prey habitat and availability.	Beneficial impact
	2 and 3	Maintenance of existing dams could enhance potential habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Trumpeter swan *(Cygnus buccinators)*	1	Potential increase in standing water sources and increase in prey habitat and availability.	Beneficial impact
	2 and 3	Maintenance to existing dams could enhance potential habitat. Migrant birds may be temporarily dispersed from foraging or roosting near pond habitat.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Yellow-billed cuckoo *(Coccyzus americanus)*	1	Less chance for nest disturbance and fragmentation of habitats. Potential increase in water table that would increase riparian communities. Potential increase in cottonwood communities and dense riparian shrub habitat. Less potential for habitat fragmentation in riparian shrub communities.	Beneficial impact
	2 and 3	Possible reduction of water table would decrease riparian habitat potential. Possible decline in cottonwood communities and reduced dense riparian shrub component and increased habitat fragmentation due to grazing.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Northern leopard frog *(Lithobates pipiens)*	1	Possible increase in breeding habitat by improved stream bank stability and reducing effects to water quality and riparian health. Possible increase in standing water sources. Increase in water table that improves riparian communities.	Beneficial impact
	2 and 3	Possible decline of breeding ponds due to increased siltation, changes in pH, and increased water temperature. Reduced availability of standing water sources. Potential reduction of wetlands and riparian habitat due to grazing, trampling, and water developments.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
Flathead chub *(Platygobio gracilis)*	1	Potential Increase in water tables that could improve riparian communities. Increase in vegetative cover could improve water temperature and stabilize stream banks. Decrease in sediments could improve spawning and prey habitat availability.	Beneficial impact
	2 and 3	Grazing of riparian habitats may increase sediment transported through the stream.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Plains minnow *(Hybognathus placitus)*	1	Potential Increase in water tables that could improve riparian communities. Increase in vegetative cover could improve water temperature and stabilize stream banks. Decrease in sediments could improve spawning and prey habitat availability.	Beneficial impact
	2 and 3	Potential decrease in spawning and prey habitat through increased sediments and poor water quality due to hoof action in riparian/stream habitat. Potential decrease in vegetative cover and increases in water temperature. Simple aquatic plant growth stimulated due to livestock waste and increase sunlight to stream.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Plains topminnow *(Fundulus sciadicus)*	1	Potential Increase in water tables that could improve riparian communities. Increase in vegetative cover could improve water temperature and stabilize stream banks. Decrease in sediments could improve spawning and prey habitat availability.	Beneficial impact
	2 and 3	Potential decrease in spawning and prey habitat through increased sediments and poor water quality due to hoof action in riparian/stream habitat. Potential decrease in vegetative cover and increases in water temperature. Simple aquatic plant growth stimulated due to livestock waste and increase sunlight to stream.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Sturgeon chub *(Macrhybopsis gelida)*	1	Potential Increase in water tables that could improve riparian communities. Increase in vegetative cover could improve water temperature and stabilize stream banks. Decrease in sediments could improve spawning and prey habitat availability.	Beneficial impact

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
	2 and 3	Grazing of riparian habitats may increase sediment transported through the stream network.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Monarch butterfly *(Danaus plexippus)*	1	Potential increase in the potential for nectar and larval host plant availability. Possible increased chances of larval survival.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Potential loss of eggs and larvae due to trampling and grazing. Reduced availability of nectar sources, changes in vegetative structure, removal of larval host plants as a result of grazing. Prescribed fire reduces larval survival and increase potential for invasive species.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Ottoe skipper *(Hesperia ottoe)*	1	Potential increase in nectar and larval host plants. Possible increase of over-winter survival.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
	2 and 3	Potential loss of eggs and larvae due to trampling and grazing. Reduced availability of nectar sources, changes in vegetative structure, removal of larval host plants as a result of grazing. Prescribed fire reduces larval survival and increase potential for invasive species.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Regal fritillary butterfly *(Speyeria idalia)*	1	Potential for nectar and larval host plants (violets) availability. Increased chance of larval survival.	Beneficial impact
	2 and 3	Potential loss of eggs and larvae due to trampling and grazing. Reduced availability of nectar sources, changes in vegetative structure, removal of larval host plants as a result of grazing. Prescribed fire reduces larval survival and increase potential for invasive species.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Western bumblebee *(Bombus occidentalis)*	1	Potential increase in nectar and larval host plants. Increased chance of larval survival.	Beneficial impact

Common Name (*Scientific Name*)	Alternative	Effects Summary	Determination
	2 and 3	Mortality caused by trampling. Decrease in mesic habitat by reducing canopy cover would cause dry conditions (i.e., wind, sunlight) that could result in mortality and limit colony expansion. Grazing of riparian communities that would affect mesic conditions.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.

We also considered potential impacts to management indicator species in the Forest Plan. Individuals and habitat for two species occur within the Wall Southwest Geographic Area as designated by the Forest Plan. These two species are black-tailed prairie dog (*Cynomys ludovicianus*) and plains sharp-tailed grouse (*Tympanuchus phasianellus jamesi*). Black-tailed prairie dog is also a sensitive species, and the potential effect determination and impacts for this species are summarized in table 11.

Population viability for the black-tailed prairie dog was evaluated in 2008 for the black-tailed prairie dog management plan final environmental impact statement. The final environmental impact statement determined that viability across the planning area (Nebraska National Forests and Grasslands) would be maintained for this species if Forest Plan standards and guidelines are followed. The proposed project would meet these standards and guidelines. In addition, the size of this project represents a small portion of potential habitat for this species when considering the potential habitat across the entire planning area. Therefore, this species is likely to persist on the Nebraska National Forests and Grasslands.

Alternative 1 could provide increased cover and vegetative structure for the plains sharp-tailed grouse in the short term. However, the lack of grazing and prescribed fire would allow seral stages to increase, resulting in woody vegetation, reducing grassland habitat.

This project will not contribute to a loss of habitat or decrease in population forest-wide for the plains sharp-tailed grouse. Direct and indirect impacts to the grouse for both action alternatives would be the potential displacement of nesting and foraging birds during proposed grazing and prescribed burning. A potential temporary loss of nesting and brooding habitat could occur if the burn is conducted before March 1. However, other areas within the allotments should provide medium-tall structure vegetation the birds could still utilize. The action alternatives would either create new, or sustain existing, habitat in the long term.

Cumulative Impacts to Wildlife and Fisheries Resources

The analysis of cumulative impacts to wildlife and fisheries resources must consider a wider range of ongoing and reasonably foreseeable actions and events because of the context in which the direct and indirect impacts to these resources are considered. The cumulative impacts analysis area for wildlife species is geographically bounded by the project area boundary (including private lands).

The home ranges for most species could occur within the project area, excluding migrations that occur outside of the Buffalo Gap National Grassland. The temporal bounding of cumulative impacts evaluated varies among activities. For the purposes of this document, the temporal bounding is 10 to 20 years in the future.

Potential impacts from wildfire, flooding, increases in invasive plant species, drought, prairie dog population expansion or contraction, and new water developments on other ownerships in the project area are likely to occur. However, specific times or locations of these events are unpredictable. Therefore, the

accumulation of the impacts of these events with the direct and indirect impacts of the project can only be discussed in general terms.

Fire suppression has eliminated a primary disturbance agent needed to maintain the large expanses of grassland needed by these species. The lack of fire has also allowed woody shrubs to encroach into portions of the grassland, thus reducing habitat for several species over time. However, grassland succession and fire suppression would likely continue in portions of the project area in order to meet the desired condition for vegetative structure and composition.

Recreational activities would also continue in and adjacent to the project area. These activities may adversely impact wildlife individuals but they are not likely to result in a loss of viability on the planning area nor cause a trend to federal listing or a loss of species viability range wide.

Agricultural activities that can affect wildlife include the application of pesticides and herbicides. These activities could reduce the effectiveness of wildlife habitats or kill individuals of some species directly or indirectly. However, even though the impacts of this activity may adversely impact individuals, these impacts are not likely to result in a loss of viability on the planning area nor cause a trend to federal listing or a loss of species viability, range-wide. Cumulative effects would likely be negligible. This is because pesticide and herbicide application on the Nebraska National Forests and Grasslands is minimal. Applications are concentrated to isolated invasive plant and animal pests (that is, noxious weeds, prairie dogs).

As prairie settlements increase in population and housing developments spread on the countryside, wildlife habitat is lost. The construction of buildings and highways may displace wildlife. Free-ranging pets may harm wildlife, as would the increase in vehicle traffic. The loss of this suitable habitat on private lands would likely result in a negative impact on those sensitive species that rely on prairie dog colonies, such as the burrowing owl. However, although the likely direct and indirect effects to burrowing owl may adversely impact individuals, they are not likely to result in a loss of viability on the planning area nor cause a trend to federal listing or a loss of species viability range-wide. Therefore, cumulative impacts would likely be negligible. Land use conversion from native prairie to a row-crop or other farming practice could negatively impact other grassland-dependent species.

The plains are one of the windiest sections of the country, and this natural force is being harnessed to produce useable energy. Large concentrations of wind turbines have been implicated in harming some species of wildlife (that is, bats and birds). Habitat on the western plains has also been affected by oil and gas development, especially for coal bed methane. Both drilling activities and associated infrastructure developments (for example, roads) could damage wildlife habitat and may adversely impact individuals, but are not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide.

Prairie Dog Control

Many ranchers believe prairie dogs compete with their livestock for forage or a cow or a horse will break a leg after stepping in a prairie dog burrow. They view prairie dog colonies as an economic hardship to their operations. Many landowners will only tolerate prairie dogs in small numbers on their private land, and most prairie dogs on private land will be subject to periodic control.

The overall impacts from control of prairie dogs on private lands would favor high-structure-dependent species if livestock grazing utilization remained conservative and normal precipitation occurred. The opposite would be true for low-structure-dependent species.

Prairie Dog Shooting

Shooting of prairie dogs may reduce prairie dog densities (Vosburgh and Irby 1998) and indefinitely maintain reduced densities in smaller isolated colonies (Knowles 1987). Shooting prairie dogs in colonies that have been previously poisoned could likely prevent or slow population recovery in those colonies. Also, gunfire and other related activity and disturbances may disrupt prairie dog foraging and other activities for extended periods of time.

Prairie dogs exhibit different behavioral patterns in colonies where shooting occurs compared to colonies where there is no shooting. Prairie dogs in hunted colonies were more wary and responded more quickly to humans on foot and in vehicles and may have spent less time foraging than individuals in non-hunted colonies (Vosburgh and Irby 1998).

In a study conducted in eastern Wyoming, recreational shooting increased the alertness and decreased above-ground activity of black-tailed prairie dogs, which in turn reduced the time spent foraging and resting. This resulted in a decrease in body condition of surviving adult prairie dogs and reduced pregnancy rate and reproductive output (Pauli 2005).

The overall impacts from the recreational shooting of prairie dogs on both federal and private lands would favor high-structure-dependent species if the shooting activity resulted in substantial reductions of prairie dogs. The opposite would be true for low-structure-dependent species. In general, shooting could be detrimental to predatory species that utilize prairie dogs and other species associated with those prairie dog colonies as a source of food.

Another impact of shooting is secondary lead poisoning of non-target species caused by lead fragments left in the prairie dog carcasses after they have been shot. In a study conducted in eastern Wyoming, two types of bullets were tested to determine how much lead was present in the prairie dog carcasses after they had been shot: a soft point and a full metal jacket (both from .223 caliber rifles). Eighty-seven percent of prairie dogs shot with soft point bullets contained bullet fragments compared to 7 percent of those shot with full metal jackets. Furthermore, the amount of lead found in prairie dog carcasses differed between the two bullet types; full metal jacket only averaged 19.8 mg of lead, while soft point averaged 225.2 mg of lead (Pauli and Buskirk 2007). Therefore, it would be possible that a scavenger, such as the bald eagle, ferruginous hawk, or swift fox, could eat a prairie dog carcass and contract lead poisoning.

Soil and Water Resources

This section incorporates by reference the “Water and Soil Resources” report on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the hydrologist relied on to reach the conclusions shown here.

Soil Resources

In determining the potential impacts of the alternatives on soil resources, we considered how the infrastructure developments and the movement and concentration of livestock would affect the physical, chemical, biologic, and hydrologic properties of soil in the project area. These impacts are represented by potential changes in slope stability, soil erosion and displacement, and detrimental soil disturbance and changes in overall soil productivity.

Slope Stability

Alternative 1 would have no direct impact on slope stability because it would not implement any actions on or near steep slopes or soils with mass movement potential. Alternatives 2 and 3 are not expected to

produce ground disturbance that would cause slope instabilities because grazing livestock generally avoid steep slopes.

Cumulative Impacts on Slope Stability

Past, present, and reasonably foreseeable actions were considered for cumulative impacts to slope stability and unstable soils. There would be no cumulative impacts slope stability associated with any of the project alternatives because there are no overlapping direct or indirect impacts.

Soil Erosion

We considered the tendency of soils in the project area to form ruts as a result of livestock trailing and concentrations of livestock in areas to which they are attracted. We also considered the very slow infiltration rates of soils in the project area which would indicate a high runoff potential.

Impacts of Alternative 1

Alternative 1 would not propose any actions near soils with high erosion risk.

Impacts to Alternatives 2 and 3

Alternatives 2 and 3 would have the potential to expose bare soils through livestock trailing and concentration around tanks, dams, and dugouts. This would create a greater likelihood of soil erosion and subsequent sediment transport to water bodies. However, management actions in these two action alternatives would be implemented where monitoring indicates a need for a management change. Therefore, these two alternatives would not be expected to cause extensive soil erosion and perceptible soil impacts.

Cumulative Impacts of Soil Erosion

Current and reasonably foreseeable actions were considered for cumulative impacts to soil erosion and displacement. Grazing management throughout the project area is not expected to cause extensive, widespread soil erosion. Any soil erosion that may occur related to implementation of the Cheyenne River Area Range Allotment Management Plan is expected to be localized, minor in both severity and extent, and thus well below levels that would be considered detrimental.

This expectation also applies to other management activities and uses in the project area. Design criteria and appropriate watershed conservation practices and best management practices apply to all forest management activities and uses. These measures are designed to control runoff and erosion for a 10-year storm event (USDA Forest Service 2006a). Therefore, the risk of cumulative detrimental soil erosion is mitigated for typical storm events observed in the project area for all forest management activities.

Dispersed recreation and invasive weeds generally do not cause excessive soil erosion issues due to the lack of concentrated use and following watershed conservation practices and best management practices within fire use.

Detrimental Soil Disturbance and Impacts to Soil Productivity

We considered the likelihood of detrimental soil disturbance which can result from compaction, rutting, displacement, severe burning, and erosion. Soils in the project area are predominantly rated as highly susceptible to degradation.

Livestock grazing can disturb soils in localized areas of concentrated use such as watering areas, salt block locations, and easily accessible stream banks or meadows. Bank shearing and compaction are the two most common soil disturbances resulting from grazing. Streambank shearing occurs when livestock cross a stream or wetland and collapse the bank. This can lead to an increase in bank scour during high flows or floods.

Impacts of Alternative 1 on Soils

Alternative 1 would have no impact on soil productivity because no livestock management activities would occur.

Impacts of Alternatives 2 and 3 on Soils

Alternatives 2 and 3 are not expected to result in detrimental soil disturbance and impacts to soil productivity. The project area has had grazing activity in the past, and most soils currently exhibit overall health and productivity. There may be areas where soils are detrimentally disturbed, but both action alternatives would address these impacts through management changes. Through careful design of project activities and adherence to project design criteria (which include watershed conservation practices and best management practices), the likelihood of directly or indirectly disturbing soils to the extent that detrimental disturbance is caused and soil productivity is affected is low. Alternative 3 would be more responsive in this regard. Management practices included in alternative 3 would be more quickly implemented on a site-specific basis where monitoring indicates a need for a management change.

Compaction by livestock occurs in areas of concentrated use, usually when soils are moist and more prone to compaction. However, cumulative detrimental soil disturbance related to the Federal actions under alternatives 2 and 3 is expected to provide for long-term soil health and productivity due to the inclusion of Forest Plan standards and guidelines, watershed conservation practices, and grazing best management practices, which apply regardless of which alternative is chosen (Appendix B of Water and Soil Resources Report, project record).

Cumulative Impacts of Detrimental Soil Disturbance and Impacts to Soil Productivity

Impacts from, and new water developments on other ownerships in the project area were considered for cumulative impacts to soil productivity and detrimental soil disturbance.

Soil disturbance associated with livestock grazing, recreation, and other forest activities authorized under other planning documents or authorities in the project area (refer to “Current and Reasonably Foreseeable Activities”) all have the potential to disturb soils. However, design features, watershed conservation practices, and best management practices also apply to these other activities and thus minimize their impacts to soils as well.

Both action alternatives would have areas that overlap these other activities and thus would have a greater potential for additive soil disturbance. However, strict adherence to watershed conservation practices and best management practices measures, including proper implementation and maintenance of runoff and erosion control structures, would ensure compliance with this soil standard. Therefore, long-term soil productivity in the project area is expected to be maintained or improved.

Water Resources

Potential impacts to water resources were primarily based on potential impacts to soils resources described above. These impacts are summarized in table 12.

Changes in soils conditions attributable to the alternatives would have the potential to affect annual water yield, stream flow regime, stream channel stability and floodplains, water quality, connected disturbed areas, wetlands, riparian areas, and groundwater-dependent ecosystems.

We also considered whether the alternatives would affect existing water rights. There are no municipal water supplies within the project area. None of the proposed activities in any of the alternatives would alter the status of existing water rights, claims, or uses.

Table 12. Potential impacts to water resources by alternative

Water Resource Concern	Alternative 1	Alternative 2	Alternative 3
Water rights	No impact	No impact	No impact
Annual water yield	Localized increases in water table; imperceptible impact on regional water table level.	No change	No change
Stream flow regime	Localized increases in flow length and/or duration	No change	No change
Stream channel stability and floodplains	Improved stability over time	Essentially no change over current conditions	Localized improvements as rehabilitation measures are implemented
Water quality (surface and groundwater)	Improved	No change	No change overall; some individual improvements at select sites
Connected disturbed areas	Improved	No change	Localized improvements as rehabilitation measures are implemented
Wetlands, riparian areas, and groundwater dependent ecosystems	Improved	No change	Localized improvements as rehabilitation measures are implemented

Cumulative Impacts to Water Resources

Cumulative Impacts on Hydrogeologic (Groundwater) Resources

Past, currently ongoing, and reasonably foreseeable actions were considered along with proposed activities for cumulative impacts to hydrogeologic (groundwater) resources. There would be no cumulative impacts to groundwater aquifer yields associated with any of the project alternatives because there are no overlapping direct or indirect impacts.

Cumulative Impacts on Water Yield and Stream Flow

Past, present, and reasonably foreseeable actions were considered along with proposed activities for cumulative impacts to water yield. Impacts from new water developments on other ownerships in the

project area would not involve activities that could remove vegetation to an extent that would affect annual water yield due to the inherent high runoff of the area.

Cumulative Impacts on Stream Channel Stability and Floodplains

Past, present, and reasonably foreseeable actions were considered along with proposed activities for cumulative impacts to stream channel stability and floodplains flow regime. Past livestock grazing is the primary contributors to stream instability. Changes in grazing management would be pursued to achieve more stable streambanks. Design criteria, watershed conservation practices, and applicable best management practices have been included in both action alternatives to protect streams and floodplains and also apply to other types of forest and grassland management activities.

Already unstable stream channels would continue to degrade until rehabilitation measures are implemented, causing impacts to ripple throughout their tributary networks as well. This would continue until management activities were implemented to arrest headcutting and channel incision and restore the necessary stream channel dimensions, pattern, and profile to achieve system stability again. Detailed stream stability surveys and assessments are recommended to design site-specific solutions that improve stream stability for any streams identified as unstable.

Cumulative Impacts on Water Quality

Past, present, and reasonably foreseeable actions were considered along with proposed activities for cumulative impacts to ground water and surface water quality. Cumulatively, all activities are expected to maintain current water quality levels through the proper implementation and adherence to required Forest Plan standards and guidelines, watershed conservation practices, grazing best management practices, and the alternative-specific design criteria. Prescribed fire, recreational, and water developments must also adhere to design criteria, watershed conservation practices, and best management practices to protect water quality. Therefore, no negative, measurable change in overall water quality is expected in any of the streams or water bodies due to activities associated with either action alternative. Other Federal ongoing and foreseeable activities would also adhere to applicable Forest Service policy and Federal and State regulations regarding water resources.

Cumulative Impacts on Wetlands, Riparian Areas, and Groundwater-Dependent Ecosystems

Past, present, and reasonably foreseeable actions were considered along with proposed activities for cumulative impacts to wetlands, riparian areas, and groundwater-dependent ecosystems such as springs and fens. Cumulatively, all activities are expected to maintain or improve current conditions of wetlands, riparian areas, and/or groundwater-dependent ecosystems through the proper implementation and adherence to required design criteria, watershed conservation practices, and grazing best management practices. Improvement projects associated with the action alternatives would contribute to protection, rehabilitation, or restoration of riparian and wetland areas and cumulatively result in improved conditions for these areas. However, the inherent flexibility associated with alternative 3 would allow faster adjustments in livestock grazing practices in riparian and wetland areas; thereby improving conditions faster.

In general, wetland, riparian, and groundwater-dependent ecosystem sites are expected to remain in their current condition until grazing management changes are implemented to repair fences and prevent concentrated use in these areas and road problems are addressed, regardless of which alternative is chosen. Alternative 3 would result in quicker implementation of protective and restoration measures for problem areas identified during monitoring through adaptive management.

Cumulative Impacts on Overall Watershed Condition and Processes

Cumulative impacts boundary for water resources is the sixth-level watersheds. Although the alternatives directly affect hydrological resources within the allotment boundaries, a clearer picture of watershed condition is obtained by looking at the watershed scale.

The removal of permitted livestock grazing would cumulatively result in improved stream and wetland conditions and overall improved watershed condition. As conditions improved following the removal of livestock, the impacts of past grazing management would diminish over time. This, in turn, would increase the inherent resiliency of water resources, potentially decreasing the risk and severity of impacts associated with other past, present, and reasonably foreseeable activities.

Disturbances associated with other forest activities authorized under other planning documents or authorities in the project area have the potential to disturb watershed processes as discussed throughout the soil and water resources section and thus can also affect overall watershed condition. However, separate project design criteria, watershed conservation practices, and best management practices specific to each individual project also apply to these other activities and thus minimize their impacts as well. Strict adherence to watershed conservation practices and best management practices, including proper implementation and maintenance of runoff and erosion control structures, would ensure protection of water resources.

Archaeological and Cultural Resources

This section incorporates by reference the "Effects on Heritage Resources" report on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the archaeologist relied on to reach the conclusions shown here.

We considered the potential for all project activities to affect cultural resources. The potential for adverse impacts of grazing activities on important cultural resources relates directly to the level of range developments (for example, water tanks, pipelines, etc.), number and density of livestock in an allotment, length of grazing periods, and other ground-disturbing activities existing and proposed within the project area, including access to range developments. Grazing has the potential to adversely impact cultural resources through trampling, obliteration, and displacement. Projects requiring new ground disturbance also have the potential to adversely affect cultural resources. The installation and maintenance of range improvements typically require new ground disturbance.

Impacts of All Action Alternatives on Archaeological and Cultural Resources

In general, with the application of design features listed in Appendix C, the impacts on the cultural resources of the various activities that are proposed for this project would include the following:

- In those portions of the area of potential effect where no historic properties (archaeological sites meeting the National Register significance criteria) are present, proposed project activities would have "No Potential to Affect" cultural resources.
- In those portions of the area of potential effect in which ground-disturbing activities would be carried out, where historic and/or unevaluated properties are present, and where site avoidance would be feasible and implemented, the proposed project activities would be expected to have "No Effect" on cultural resources.

- In those portions of the area of potential effect in which prescribed burning would be carried out, where historic and/or unevaluated properties are present, and where the mitigation measures would be applied, the project activities would be expected to have “No Adverse Effect” on cultural resources.
- Where archaeological sites occur along routes of access (such as old roads that have not been maintained) and where site avoidance would not be feasible, Mitigation Measure CR4 (page 73) would be applied with the expectation that a mitigation plan be developed that would result in a finding of “No Adverse Effect” on cultural resources.

The principal indirect impact to cultural resources resulting from proposed activities would be increased site vulnerability. Livestock grazing can lead to erosion and exposure, which can in turn lead to an increased risk of vandalism. With application of appropriate mitigation measures (principally site avoidance), it would not be expected that the proposed project activities would increase visitor use in those areas in which archaeological sites are located.

Paleontological Resources

This section incorporates by reference the “Effects on Paleontological Resources” report on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the scenery paleontologist relied upon to reach the conclusions shown here.

We considered impacts to paleontological resources based on the likelihood of fossils occurring in the four geologic formations in the project area. With respect to this project, the action alternatives are very similar in the activities proposed. The action alternatives only differ in the placement and construction of several, as yet unidentified, range improvements. Therefore, the impacts disclosed would apply to both alternative 2 and alternative 3.

The potential for adverse impacts of grazing activities on paleontological resources relates directly to the level of range developments (for example, water tanks, pipelines, etc.), number and density of livestock within an allotment, length of grazing periods, other existing and proposed ground-disturbing activities in the project area, and access to range developments.

We considered the potential for livestock grazing to impact paleontological resources through erosion, exposure, breakage, obliteration, and displacement by the movement of livestock and the construction of range developments. These adverse impacts would not necessarily occur within the span of a single season or a year; adverse impacts would be cumulative and would result from continued, long-term grazing operations. Wet periods often increase the adverse impacts to paleontological resources found at or near the surface.

Erosion and exposure can lead to an increased risk of vandalism and fossil theft. However, this can be a beneficial effect if fossils are found and collected properly. With application of appropriate mitigation measures such as avoidance, it is not expected that the proposed project activities would increase visitor use in those areas in which paleontological resources are located.

In general, the potential direct impacts on the paleontological resources from the various activities proposed in both grazing alternatives would include the following:

1. In those portions of the project area where no paleontological resources are present, proposed project activities would have **No potential to affect paleontological resources**.
2. In those portions of the project area in which ground-disturbing activities would be carried out, where paleontological resources are present, and where avoidance would be feasible and implemented, the proposed project activities would be expected to have **No Effect** on paleontological resources. If fossil resources are discovered during the ground-disturbing activity, the ground disturbance would cease or the ground-disturbance path would avoid the resource. If avoidance is not feasible, a qualified paleontologist, preferably a Forest Service paleontologist, would extract the specimen(s), so the project could continue with as little delay as possible creating **No Effect** on these newly discovered paleontological resources.
3. In those portions of the project area in which prescribed burning would be carried out and where paleontological resources are present, the project activities would be expected to have **No Effect** on paleontological resources. The fossils preserved in the Chadron, Brule, and Sharps formations are very well preserved with silica and tend to withstand prescribed burns in areas with little vegetation.
4. In portions of the project area in which prescribed burning would be carried out and where paleontological resources are present in the Pierre Shale, the project activities would be expected to have **No Effect**. Therefore, for projects taking place on Pierre Shale; design criteria would be developed that would result in a finding of **No Effect to paleontological resources in the Pierre Shale**. Typically, the design criteria would include avoidance or resource retrieval.

In the case of the Cheyenne River Area Range Allotment Management Plan project area, increased site vulnerability is expected to be the principal indirect effect to paleontological resources resulting from proposed activities. Livestock grazing can lead to erosion and exposure, which can, in turn, lead to an increased risk of vandalism and fossil theft. With the application of design criteria such as avoidance, it is not expected that the proposed project activities would increase visitor use in areas in which paleontological resources are located.

Scenery

This section incorporates by reference the “Scenery Resource Specialist Report” on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the scenery specialist relied on to reach the conclusions shown here.

We considered the potential of impacts of the proposed action and alternatives on the scenic integrity in the project area. Grazing livestock, changes in vegetation composition and structure, and infrastructure developments all have the potential to change the physical, biological, and cultural attributes that make each landscape in the project area identifiable or unique. We considered the potential of these changes from identified viewpoints and from the immediate foreground as viewed by driving or walking through the area.

Impacts of Alternative 1 on Scenery

The scenic resources would slowly change from the existing condition to one of a more natural appearance. This alternative would see changes to scenery initiated by natural processes only. Wildfires might cover a larger portion of the area due to the additional fuel of the ungrazed grass, resulting in similar appearance across the landscape. Invasive plants might be more evident in the landscape. Overall,

this alternative would likely result in conditions that improve the valued scenery attributes and improve the stability of scenic resources.

High and low scenic integrity objectives assigned to the project area would be met approximately one to three growing season after grazing ceased in the project area.

Impacts of Alternative 2 on Scenery

The scenic resources would be little changed from the existing condition and scenic appearance. Livestock management, use of prescribed fire, and spraying invasive species, at current levels, would result in limited to no change in scenic quality. Overall, this alternative would likely result in the same condition of the valued scenery attributes and stability of scenic resources that currently exist.

High scenic integrity objectives assigned to the project area would only be met away from riparian areas and other areas of concentrated livestock use. In areas where concentrated use is occurring, the high scenic integrity objective (assigned to this area) would not be met. Areas with a low scenic integrity objective should continue to meet that objective.

Impacts of Alternative 3 on Scenery

The scenic resources would see scattered changes from the existing condition and scenic appearance, as adaptive management actions are implemented based on the needs within each allotment. Adaptive livestock management actions, use of prescribed fire, and spraying invasive species would result in incremental change in scenic quality. Overall, this alternative would likely result in improved condition of the valued scenery attributes and stability of scenic resources.

High scenic integrity objectives assigned to the project area would only be met when the adaptive management process is followed – where livestock distribution is achieved and impacts to riparian areas are reduced to acceptable levels. This adaptive management process would take time to achieve a high scenic integrity objective across Management Area 1.2 as assigned. Areas with a low scenic integrity objective should continue to meet that objective.

Recreation

This section incorporates by reference the “Recreation Report” on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the recreation specialist relied on to reach the conclusions shown here.

Impacts of Alternative 1 and Alternative 2 on Recreation Resources

Under alternative 1, known recreation patterns observed in the existing condition of the area would likely continue with some variation. A possibility exists for an increase in overall recreation activities due to the removal of the potential of cattle-recreation user conflicts. Dispersed recreation activities in the area would continue to include camping, hiking, picnicking, hunting (primarily big game hunting), horseback riding, off-highway recreational vehicle use, and rock hounding. Recreation patterns might also experience slight changes due to drought or fire conditions, such as recreation fire bans, unrelated to the actions described in this alternative.

Impacts of Alternative 3 on Recreation Resources

Under alternative 3, known recreation patterns observed in the existing condition of the area would likely continue with some variation. A possibility exists for an increase in overall recreation activities in riparian

areas due to the reduction of cattle-recreation user conflicts. On the other hand, conflicts between livestock and recreational users may increase in areas of adaptive management actions.

Prescribed burning, salting, and other actions, to a lesser extent, would benefit wildlife species and associated uses. This, in turn, might lead to eventual small increases in recreation use patterns in all areas with wildlife increases.

Prescribed burning and changes in livestock disturbance, especially near riparian areas, might uncover new geological features and rock beds sought by rockhounds. This would increase the recreational use patterns for such activities. The uncovering of new geological features could also be impacted by future weather patterns and their impact upon erosional processes.

Dispersed recreation activities in the area would continue to include camping, hiking, picnicking, hunting (primarily big game hunting), horseback riding, off-highway recreational vehicle use, and rock hounding. Recreation patterns might also experience slight changes due to drought or fire conditions, such as recreation fire bans, unrelated to the actions described in this alternative.

Climate Change

This section incorporates by reference the "Climate Change Report" on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the climate change specialist relied on to reach the conclusions shown here.

We considered the potential impacts of the proposed action (continuation of livestock grazing and prescribed burning under a process of monitoring and adaptive management) on climate change and the potential impacts of climate change on rangeland vegetation in the project area. The construction and repair of water developments and fences were not included in the analysis because they do not produce greenhouse gases and are not likely to be affected by changes in climate.

Climate change analysis is not related to the purpose and need. No climate change issues were identified during scoping.

Impacts of the Proposed Action on Concentrations of Greenhouse Gases

We estimated emissions of carbon dioxide, methane, and nitrous oxide from proposed prescribed burning, measured in metric tons per year. We used the First Order Fire Effects Model (FOFEM version 6.0) to calculate greenhouse gas emissions from prescribed burning.

The Council on Environmental Quality has issued draft guidance about including climate change in National Environmental Policy Act analysis, including the following:

> "When an agency determines that evaluating the effects of GHG emissions from a proposed federal action would not be useful to the decision-making process and the public to distinguish between the no-action and proposed alternatives and mitigations, the agency should document the rationale for that determination. CEQ is providing a reference point of 25,000 metric tons of CO2 emissions on an annual basis below which a GHG emissions quantitative analysis is not warranted unless quantification below that reference point is easily accomplished." (Council on Environmental Quality; 2014 draft, under review).

We estimated methane emissions from grazing cattle, measured in metric tons per year. Methane emissions from grazing cattle were estimated by multiplying an annual methane output per cow by the number of cows or bison grazed in the project area. We assumed a midpoint of 80 kilograms per animal per year to calculate emissions. Annual methane output from an adult cow ranges from 55 to 110 kilograms per year.

Total emissions from the proposed action – livestock grazing (38 metric tons per year) and prescribed burning (762 metric tons per year) – would be 800 metric tons per year. This is below the Council on Environmental Quality reference point of 25,000 metric tons of emissions per year; therefore additional emissions analysis was not warranted. Total emissions from the "no grazing" and "continued current management" alternatives would be less than the proposed action because no prescribed burning is planned in these alternatives.

Impacts of Climate Change on Rangeland Vegetation

Late and late intermediate seral stage rangelands are better able to withstand climatic changes such as drought. They have a diversity of shallow, medium, and deep-rooted perennial grasses along with a variety of forbs and a few shrubs. Very little, if any, bare ground is present; soils are stable with little to no wind or water erosion.

The Indian Creek and Big Corral allotments have a higher percentage of plant species in late intermediate seral stage. The Cheyenne, Cheyenne South, and Nevis Draw allotments have a higher percentage in early intermediate seral stage. This may mean plant communities in these three allotments are less resilient to environmental stressors like drought.

The adaptive management strategies under alternative 3 are key components in being responsive to climate change impacts. Adaptive management practices would result in healthier rangeland ecosystems that would be better able to transition naturally with any potential climate change impacts over the very long term.

Removing livestock grazing (alternative 1) would initially move vegetation to late seral stage. Over time, however, lack of disturbance would result in large amounts of plant litter accumulating. This buildup of litter would cause mature plants to become less vigorous and less dense. As density decreased, spaces between plants would fill in with annual grasses and forbs resulting in plant communities more typical of early seral or early intermediate seral. As note previously, these communities may be less resilient to environmental stressors like drought (Natural Resources Conservation Service 2008).

The continuation of current management (alternative 2) would do little to move plant species composition in the Cheyenne, Cheyenne South, and Nevis Draw allotments to late intermediate or late seral stages. This could mean plant communities in these allotments would be less adaptable to climate change impacts and environmental stressors.

Socioeconomic Impacts

This section incorporates by reference the "Socioeconomic Report" on file in the project record (40 CFR §1502.21). That document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation the social scientist relied on to reach the conclusions shown here.

We considered the potential of impacts of the proposed action and alternatives on the economic efficiency and environmental justice. Economic efficiency was analyzed based on the cost of treatments and revenues from grazing permits the results of this analysis are summarized in table 13. Environmental

justice was analyzed based on poverty rates, race and ethnicity, and the qualitative evaluation of potential for disproportionate impacts on minority and low-income populations.

Table 13. Measures of economic efficiency by alternative

Measurement	Alternative 1	Alternative 2	Alternative 3
Annual grazing revenue	$9,600 for 2 years, $0 thereafter	$9,600	$9,600
Annual administrative costs of grazing	$3,600	$7,600	$12,000
Present value - benefits	$18,800	$87,500	$87,500
Present value – costs	$19,500	$41,200	$218,200 to $414,100
Net present value	$ (600)	$ 46,400	$ (130,700) to $ (326,600)

Socioeconomic Impacts of Alternative 1

Alternative 1 has a negative net present value of approximately $(600) over a 10-year period. The Forest Service would continue to receive revenue from grazing fees for two years, but some administrative costs of rangeland management would continue for the duration of the analysis period. The grazing revenue would be approximately $9,600 per year for each of the two years. Forest Service administration costs associated with rangeland management of the allotments would be approximately $3,600 per year.

The average private grazing fee per animal unit month in South Dakota is $30 (USDA NASS 2015). The cost of replacing Forest Service-managed forage with private forage would be $170,550 (5,685 animal unit months multiplied by $30). In contrast, permittees currently pay $9,610 for public land forage (5,685 animal unit months multiplied by $1.69 federal grazing fee). Therefore, the replacement of Forest Service-managed forage with private forage would cost ranchers an additional $160,940. However, fees account for only one portion of the total cost of grazing. Once other grazing-related costs (for example, maintenance) are accounted for, the cost difference is eliminated. Nevertheless, it is possible the reduction in available federal forage would increase the private grazing fees, due to increased demand from ranchers seeking to replace lost forage.

Wages in the cattle ranching and farming sector are low relative to the rest of the agriculture sector and the economy overall. The cost of switching from public to private forage may be particularly burdensome for permittees with low household incomes. Therefore, alternative 1 has the potential to have distributional economic consequences despite the relatively low levels of poverty in the analysis area overall.

Socioeconomic Impacts of Alternative 2

The net present value of alternative 2 would be $46,400. The Forest Service would collect livestock grazing revenue and bear administrative costs of managing the range for the duration of the analysis period. Annual grazing revenue would be approximately $9,600 and annual administration costs associated with management of the allotments would be approximately $7,600. Since the benefits (revenue) exceed the costs, the net present value of alternative 2 is positive.

Costs to permittees are not expected to change under alternative 2; therefore, no environmental justice consequences are anticipated.

Socioeconomic Impacts of Alternative 3

The net present value of alternative 3 would be negative, between $(130,700) and $(326,600). Under this alternative, grazing fees would continue to provide approximately $9,600 per year in revenue. However,

the costs of administration would increase to approximately $12,000 per year. Additionally, the Forest Service would partially fund a number of range improvement activities, such as new fences and prescribed burning.

The net present value is presented as a range due to uncertainty about the exact costs of several range improvement activities. This range represents the low and high end of predicted costs. The net present value only accounts for the market benefits and costs faced by the Forest Service. Non-market costs and benefits, such as the value of improved riparian health, are not captured in these calculations. Therefore, negative net present values should not be construed as evidence that investment in range improvement projects is not worthwhile.

The analysis assumes that ranchers would be responsible for half of the cost of infrastructure improvements – between $7,700 and $33,000 annually. This cost reduces the annual consumer surplus of ranchers, calculated under alternative 1, from $160,940 to $140,600.

Additionally, some of the adaptive management tools identified as part of the proposed action, such as herding, have the potential to increase costs to permittees. Specific practices would be discussed by the Forest Service and the permittee during annual signup. The precise costs to permittees of such actions is uncertain and contingent on permittee and allotment characteristics. As discussed under alternative 1, the cost difference between public and private forage is lower than it appears due to higher costs of managing public allotments. Costs of implementing adaptive management practices, such as herding, contribute to narrowing the gap between public and private forage costs. Permittees are expected to face lower costs under alternative 3 than alternative 1 but higher costs than under alternative 2.

However, rangeland improvements may reduce other costs (for example, livestock losses). These benefits may offset short-term costs to permittees. The consumer surplus calculations use only the difference between private and public grazing fees. The actual consumer surplus of ranchers will be influenced by other costs associated with grazing.

Although costs to permittees may increase relative to alternative 2, the changes are not expected to affect the financial feasibility of ranching. Therefore, no environmental justice consequences are anticipated.

Cumulative Impacts

The cumulative impacts analysis considers the potential for past, present, and reasonably foreseeable future actions to accumulate with the direct and indirect socioeconomic impacts of this allotment management plan. The socioeconomic impacts are driven by prices – of public land forage, private land forage, Forest Service administration, and range improvement activities.

Since past and present actions are already incorporated in the prices used in this analysis, only reasonably foreseeable future actions have the potential to cause cumulative impacts. Ecological conditions (for example, climate change) and market conditions (for example, global beef production, changes in tastes and preferences for meat) may cause price fluctuation. However, price fluctuations are not reasonably foreseeable. No other actions in the socioeconomic analysis area (Pennington and Custer Counties, South Dakota) are expected to affect the price of forage, administration, and range improvements.

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Appendix A: Public Comment Summary

Consistent with the Forest Service's pre-decisional administrative review regulations at 36 CFR Part 218, a preliminary (draft) environmental assessment was made available for public comment for a period of 30 days. A legal notice of opportunity to comment was published in the Rapid City Journal on January 27, 2016. The 30-day comment period ended at 11:59 p.m. on Friday, February 26, 2016.

A letter stating the availability of the draft environmental assessment and dates for the comment period was sent by mail to 180 interested agencies, groups, elected officials, and individuals. Specific written comments were received from the following agencies, groups, and individuals:

Respondent #	Name	Date Received
01	South Dakota Game, Fish, and Parks	2/22/16
02	Northern Cheyenne Tribe	2/23/16
03	Merlin (Frank) Bloom	2/25/16
04	Dennis and Gwen Zelfer	2/25/16
05	Association of National Grasslands	2/26/2016
06	Scott and Veronica Edoff	2/26/2016
07	South Dakota Stockgrowers Association	2/26/2016
08	Cecilia Zietlow Steen	2/26/2016
09	The Wildlife Society	2/26/2016
10	Dan O'Brien*	2/28/2016
11	Beverly Taylor	Postmarked 2/26/2016

*Comment emailed after the end of the comment period

Public meetings were also held during the comment period on February 5 and February 12, 2016. Although the agency summarized the comments and concerns that were presented by the public at those meetings, the record does not attribute them to an individual.

The following table lists each specific written comment received and the agency's responses. Comment letters are located in the project record. Example: Comment # 01.01 is the first comment from the first listed respondent on page 73.

Table 14. Public comment summary for the Cheyenne River Area Range Allotment Management Plan draft environmental assessment

#	Topic	Comment	Response
08.01		Letter of support	Thank you for your comments.
02.01	Cultural	Would like to know if there will be impacts on cultural resources in the project area.	Mitigation measures for heritage resources will be avoidance for those sites determined unevaluated and eligible to the National Register of Historic Places.
06.16	Fuels	Prescribed fire has the potential of burning out private landowners. If this would happen the private landowner should be financially compensated.	All compensation for unintended damage to private property from prescribed fire caused by the Forest Service would be adjudicated under the Federal Tort Claims Act.
05.01	NEPA	The Forest Service must prepare an EIS in order to fulfill its statutory duties to protect the soil and vegetative cover of the grassland units, and fulfill the scope, purpose and need for action of the March 4, 2015 scoping letter because the unit's existing conditions are not meeting the LRMP direction for desired diversity of vegetation structure and vegetation composition.	The Council on Environmental Quality's implementing regulations for the National Environmental Policy Act allow agencies to prepare an environmental assessment on any action at any time in order to assist agency planning and decision-making (40 CFR 1501.3(b)). The purpose of an environmental assessment is to determine whether an EIS is necessary (40 CFR 1501.4(c)). The responsible official will consider the context and intensity of the effects disclosed in the environmental assessment to determine whether an environmental impact statement would be necessary.
05.02	NEPA	The Forest Service's decision to avoid the study of the Alternatives proposed by ANG during the scoping process deliberately avoids seminal issues regarding the environmental damage caused in the Cheyenne River Allotment Management Area riparian areas and is a violation of the aforementioned statutory and regulatory authorities.	In scoping, the commenter recommended an alternative that deleted the Recommended Wilderness designation on land within the project area. When we prepared the Revised Land and Resource Management Plan for the Nebraska National Forests and Grasslands (Forest Plan), we determined that livestock grazing is compatible with the Recommended Wilderness designation and this designation will not interfere with the appropriate management of livestock on these allotments. Therefore, an amendment to change the Forest Plan management area in which most of the area these allotments are located within would be beyond the scope of the environmental analysis. The commenter also recommended an alternative that allows permissible water development both in and out of the area designated for [Recommended] Wilderness in order to improve the distribution of livestock within the allotments. We determined that water (and other infrastructure) development may occur as part of the project, within the constraints of law, policy, and regulation.
01.01	Range	Bison and cattle graze the same allotments although at different times of the year. AUM equivalents for bison - has that been taken into consideration for forage utilization? Bison movements and herbivory are different from cattle. Are there sufficient monitoring (Table 76) and adaptive management strategies to give flexibility to alter current grazing schedules for these two types of livestock? It may be useful to switch timing rather than adhering to the same type of livestock grazing the same areas in the same manner every year.	Animal unit month equivalents are addressed in the Nebraska National Forests and Grasslands Forest Plan Appendix C. Research shows adult bison animal unit to a 1,000-pound cow with calf is 1.0 (TN Range No. 3 June 2009, Estimating Initial Stocking Rates, Dan Ogle, Plant Materials Specialist, Natural Resources Conservation Service, Boise, ID, Brendan Brazee, State Rangeland Management Specialist, Natural Resources Conservation Service, Boise, ID). This animal unit equivalent is also identified on page 3-18 of the Region 2 Rangeland Analysis and Management Training Guide. Adaptive management strategy, including potential changes in timing will be used to address resource conditions identified during the planning process, and through future monitoring.

01.02	Range	For stocking rates and estimated forage needs: did the effects analysis and adaptive management options include consideration of greater cattle weights (all age groups) in today's market? AUM equivalent or adjustment should be used for today's cattle or the RMAP will significantly underestimate forage needs and use.	While size of livestock may vary by producer, monitoring does not show that there are issues with carrying capacity on these allotments. Rather, there is a lack of disturbance in some uplands, and too much disturbance in some riparian areas. The proposed action includes adaptive management options that are designed to improve livestock distribution to help improve conditions in the project area towards the desired conditions.
01.03	Range	We noted that key monitoring areas and vegetation species had yet to be delineated on maps. Identification of these may be a work in progress but should become part of the final RAMP and Allotment Operating Instructions.	Preliminary key monitoring areas are shown in Appendix A of the environmental assessment. However, final key areas will be determined during the development of allotment management plans tiered to this environmental analysis.
03.06	Range	Furthermore, proper weed prevention controls need to be addressed as a peripheral alternative. An increasing Mullein problem already exists on the Badlands National Grassland and in the park. Unless proper action is taken, Mullein seeds will continue to spread and overcome rehabilitating vegetation areas.	We assume that this comment is in regards to the Buffalo Gap National Grassland and Badlands National Park. Noxious weeds are discussed in the Environmental Impacts section of the environmental assessment under the range and noxious weed resource sections as well as the range and noxious weed specialist report. Weed treatment will continue to occur under the 1993 Nebraska National Forests and Grasslands Undesirable Species environmental assessment and other applicable state, local, and federal laws. While common mullein is currently not a state or locally listed noxious weed species in South Dakota or Pennington County, it and other noxious weeds can still be treated within the project area. The Wall Ranger District and Badlands National Park are currently working on this issue with the Pennington County Weed and Pest Board and adjacent private landowners.
03.07	Range	Finally, the livestock allotment terms are inadequately balanced to address the need for vegetative re-growth. The problem areas involved need a rest period. Cattle graze the Area from May to November and the Bison graze from December to April. Whether oscillating term draw backs between Bison and cattle, the vegetation needs a brief rest period to allow for unhampered regeneration. Scheduling Bison removal from the Area by March 15, would allow for the needed time to give the vegetation a proper growing period.	Based on monitoring data that was collected from 2010 – 2014 and from field notes, the main concern within the project area regarding vegetative health is the fact that livestock are spending a disproportionate amount of time near the riparian areas and many of the upland areas are not receiving enough disturbance. The proposed action includes a series of adaptive management options that are designed to help reduce livestock use near the riparian areas and increase use in the upland areas that need disturbance. While this can be done administratively, one of these adaptive management options includes changing the season of use by livestock.
04.01	Range	[How will the plan affect] Getting our water line approved and done this year so our bulls will have adequate, clean drinking water for survival in the Spring/Bull Pasture.	Water line is a part of the analysis and can be installed upon completion of the environmental assessment and decision notice, if included in the environmental assessment and decision notice.
04.02	Range	[How will the plan accomplish] Prairie dog control. They are within the 1/2 mile buffer zone of private land.	The comment is outside the scope of this project. Prairie dog control was addressed in the boundary management zone environmental analysis and will continue to follow that direction.

04.04	Range	If buffalo are to continue grazing in this area, the buffalo "owners" should erect 6 wire fences as they were supposed to. They need to be done and done right to keep the buffalo from escaping onto private land and ruining private land owner fences and putting us in danger. An electric fence does not contain buffalo, especially if the fences have no juice box attached to them.	Adjacent landowners are responsible for boundary fence maintenance. Five-wire fence complies with state law (SDCL 43-23-4.1). Maintenance of range improvements, including electric fence chargers, are a permit administration issue.
04.05	Range	Buffalo need to be branded for identification, not just a plastic ear tag with a number on it. That DOES NOT show ownership.	The comment is outside scope of project. Proof of ownership is an administrative issue, and is currently adequate for all permitted livestock in the project area. Branding, Brand Registration and brand inspection are the responsibility of the South Dakota State Brand board. To our knowledge, the terms and conditions of the term grazing permits are currently being met by all permitted livestock within the project area.
04.06	Range	Buffalo destroy the landscape by digging and rubbing. They ruin the cedar trees, yucca plants, and other things growing that are protecting the landscape from erosion. They have made trails in places that cattle have never gone before. We have had to fence knobs that we've never had to fence before because the buffalo have made trails on these knobs. We should not have to build fences at our expense in places that we've never had to fence before.	The environmental assessment and range specialist report address the direct, indirect, and cumulative effects of livestock grazing on the vegetation within the project area. The effects of livestock grazing on the soils are also covered in the environmental assessment and in the soils and water specialist reports. Extensive field observations by Forest Service personnel over a several year period do not indicate bison destroy the landscape. Forest Service not aware of where private landowner has built fence.
04.07	Range	Buffalo should be bangs vaccinated to be a good neighbor so cattle ranchers do not get the disease from unvaccinated buffalo. That should also be said for other vaccinations.	The comment is outside scope of project. Vaccinations and other livestock disease issues are the responsibility of the South Dakota State Veterinarian's office.
04.08	Range	Private land owners who boarder [sic] Forest Service need to be told in writing that they need to fence the areas they boarder [sic].	The comment is outside the scope of the project. This is an administrative issue. The following is taken from Forest Service Manual 2230 – Grazing and Livestock Use Permit System, effective 09/09/2005. 2230.6 - Lands Not Under Jurisdiction of Forest Service The United States is not responsible for intrusion of permitted livestock upon private lands or for the settlement of controversies between the owner of the livestock and the owner of the land. Federal courts have rendered decisions (Shannon v. United States, l60 Fed. 870 (Cir. 9 1908); Light v. United States, 220 U.S., 523; United States v. Gurley, 279 Fed. 874 (N.D. GA. 1922); United States v. Johnston, 38 F. Supp. 4 (S.D.W.VA. 1941)) holding that the United States is not required to fence its lands to protect them against unauthorized livestock or to control the livestock permitted to graze on the National Forest.

04.09	Range	All permit holders should be given up to date maps as to who fences what areas and who shares these fences. For many years we have done all of the fencing surrounding our permitted areas and then we are told that others are also supposed to be fencing these areas as well. We have done all of this fencing at our time and expense. Those who are supposed to share these fences, if they do not know how to install or fix a fence, they need to hire someone who is qualified to do it. The major fencing that we have had to do is not from our cattle breaking it or running through it, it is from another permit holder who does not fix fence or control or get rid of the unruly livestock that have no problems breaking though fences, crawling through fences or jumping them. This is unfair to us to use our time and supplies to fix fence that others destroy. There is also a couple areas that during heavy rains or snow melt, also wash away. We have had to fix those areas as well.	The comment is outside scope of project. Maintenance of range improvements is a term and condition of term grazing permits. The Forest Service is currently working with permittees on the Wall Ranger District to update the maintenance responsibility maps, which are a part of the term grazing permit.
04.10	Range	We have had rock hounds, hikers, and tourists stop by our house and ask why there are buffalo roaming about the area. They stated that the dangers of buffalo keeps them from coming back to this area. That is unfortunate as we get some very respectful people that come to this area to enjoy it, but as long as buffalo are here, they won't come back until they know that the buffalo are no longer here during certain times of the year. They would like to know what dates buffalo are in the area, and would appreciate it posted somewhere for their safety.	The comment is outside scope of project. This concern is addressed through the permit process. We cannot post signage relative to danger of bison, but may be able to identify basic season of use of bison (and other permitted livestock) in literature given out to the public, and on the kiosk at the top of Cardiac Hill.
04.11	Range	When buffalo escape the area that they are supposed to be in, we'd like the respect of the "owners" to gather them and trail them back to their permitted area with horses as the rest of us do with our livestock. The buffalo "owners" go tearing around our allotments and our private land with ATV's and pickups off of the trails/roads. Thus making more trails that we don't need. As dry as the tall grasses get in the winter, this is one way to start a fire. The rest of us permittees DO NOT treat the land this way.	The comment is outside the scope of this project. Use of motorized vehicles and trespass on private lands are ultimately a criminal matter under the jurisdiction of the county sheriff. Resource damage to National Forest System lands while administering a grazing permit, if documented and proven, may result in permit action. Term Grazing Permit - Parts 1 And 2 (Reference FSM 2230) PART 2 - General Terms and Conditions 10. Protection. The permittee, or the permittees' agents and employees, when acting within the scope of their employment, and contractors and subcontractors will protect the land and property of the United States and other land under jurisdiction of the Forest Service covered by and used in conjunction with this permit. Protection will include taking all reasonable precautions to prevent, make diligent efforts to suppress, and report promptly all fires on or endangering such land and property. The permittee will pay the United States for any damage to its land or property, including range improvements, resulting from negligence or from violation of the provisions and requirements of this permit or any law or regulation applicable to the National Forests System. Off road travel as required to administer the term grazing permit is authorized as a part of the term grazing permit and associated annual operating instructions.

05.03	Range	The failure to meet the LRMP prescriptions for the riparian area along the Cheyenne River is caused by the Forest Service's management of the allotment in question. . . In Sections 19 and 30, the Forest Service allowed the construction of a fence that has prohibited cattle to acquire water for approximately a mile along the Cheyenne River for a number of years. The effect of the fence has been to bottleneck the cattle and Bison into an artificially limited space that caused the degradation of the riparian area. This degradation of the riparian area is caused by the lack of water for the buffalo and cattle during the winter months, as water improvements have been prohibited in the interior of the Big Corral and Indian Creek pastures because the Forest Service has managed the area as a defacto Wilderness Area.	In the fall of 2011, the Wall Ranger District wildlife biologist prepared and evaluated a proposal, the Cheyenne River Habitat Enhancement Project, to install 0.65 miles of fence along the Cheyenne River and to remove 0.9 miles of old fence, south of Indian Creek. The purpose was to fence approximately 300 acres that were acquired by a land exchange, to exclude unauthorized livestock grazing, enhancing habitat for wildlife. The project was approved as a categorical exclusion and the decision memo was signed January 12, 2012. The project was a cooperative wildlife enhancement project with the National Turkey Federation and South Dakota Game, Fish, and Parks. The fence was installed the summer of 2012. The fence was damaged by flooding events during the spring of 2015, however it is repairable.
05.06	Range	The duty to study and evaluate all of the contributing factors causing the degradation of the allotment cannot be ignored. This illegal segmentation has been fully explained by the appellants in the prior administrative record of the LRMP since 2001. The time for a comprehensive evaluation has long since passed. That environmental damage has driven all of the administrative record to this point.	Factors contributing to the project area not meeting Forest Plan direction have been analyzed in this environmental assessment and the associated individual specialist reports. One of the reasons that the desired condition is not being met in the project area (identified through monitoring and field observations) is the fact that livestock are spending a disproportionate amount of time in the riparian areas, and many upland areas are not receiving enough disturbance to promote vegetative health. Other cumulative effects in the project area were also analyzed in the environmental assessment. The proposed action includes adaptive management options to improve conditions in the project area towards Forest Plan desired conditions.
05.07	Range	The affirmative duties of preventing the environmental damages that have occurred may not be segmented because the Forest Service did not take affirmative steps to address these issues in the years leading to this continually delayed and segmented decision making process. For the Forest Service to now act as if this was not reasonably foreseeable and remedied, is a violation of the Forest Service's responsibility of "reasonable forecasting" to predict the environmental effects of proposed actions before they are fully known. That duty is implicit in NEPA.	The comment is outside the scope of this project. The Forest Service has addressed issues across Wall Ranger District of Buffalo Gap National Grassland in a systematic manner as shown by other National Environmental Policy Act analyses. The purpose of this environmental assessment is to analyze the effects of livestock grazing in the project area, and, if it is decided that grazing should continue, what, if any, changes need to be made to move resource conditions toward Forest Plan objectives.
05.09	Range	The Forest Service has the analysis, science and ability to remedy the environmental destruction it has created, but instead it further attempts to shirk its mandatory duties under statutory and administrative law.	The purpose of this environmental assessment is to analyze the effects of livestock grazing in the project area, and, if it is decided that grazing should continue, what, if any, changes need to be made to move resource conditions toward Forest Plan objectives. The proposed action includes adaptive management options that are designed to improve conditions in the project area towards meeting the LRMP direction and attain the desired conditions for the project area.

05.12	Range	The Forest Service must prepare an EIS to eliminate the arbitrary and capricious decision to remove livestock from an allotment for the purpose of introducing Bison during the winter which increases destruction of riparian areas as the recommended for wilderness designation precludes non-freezing water improvements in the interior and prevents the ability to achieve the desired condition for vegetation.	The Forest Service is not required to prepare an environmental impact statement unless the potential environmental effects of the proposed action are likely to be significant. See response to comment 5.01. Livestock have not been removed for the purpose of introducing bison, rather a permittee requested to convert from a cow/calf summer permit to a fall/winter bison permit. This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that permitted livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations. The proposed action has incorporated adaptive management options that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. These adaptive management options include the development of other water sources and, while this can also be done administratively, the ability to change the kind and/or class of livestock as well as the season of use. The environmental assessment also looked at the effects of bison and cattle grazing as well as the different requirements of the management area designations within the project area. The limitations on improvement development within the recommended for wilderness portion of the project area result from the standard requiring the use on natural materials, and are also discussed in the environmental assessment.

05.13	Range	The Forest Service has made a determination to introduce Bison during the winter months precluding the desired vegetative conditions from being met. Appellants assert that the failure to evaluate the impediments to water development created by the wilderness designation, coupled with the decision to allow Bison to winter in the allotment is arbitrary and capricious as the Bison must find water during the freezing portions of the winter, thus damaging the riparian areas. To say it another way, failure to study the effects of the defacto Wilderness Designation and Bison introduction, precluding adequate rest of the riparian areas is arbitrary and capricious decision making. The Bison also must be managed at a level exceeding the Natural Resource Conservation Service South Dakota State Technical Guide ecological site similarity index for range condition of 25%. The combination of prairie dog population, winter Bison and nondevelopment of water infrastructure in the interior of the allotment could degrade the allotment to sod type grasses, and the plant community may be placed into suspended succession without major future inputs. The failure to acknowledge and study the wilderness management is arbitrary and capricious as it has no Congressional support, but rather, appears to be a punitive measure for the permittees.	The bison that are currently permitted to graze in the project area are the result of a permittee requesting that their term grazing permit be converted from authorizing cattle to one that authorizes bison. This is also addressed in the Forest Plan which states that bison are allowed to graze on the grasslands (Forest Plan 1-23). This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations and portions of the uplands are not receiving enough disturbance to promote vegetative health. The proposed action has incorporated adaptive management options that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. These adaptive management options include the development of other water sources and, while this can also be done administratively, the ability to change the kind and/or class of livestock as well as the season of use. The environmental assessment also looked at the cumulative effects of prairie dogs in the project area, as well as the effects of bison and cattle grazing in the project area. Management area designations are made during the Forest Planning process and are outside the scope of this document. However, the different requirements of the management area designations within the project area are discussed in this environmental assessment, which includes the limitations on improvement development within the recommended for wilderness portion of the project area resulting from the standard requiring the use on natural materials. A similarity index of 25 percent objective does not apply across the project area. It is referenced to ecological conditions on prairie dog colonies, as stated in the prairie dog environmental impact statement (Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008)). We have not identified it as a trigger in this environmental assessment.
05.18	Range	An EIS must be completed to expressly set forth the mitigation measures that will be taken to repair, restore and rehabilitate to the entire management area, to the NRCS SI of at least 25%.	The Council on Environmental Quality's implementing regulations for the National Environmental Policy Act allow agencies to prepare an environmental assessment on any action at any time in order to assist agency planning and decision making (40 CFR 1501.3(b)). The purpose of an environmental assessment is to determine whether an environmental impact statement is necessary (40 CFR 1501.4(c)). The responsible official will consider the context and intensity of the impacts disclosed in the environmental assessment and in public comments to determine whether an environmental impact statement would be necessary. A similarity index of 25 percent objective does not apply across the project area. It is referenced to ecological conditions on prairie dog colonies, as stated in the prairie dog environmental impact statement. We have not identified it as a trigger in this environmental assessment.

05.19	Range	An EIS must be completed to eliminate the arbitrary and capricious decision to winter Bison without additional water improvements by studying the validity of management as recommended for wilderness designation.	The Forest Plan recognizes bison as permitted livestock (Nebraska National Forests and Grasslands Forest Plan Chapter 1, section I, no. 1, page 1-22), and while this can be done administratively, adaptive management options within the proposed action allow for changes in kinds and class of livestock on the allotment. See also response to comment 5.13 and 5.01
05.20	Range	An EIS must be completed to expressly set forth the monitoring measurers [sic] that will be taken to insure that the NRCS SI of 25% will be properly maintained throughout the project area.	The similarity index of 25 percent objective does not apply across the project area. It is referenced to ecological conditions on prairie dog colonies, as stated in the prairie dog environmental impact statement. We have not identified it as a trigger in this environmental assessment. See also response to comment 5.01. Monitoring is a crucial part of adaptive management and is discussed in the environmental assessment. A monitoring plan is also included in the environmental assessment (Appendix A).
06.06	Range	To benefit the river bottom in the Big Corral Allotment, remove the fence funded by the Turkey federation to help with distribution of livestock.	The fence was damaged by flooding events during spring of 2015. The proposed action includes moving the fence to the location recommended by commenter.
06.08	Range	To benefit the river bottom in the Big Corral Allotment, there should be no grazing in the very early spring to give the grass a good start.	Change in timing of use is an administrative action, and is highlighted as an adaptive management option in the proposed action.
06.09	Range	To benefit the river bottom in the Big Corral Allotment, the Big Corral #3 and Indian Creek #1 area should not be renamed as pastures. These two areas are not isolated. The removal of one fence line would very easily incorporate them back into the Big Corral Allotment. This would also alleviate the yearly paper work for these two areas. We question why on Table 5 there are no figures for the number, Kind and class of livestock or on/off dates for the Big Corral NGA #3. Why is there not a figure for the number of livestock on the Indian Creek NGA #1 and why is the on/off dates for a full year?	The Indian Creek National Grassland Area #1 has been permitted as a National Grassland Area prior to the early 2000s. The Indian Creek National Grassland Area #1 was waived in favor of the current permittee. The Big Corral National Grassland Area #3 is land acquired by a change in the Cheyenne River channel that was officially re-surveyed by a Bureau of Land Management cadastral survey team. This area was fenced. The fenced area includes cottonwood floodplain. National Grassland Areas are areas that are often used intermittently and are permitted for a total number of animal unit months. The number of head and season of use are not specified. The proposed action includes combining allotments as an adaptive management option.
06.10	Range	To benefit the river bottom in the Big Corral Allotment, the north end of the fence between Indian Creek and Big Corral needs to be repaired to stop the flow of livestock coming to the river out of Indian Creek.	This issue is addressed in the proposed action and current administrative processes. Fence will be maintained if either of the grazing alternatives is chosen.
06.12	Range	Why was no data collected in the Cheyenne, Cheyenne South and Hart Table-Spring pasture Allotments for vegetation structure? How can an effective management plan be made without this data?	The reasons will be explained in the environmental assessment. Vegetation structure data was collected for the Cheyenne and Cheyenne South allotments in 2014 and will be incorporated into the environmental assessment. We are unable to access Hart Table. However, based on previous field visits, vegetative conditions are similar to other allotments in the project area.
06.13	Range	A short section of the fence between Nevis and Big Corral should be relocated not just removed.	This change in fence location is included in the proposed action.

06.14	Range	Fencing off the river in the Big Corral Allotment will create a whole new set of problems when all the livestock are forced to cross the school section to get to the river.	This is one of several reasons that this fence is one of the last action items in the proposed action. If other adaptive management actions are successful at moving the area towards meeting Forest Plan objectives, construction of this fence will not be necessary. Coordination with the South Dakota Department of School and Public Lands will occur prior to construction of this fence.
06.20	Range	The unallocated AUM's acquired in the Indian Creek Land Exchange do need to be allocated according to the grant process in the FSH. The limitations on livestock numbers FSM 2231.23 should also be used when these AUM's are allotted out.	WO Amendment 2209.13-92-1, Effective 8/3/92, Page 9 of 21, FSH 2209.13.11 - On Added Lands. When the National Forest System acquires lands through purchase, donation, or exchange, term grazing permits may be issued for the grazing capacity of the added lands in accordance with the acquisition document. Afford priority for permit issuance to persons who were using the lands immediately before the acquisition. In the absence of such stipulation, the grazing capacity shall be available to grant (sec. 13.2).
06.21	Range	The vacant AUM's in the Nevis Draw Allotment that are temp-fill in AUM's should be allocated out, on used to achieve management objectives on the Big Corral Allotment.	The comment is outside the scope. The allocation of vacant animal unit months falls under term grazing permit administration. In past few grazing seasons have been permitted under a temporary grazing permit. Allocation of these animal unit months will follow the grant process as outlined in FSH 2209.13-92-1, 2209.13, 11-15 Effective 8/3/92, Page 10 of 21, 13.2 – Grant, and 13.21 – Qualifications: The Forest Supervisor may issue grazing permits with term status by grant or increase existing term grazing permits to entities recognized as the logical applicants for new range, transitory range, or additional range, provided that the applicants meet requirements, and are otherwise qualified, and provided the range resource can support increased use.
06.22	Range	The cost of adopting and implementing alternative 3 is huge and because current rangeland monitoring data indicates that the project area is moving toward Forest Plan objectives (page 7 of EA) we feel alternative 2 should be continued with a few modification to management. *removal of fences on select areas of the river bottom in Big Corral allotment. *new or improvements/repair of water sources, especially in center and south end of Big Corral and Indian Creek *repair fence between Indian Creek and Big Corral *prairie dog removal from the river bottoms in Big Corral	Suggestions made for alternative 2 are for most part included as adaptive management options in alternative 3. This comment recommends eliminating some of the adaptive management tools. Prairie dog removal is outside the scope of this document, and will continue to occur following direction in the Final environmental impact statement Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008). Maintenance of the fence between Indian Creek and Big Corral would continue under either alternative 2 or alternative 3. Adaptive management allows for the Forest Service to implement only those management actions that are necessary to meet Forest Plan objectives, thus potentially greatly reducing the actual cost of implementation.
07.01	Range	We recommend implementation of Alternative 3 with some adjustment and consideration for specific permittees. We generally support the objective of improving livestock distribution, reducing erosion along the Cheyenne River, and improving vegetation across the proposed area. We do not support any long-term reduction of any livestock allotted to these units.	The proposed action gives consideration to specific permittees with order of implementation of adaptive management tools being flexible. The proposed action does not include any long-term reduction of permitted livestock in the allotments included in the project area.

07.04	Range	We fully support the conclusions of the USFS on this point: Combining pastures and allotments is not a reasonable management tool and will interfere with herd management and animal health. We would, however, support the use of cross fences or temporary fences within allotments to assist in moving livestock to different parts of the allotments, and facilitating rotational grazing programs. Similarly, we support the use of mob grazing principles on allotments in cooperation with the impacted permittee.	The proposed action includes a number of different adaptive management options, including the use of mob grazing, addition of fences, and combining allotments. If the proposed action is selected, the order of implementation could vary from allotment to allotment based on the results of monitoring. New fences included in the proposed action are currently limited by the Forest Plan standard in Management Area 1.2 for "natural materials". This does not apply to temporary improvements in an emergency situations Nebraska National Forest Policy Regarding Installation of Temporary Range Improvements on Federal Lands, August 31, 2012.
07.08	Range	Cheyenne South Allotment adaptive management strategy – the permittee has indicated willingness to use salt and mineral distribution as a strategy. The permittee was not aware that salt and mineral could be fed on USFS lands. Further, educational conversations with the permittee is advised. We appreciate that burning was reduced to a lower priority after meeting with the permittee. The permittee indicated there is a water well available that currently has no pump available, but could easily be used to develop a water source.	The Forest Service has communicated to permittees regarding salt and mineral available as a management tool. The well referred to in the comment is actually located on private land and the use of that water is not controlled by the Forest Service. If the private land owner is interested in utilizing this water on the grassland, the Forest Service will discuss potential use of this water source.
07.09	Range	Big Corral allotment adaptive management strategy –The permittee indicated that there is need for maintenance of the stockdam on this allotment and that strategic water development would likely result in considerable improvements to the livestock distribution in the higher elevations of the allotment.	Some of the dams have been maintained in the past 8 years, others need additional maintenance. Maintenance of range improvements does not require National Environmental Policy Act analysis, but is highlighted as part of the adaptive management options because of the likelihood that this maintenance would help improve conditions in the project area toward Forest Plan objectives. Archaeological clearance for maintenance and/or repair has been completed on many of these improvements. Based on permittee input, all stockdams were retained as possibilities for maintenance. Further options for developing new water sources within the constraints of Management Area 1.2 are also being discussed with permittees and adjacent landowners, including South Dakota School and Public Lands.
07.11	Range	Nevis Draw Allotment adaptive management strategy –The permittee resists the use of prescribed burning. The main area of erosion and concern seems to lie along the Cheyenne River. The permittee suggested that moving the fence along the northern boundary would eliminate the need for the livestock to cross the river there. We ask the USFS to help find a solution that would allow for this very practical solution rather than resorting to other management strategies.	The Cheyenne River riparian area in the Nevis Draw allotment is in good condition due to the 3-pasture rotation system that has been in place for over ten years. Burning is proposed for areas away from the river and on table tops and burning is one of several adaptive management tools. Prescribed burning has been moved down the list of actions in this allotment. In addition, based on further public comment, burn unit boundaries may be moved off of the property line to help address adjacent landowner concerns.

07.14	Range	If the true purpose of the proposed wilderness designation and the proceeding management plans is to meet the management objectives for soil health and vegetative health, then reasonable allowances for fencing and water development should be made. We believe the proposal for wilderness designation would allow for facilities, fences and water, that would meet the priority objectives for vegetation and soil health and we strongly urge the U.S. Forest Service and Mr. Kevin Atchley to authorize these projects.	The Recommended for Wilderness management area includes a standard that requires use of “natural materials” for range improvements/facilities. A change to that standard would require a Forest Plan amendment which is outside the scope of this document. This direction still allows for some development, including temporary facilities, and the construction of improvements using natural materials.
09.02	Range	Herding: This is an excellent direction to limit overuse but requires increased monitoring and knowledge to improve grassland health and its reproductive potential throughout the grazing season.	Herding is one of the adaptive management tools identified in the proposed action. Monitoring is a key part of the proposed action regardless of the adaptive management tool that is being implemented. Herding plans would be discussed with individual permittees at annual meetings.
09.03	Range	Prescribed Fire Utilization: A one year rest after the burn from grazing (except where cool season non-natives need to be suppressed) will limit negative impacts and improve grassland health and vigor.	The burning proposed is primarily patch burning and is a tool to reduce excessive litter buildup. Grazing following burning improves the disturbance to the litter, opening up the ground surface and allowing increased vegetative growth. The primary objective of prescribed burning in the project area will be to reduce cool-season non-natives, or to reduce litter, and increase livestock use on little utilized areas. Therefore, in most cases, grazing will not be deferred after burning, but rather encouraged.
09.04	Range	Salt and minerals must be kept far from wet meadows, saturated soils and riparian areas.	Salt and mineral may be initially placed near dams and dugouts to encourage livestock to use water sources that are not often used. There may be instances where temporary mineral placement near stock dams or riparian areas is encouraged, if increased livestock disturbance is desired in those areas.
09.05	Range	Allotment Management and condition: We appreciated the enclosed maps but noticed that key monitoring areas were not highlighted. What is the desired condition for each allotment?	There are not allotment-specific desired conditions, but rather overall desired conditions for the Wall southwest geographic area and Management areas 1.2 and 6.1, which these allotments are part of. The desired condition for the project area is identified on pg. 4-6 of the environmental assessment. Not all desired conditions apply to all allotments in the project area. Preliminary key monitoring areas are identified in Appendix A of the environmental assessment. Final key areas to be monitored will be determined through the annual planning process and identified in the allotment management plans and annual operating instruction.
09.06	Range	Alternative 3 will be successful only with proper and intense monitoring of the allotments to achieve desired ecological conditions for riparian areas (with incorporation of additional triggers and backing off from >60% use), vegetative structure, and native species composition.	We agree. The draft environmental assessment did not adequately describe the 60 percent use objective in riparian areas. This objective has been changed to read: “continued utilization greater than 40 percent on riparian species, such as prairie cordgrass, and 60 percent on upland species, such as western wheatgrass in key areas near riparian areas” (see environmental assessment, description of Alternative 3; “Adaptive Management Actions;” and Appendix A).

10.01	Range	I do not agree with the order in which the proposed actions are to take place. Dispersing mineral and other range supplements throughout proposed areas may only work for a short period of time. Spring seasons that bring green grass will influence livestock movement until the dry season sets in, thus again concentrating livestock in riparian areas that possess early and late warm season grasses along with water. Herding may help manipulate livestock movement, but may also be limited by inclement weather and livestock owner negligence.	The proposed action identifies several adaptive management options that are designed to improve conditions in the project area towards the desired conditions. While the order of actions in the flowcharts is preferred, it may change due to resource conditions, weather, budget, workload, etc.
10.03	Range	Fence construction along the Cheyenne River would be the most effective management practice to manipulate grazing, but may not be the most ecologically sound decision. Development/Improvement of other water sources would change the character of the grasslands and cause maintenance issues that might not be a positive change to this unique landscape.	The proposed action identifies several adaptive management options that are designed to improve conditions in the project area towards the desired conditions, including fencing and the development of other water sources. Effects of each of these adaptive management options is discussed in the environmental assessment as well as the Range specialist report.
11.01	Range	Need additional reliable livestock waters sources away from riparian areas: waterline from private land on west side of river across Cheyenne River on to SD State School Land near boundary of State land/NFS land. (Big Corral Allotment – Zebell Table)	While we acknowledge that water sources on private land may affect livestock distribution, the Forest Service has no authority over those improvements, but can work with those landowners to help those developments meet the needs of the allotment, if they are willing and interested.
11.02	Range	Explore possibility of installing waterline with in corridor outside of MA 1.2 in the Indian Creek allotment, including temporary above-ground waterline.	While the permanent placement of a waterline along the road corridor in the Indian Creek allotment would be in the a management area designated as 6.1 (Rangeland with Broad Resource Emphasis), and would not be required to meet the natural materials standard in recommended wilderness (Management Area 1.2), no definitive water source for a water line has been identified; therefore, a permanent development was not analyzed in this analysis, and would require separate National Environmental Policy Act analysis. There would also be additional soils/hydrology/archaeology/paleontology concerns with burying a pipeline in this corridor. If needed and a water source is identified, a temporary waterline in this area would be feasible, following direction in the Nebraska National Forests and Grasslands Procedures and Policy Regarding Installation of Temporary Range Improvements on Federal Lands (Lane et al. 2012.)
11.03	Range	Explore possibility of using water well on west side of Cheyenne South allotment for waterline. Later discussion with permittee/adjacent landowner indicated the well is on private land.	While we acknowledge that water sources on private land may affect livestock distribution, the Forest Service has no authority over those improvements. Also, see response to comment 11.01.
11.04	Range	Temporary waterline onto FS from adjacent private land, Nevis Draw allotment.	While we acknowledge that water sources on private land may affect livestock distribution, the Forest Service has no authority over those improvements. If the private land owner is interested in utilizing this water on the grassland, the Forest Service will consider potential use of this water source.
11.06	Range	Maintain the allotment boundary fence between the Indian Creek and Big Corral allotments, northern area.	This is included in proposed action.

11.07	Range	Re-build riparian area fence in different location to alleviate bottleneck.	This is included in proposed action.
06.11	Range/Econ	Herding may be a standard livestock practice but requiring it of cattle on a daily basis or even weekly is not a standard management practice. This will be labor intensive and a financial hardship to permittees. Because of the terrain unnecessary trampling of grass will happen if herding is required.	Herding is one adaptive management option identified in the proposed action. If the proposed action is selected, and the adaptive management action of herding is implemented, herding specifics will be discussed by the Forest Service and permittee during annual signup/annual operating instructions meetings. Effects of herding are discussed in the environmental assessment and the Range specialist report.
07.06	Range/Econ	We encourage the USFS to use herding only on allotments where permittees support this management tool. Herding must only be used when it does not excessively increase the labor for the permittee or cause stress on the livestock to the point that it causes economic harm.	See comment 06.11 above. Herding specifics would be discussed by the Forest Service and permittee during annual signup/ annual operating instructions meetings.
06.03	Range/Econ	The adaptive management tools proposed in alternative 3 could slowly phase out some grazing permittees and cause financial hardship.	The proposed action contains adaptive management options that are designed to improve conditions towards or to achieve the desired conditions outlined in the Forest Plan. Meeting these desired conditions would help to provide for a long-term, viable grazing program. We assume that the commenter is referring to the potential high cost of developing all improvements and alternatives in the proposed action. Only those actions and alternatives necessary to improve conditions in the project area toward the desired conditions would be implemented, potentially greatly reducing the cost of implementation. The cost of some actions, i.e., prescribed burning, would likely be covered by the Forest Service, some would be cost shared through the use of CP credits, and other funding opportunities could be explored.

04.03	Range/Fuels	NO prescribed burns. If there are grasses that need to be grazed down, have the permit holder put in lick tubs, minerals, or have them trail their livestock to these areas that are not being grazed adequately. Any burning in this area would be devastating to those of us who live here. This is an area that is impossible to fight or control fires on. There have been fires in this area that were left to burn because fire fighters cannot get to areas to fight them. After our large fire on our land almost three years ago, there is absolutely no proof that grasses come back better. From experience, this is false. The burn area only brought back weeds that livestock do not eat. The edible grasses burned and never grew back.	The proposed action has identified several adaptive management options that can be implemented to change conditions in the project area towards or to meet the desired conditions. One of these adaptive management options is prescribed burning. The effects of prescribed burning were analyzed in the environmental assessment as well as in the Range and Fire and Fuels specialist reports. Except where favored by the permittee, prescribed fire has been moved down on the alternative action list. While placement of mineral attractants can attain some of the same effects as prescribed fire, it does not have the same effect on nutrient cycling, and does not help meet the Forest Plan objective of returning fire to the landscape. Revised Land and Resource Management Plan for the Nebraska National Forests and Grasslands, Rocky Mountain Region, 2001 as Amended 2009 Chapter Wall Southwest Geographic Area Buffalo Gap National Grassland - Wall Ranger District Fire 1. Prescribe burn a minimum of 500 acres per decade to achieve the following desired condition objectives: Promote vegetative diversity; Improve wildlife habitat; Stimulate riparian/woody draw regeneration; Control or reduce invasive plants/noxious weeds. Objective Prescribed fire units in this area would generally be >100 to 300 acres in size, and designed using the natural fuel breaks provided by the riparian areas and badlands features. Weather prior to and projected weather proceeding burns needs to be closely monitored to help insure resource objectives are met. Forest Service personnel and permittees would need to work closely to monitor resource conditions following prescribed fire. J. Range Manage., 57:248 -252 May 2004, Patch burning effects on grazing distribution, Lance T. Vermeire, Robert B. Mitchell, Samuel D. Fuhlendorf, and Robert L. Gillen. Allred, B. W., S. D. Fuhlendorf, D. M. Engle, and R. D. Elmore. 2011. Ungulate preference for burned patches reveals strength of fire-grazing interaction. Ecology and Evolution 1:132–144.
05.21	Range/Fuels	The prescribed fire analysis must be updated consistent with the abovementioned actions that are required to be analyzed pursuant to NEPA.	The proposed action has identified several adaptive management options that can be implemented to improve conditions in the project area towards or to meet the desired conditions. One of these adaptive management options is prescribed burning. The effects of prescribed burning were analyzed in the environmental assessment as well as in the Range and Fire and Fuels specialist reports. Prescribed burning is also addressed in the Nebraska National Forests and Grasslands Forest Plan, which this document is tiered to.

06.17	Range/Fuels	Another reason not to use fire as a management tool is the potential of noxious weeds spreading.	The proposed action has identified several adaptive management options that can be implemented to improve conditions in the project area towards or to meet the desired conditions. One of these adaptive management options is prescribed burning. While we agree that the spread of noxious weeds is a concern, and will work closely with permittees to monitor weed conditions following any prescribed fires that may occur if the proposed action is selected, prescribed burning can also be used to reduce noxious weed infestations, and to increase the efficacy of herbicides, and ease of locating weed infestations. The effects of prescribed burning on noxious weeds and invasive species were analyzed in the environmental assessment as well as in the Range and Invasive Plant Species specialist reports.
06.18	Range/Fuels	Another reason not to use fire as a management tool is the possibility of a shorter grazing season or no grazing after a prescribed fire	Prescribed burns occur within a very specific set of conditions as set forth in a prescribed burn plan. The intent of this proposed adaptive management option would be to improve the health and vigor of the vegetation, as well as increase livestock use in those areas following the prescribed burn. Research shows, as cited in the draft environmental impact statement, prescribed patch burning is a very effective management tool for improving forage productivity and value and for changing livestock grazing patterns.
06.19	Range/Fuels /Soils	Another reason not to use fire as a management tool is the proposed burn area in Big Corral west prong will cause erosion and damage to the creek banks because of the unstable soil that is in the area already. Because of bare ground the current prairie dog town will expand.	Vermeire, L.T., D.B. Wester, R.B. Mitchell, and S.D. Fuhlendorf. 2005. Fire and grazing effects on wind erosion, soil water content, and soil temperature. Journal of Environmental Quality 34:1559–1565. Prescribed burns occur within a very specific set of conditions as set forth in a prescribed burn plan. The burn prescription includes consideration for reducing erosion potential. Prairie dog colonies may expand for the short term.
07.02	Range/Fuels	SDSGA has serious concerns about safety and liability for the use of fire as a management tool. We strongly recommend that fire be a lower priority tool and only be used after other management tools have proven to be ineffective.	The proposed action has identified several adaptive management options that can be implemented to improve conditions in the project area towards or to meet the desired conditions. One of these adaptive management options is prescribed burning. The effects of prescribed burning were analyzed in the environmental assessment as well as in the Range and Fire and Fuels specialist reports. Except where favored by the permittee, prescribed fire has been moved down on the alternative action list. If other adaptive management options are successful in achieving the desired conditions, this option may not need to be implemented in all allotments or areas. However, there are also Forest Plan objectives for returning fire to the landscape, which this decision may help achieve.
07.03	Range/Fuels	Additionally, we request that USFS only proceed with prescribed burns after notification, and with acknowledgement from the affected permittee, the local fire department of jurisdiction, and the county commissioners in the affected county.	Notification is currently a part of the prescribed burn protocol, and will continue to occur in accordance with law, policy, and regulation.

07.07	Range/Fuels	Cheyenne Allotment adaptive management strategy – We strongly urge the USFS to consider prescriptive burning as a last option and not as the primary strategy. The permittee indicated that this is a winter allotment. Any burning should be done in the springtime to allow for regrowth before the pasture is used again. The permittee also indicated that salt and mineral distribution would be a viable and likely a successful strategy. Water development is also important on this allotment and should focus on development of water to the upper elevations on the northeast portion of the allotment.	Prescribed burning is one of the adaptive management tools identified in the proposed action. Change in season of use, and improvement of water sources are also part of the adaptive management tools of this alternative. If prescribed fire is used, the season of use will be changed accordingly, in order to effectively use this combination of tools together.
10.02	Range/Fuels	I would like to see the prescribed burn method of grazing management take precedence over all other proposed methods as it is proven to be more affective ecologically, economically and natural tool in the long run.	The proposed action has identified several adaptive management options that can be implemented to improve conditions in the project area towards or to meet the desired conditions. One of these adaptive management options is prescribed burning. The effects of prescribed burning were analyzed in the environmental assessment as well as in the Range and Fire and Fuels specialist reports.
11.05	Range/Fuels	Wide buffer zones (no-burn area) adjacent to private land, Rx burn areas.	Noted and this will be included in specific prescribed plans.
01.04	Range/ Hydro	In our experience, waiting for >60% use in sensitive riparian areas is too late for that grazing season and at best, prolongs long-term restoration. The highly erodible soils in prairie watersheds and high water events are natural occurrences. Concentrated large animal impacts to riparian soils and vegetation are realistically the only factors the Wall RD can manage. We suggest that other measurable metrics, such as annual streambank alteration, in combination with monitoring woody and herbaceous vegetation will offer a more holistic scenario of the restoration process.	The utilization trigger will be changed to continued utilization greater than 40 percent on riparian species, such as prairie cordgrass, and greater than 60 percent on upland species, such as western wheatgrass in key areas, near riparian areas. Other quantitative monitoring methods can be implemented if deemed necessary.
01.05	Range/ Hydro	Incorporating a drought management handbook (Reece et al. 1991) as part of the RAMP is supported. We suggest that you give the RAMP flexibility in the adaptive management strategies to allow new drought science and research to be incorporated into the RAMP.	This flexibility is included in the environmental assessment.

03.05	Range/ Hydro	Another relevant factor in addressing the concerned Area, is the need to properly develop water sources to take the pressure off of the main watering areas. Specifically, water development is necessary up Indian Creek, on Huttmacher table, at the head of Nevis Draw, South of Chalcedony flat, and on ZBell. Proper water development in these areas will enhance cattle distribution more evenly and avoid concentration in riparian areas. However, the costs associated to water development in alternative 3 described in the plan are based on arbitrary values evidenced by a lack of numerical and cost breakdown. As the plan failed to divulge incremental costs and produces highly misleading data, to properly address and comment on the plan's proposed alternatives, a breakdown of the costs is needed to adequately represent the action.	This point is documented within the soil and water report and is built into the action alternative, adaptive management, based on monitoring and is a requirement in Region 2 water conservation practices and water conservation practices. Due to the nature of adaptive management, actual costs will vary, depending on which actions are ultimately implemented. Estimates given are overall, based on full implementation.
05.04	Range/ Hydro	. . . The proposed solution will only make the riparian degradation along the Cheyenne River even more acute, as the plan proposes approximately three miles of new fencing along the river in sections 19, 30, 25 and adjacent to 36. The cattle will actually be bottlenecked into an even more limited area along the river, and no effort is proposed to improve water in the interior of the Big Corral or Indian Creek pastures. Indian Creek Pasture is not entirely separated from Big Corral pasture by a fence; therefore, the cattle and buffalo concentrate in the Cheyenne River area when the darns freeze in the winter. Buffalo are permitted during the winter months.	Fencing is one of the adaptive management tools. Other tools may work to help change livestock concentration along the river during the hot summer months. The existing Indian Creek/Big Corral boundary fence will be maintained and is included in the proposed action. Neither the Forest Service nor permittees have observed bison concentrating along the Cheyenne River during the winter months. The use of temporary fencing would allow the option of only fencing during those times of year when excessive use of the riparian areas by permitted livestock is being observed. If a permanent fence is constructed, there would be options to let it down during periods when access to the river is needed for livestock management, or to include gaps in the fence to reduce, but allow access to the river. The addition of water sources is also identified in the proposed action as an adaptive management option
09.01	Range/ Hydro	Fence along the Cheyenne River: Good management practice but difficult to achieve during high-water years and flooding. Keeping bison and cattle from repetitive movements to riparian areas will require monitoring and maintenance of fence to limit impacts to the riparian community. Other metrics in addition to percent utilization should be itemized in the monitoring table. Utilization of >40% in riparian areas will not allow adequate riparian vegetation growth to stabilize river banks and improve wildlife habitat.	The Forest Service may utilize temporary electric fence due to flooding issues. The utilization trigger will be changed to continued utilization greater than 40 percent on riparian species, such as prairie cordgrass, and greater than 60 percent on upland species, such as western wheatgrass in key areas, near riparian areas.
06.05	Range/ Hydro	Water development (new and repair/improvement to existing structures) should be the top priority. The proposed tanks are a great start. Providing additional reliable water sources in the center and south side of Indian creek and Big Corral Allotments will help with distribution of livestock and reduce the supposed impact to riparian areas. The water development needs to be pursued on all areas of the Cheyenne River Management area not just on private or state land.	We agree that water sources away from the riparian area would greatly increase the distribution of livestock in the project area. This has been included as an adaptive management option in the proposed action. Currently, we are limited in how they can be constructed by the management area designation which has a standard that requires the use of natural materials in the construction or reconstruction of livestock facilities

05.16	Range/IDTL	The EA ignored the two Alternatives proposed in the April 2, 2014, ANG formal comment letter written to Chancey Odell. The proposed alternatives, if evaluated, would have necessarily satisfied the NEPA requirements for the Cheyenne River Allotment Management Plan. The failure to consider either of the alternatives renders the NEPA planning process inadequate.	In scoping, the commenter recommended an alternative that deleted the Recommended Wilderness designation on land within the project area. When we prepared the Forest Plan, we determined livestock grazing is compatible with the Recommended Wilderness designation and this designation will not interfere with the appropriate management of livestock on these allotments. Therefore, an amendment to change the Forest Plan management area in which most of the area these allotments are located within would be beyond the scope of the environmental analysis. The commenter also recommended an alternative that allows permissible water development both in and out of the area designated for [Recommended] Wilderness in order to improve the distribution of livestock within the allotments. We determined that water (and other infrastructure) development may occur as part of the project, within the constraints of law, policy, and regulation.
05.17	Range/IDTL	An EIS must be prepared to properly evaluate the range of alternatives that will allow for the development of water resources in the interior of the allotments in question that expressly allow the implementation of the Natural Resource Conservation Service similarity index of 25% in the management areas.	The purpose of an environmental assessment is to determine whether an environmental impact statement is necessary (40 CFR 1501.4(c)). The responsible official will consider the context and intensity of the impacts disclosed in the environmental assessment to determine whether an environmental impact statement would be necessary.
03.01	Range/ Recreation	The plan draft environmental assessment . . . lacks the proper scope, and fails to consider substantial direct impacts. The scope is limited by the Area's continued designation as a recommended wilderness that limits alternative action plans such as developing new water sources.	This environmental assessment analyzes the direct, indirect, and cumulative effects of the proposed action and alternatives in the project area. The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. These options include development of other water sources. Currently, a portion of the project area is designated as Management Area 1.2 – Recommended for Wilderness. As discussed in the environmental assessment and Range Specialist Report, this management area designation has a standard that requires the use of natural materials in the construction or reconstruction of livestock facilities. To change this standard or the management area designation would require a Forest Plan amendment and is outside the scope of this project.

03.03	Range/ Recreation	The Area's continued designation as a recommended wilderness limits the scope of the environmental assessment by handcuffing sufficient alternatives to the plans desired purpose. This status will prohibit certain improvements, managements and rangeland practices that could be an integral part in achieving the goal of the plan while easing fears in effected [sic] parties. These limitations imposed by the designation include successful prairie dog management, construction of cross-fences, and needed water development.	This environmental assessment analyzes the direct, indirect, and cumulative effects of the proposed action and alternatives in the project area. The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. These options include development of other water sources and the construction of fences. Currently, a portion of the project area is designated as Management Area 1.2 – Recommended for Wilderness. As discussed in the environmental assessment and Range Specialist Report, this management area designation has a standard that requires the use of natural materials in the construction or reconstruction of livestock facilities. To change this standard or the management area designation would require a Forest Plan amendment and is outside the scope of this project. Management of prairie dogs on the Buffalo Gap National Grassland has been addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008) and is also outside the scope of this project.
06.15	Range/ Recreation	If the Forest Service continues wilderness management practices then the FSM 2323.266 rule should be followed. “Use prescribed fire only where practiced before the designation of wilderness.”	The Forest Service Manual reference regarding wilderness management is correct. Forest Service Manual 2323.26 states; “Use management ignited prescribed fire only where…..it was practiced before the designation of wilderness…..” Since no part of the project area has been Congressionally designated as a wilderness, this directive does not apply.
07.10	Range/ Recreation	Indian Creek Allotment adaptive management strategy - The permittee indicated that there is one stockdam, and possibly a second (it was not noted on the initial maps), that needs maintenance. Both of these are located such that their maintenance would substantially improve livestock distribution. Additionally, while this allotment is within the “proposed for wilderness” designation, there is a road through this area and the right-of-way is not included in that designation. A water line might be placed with the right-of-way without violating the stricter designations.	While the permanent placement of a waterline along the road corridor in the Indian Creek allotment would be in the a management area designated as 6.1 (Rangeland with Broad Resource Emphasis), and would not be required to meet the natural materials standard in recommended wilderness (MA 1.2), no definitive water source for a water line has been identified; therefore, a permanent development was not analyzed in this analysis, and would require separate National Environmental Policy Act analysis. There would also be additional soils/hydrology/archaeology/paleontology concerns with burying a pipeline in this corridor. If needed and a water source is identified, a temporary waterline in this area would be feasible, following direction in the Nebraska National Forests and Grasslands Procedures and Policy Regarding Installation of Temporary Range Improvements on Federal Lands (Lane et al. 2012.)

07.12	Range/ Recreation	According to the Land and Resource Management Plan (LRMP) for these same grasslands, the "Recommended for Wilderness Designation" states that, "Opportunities to remove or relocate structural range improvements (fences and water developments), to achieve resource management goals and objectives, will be pursued." (LRMP page 3-6). SD Stockgrowers Association holds that this statement would give the U.S. Forest Service the authority to proceed with the fence and water development projects being proposed in the Cheyenne River Area Range Allotment Plan. To not proceed with those projects would not make it possible to meet the proposed wilderness designation's vegetation management objectives.	The Forest Service agrees. We can proceed with fence and water development projects as long as we are consistent with the requirements of the National Environmental Policy Act and the Forest Plan.

07.13	Range/ Recreation	Specifically, the “proposed for wilderness designation” could be interpreted to allow the U.S. Forest Service to make discretionary decisions regarding the development of fences and water resources in the following ways as listed in the 2001 RMP: Special Uses (Page 3-7) – the standard states that existing corridors for utilities may be maintained. The prohibition of development is a guideline and allows for flexibility. Infrastructure (Page 3-7) – The standard allows for the construction of facilitates and structures that are subordinate to the landscape or in keeping with the semi-primitive character of the area. SD Stockgrowers Association would suggest that water facilities could easily be built in ways that meet this standard. Secondly, the #2 standard that calls for the use of natural materials does not call for the exclusive use of natural materials. While we can understand this as a goal, meeting the #1 standard could be done without violating the #2 standard. Livestock Grazing as referenced in the “proposed for wilderness designation” (page 1-21 & 22) gives several guidelines that allow for a number of options to manage livestock. Specifically, #9 calls for the removal of fences or water facilities that are not contributing to desired conditions. SD Stockgrowers would hold that the development of these facilities should also be allowed if it is for the purpose of meeting vegetation management objectives. SD Stockgrowers would also hold that any decision to authorize the proposed facilities would not “degrade wilderness characteristics” and would not be irreversible. Finally, SD Stockgrowers notes that the Wilderness Act specifically authorizes continued grazing of livestock in designated wilderness, and that Congress has provided guidance in the form of “Congressional Grazing Guidelines” for grazing in wilderness (see attached). Restrictions on grazing in MA 1.2-Recommended for Wilderness should not be more restrictive than what would be allowed under the Congressional Grazing Guidelines.	The special uses references on page 3-7 of the Forest Plan are specific to special use permits, which are authorized by Forest Service Manual 2700. Term grazing permits are specific uses authorized by FSM 2200. Permitted livestock grazing is allowed under both Management Area 1.2 and Congressional Wilderness Grazing Guidelines. The 1.2 Recommended for Wilderness area is not a Congressional Designated Wilderness Area. Our governing document is the Forest Plan, which includes the standard for using natural materials in range improvement construction. The Forest Plan is a publicly developed document, which provides our direction on managing lands within the Nebraska National Forests and Grasslands. The Wilderness Act is guidance provided by Congress. The Forest Service can implement direction that is more strict than Congressionally directed, but we cannot adopt a guideline or standard that is less strict than Congressionally directed.

05.15	Range/Soils	The Forest Service continues to avoid the critical density issue in the EA. Appellants assert that allowing topsoil to blow and wash away without proper analysis is a violation of Federal law. Specifically, the EA analysis of the adverse environmental impacts was inadequate and conclusory in nature, as it contains only conclusory statements, without citation or documentation, in relation to adverse environmental impacts of the agency's decision to allow the prairie dog populations and densities to proliferate unabated on these federal lands. The EA states in the Soil and Water Resources Section that "Prairie dog colonies are located in flatter terrain which minimizes the potential for soil erosion." This statement also does not contain any citation to any studies. These statements regarding the cumulative impacts of prairie dog management are not reasonably thorough enough to allow the decision maker to make an informed decision. Conclusory documents and analysis of cumulative effects may render the EA inadequate.	Prairie dog management is beyond the scope of the project. Refer to Prairie Dog environmental impact statement USDA Forest Service Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units for further information. Effects of soil erosion from both wind and water can be found in the Soil and Water Specialist report and the environmental assessment. No evidence of accelerated soil erosion or sediment delivery to water resources have been noted in range monitoring.
07.05	Range/Soils	Fence along the Cheyenne River – We support the USFS conclusions of this management tool. This fencing project could only be successful in the event that other water sources were developed and made available to livestock first. Additionally, we ask the USFS to allow the allotment boundary fences to be moved in such a way that the corners of the fence do not create erosion along the river bank. Any effort to fence must include gates or consideration for livestock and equipment crossings, and allow reasonable and practical access to public and private lands.	Thank you for your comment. Currently the environmental assessment has a design feature that is common to all action alternatives which states that before any fencing of the river is constructed, alternative water sources would be developed. Fences will be constructed according to Forest Service standards and will include gates for livestock and administrative access.

03.02	Range/ Wildlife	The plan draft environmental assessment . . . lacks the proper scope, and fails to consider substantial direct impacts [due to] the plan's failure to consider the substantial direct impacts of the expanding prairie dog population, increasing mullein encroachment, and decreasing the Bison allotment term allowing for grass regeneration.	If monitoring indicates that current seasons of use for all permitted livestock are not resulting in conditions that are meeting or improving toward desired resource conditions, additional adaptive management actions may be implemented. The Forest Service is currently working with Badlands National Park, Pennington County Weed and Pest, and affected private landowners on the common mullein issue. If monitoring indicates that current seasons of use for all permitted livestock are not meeting or moving toward resource conditions, additional adaptive management actions may be implemented. This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. One of these adaptive management options includes changing the season of use by livestock. The environmental assessment and associated Range, Wildlife and Invasive Species Specialist Reports also analyzed the cumulative effects of prairie dogs in the project area, effects of bison grazing, and effects of noxious weeds. Management of the prairie dog populations is addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008), and is outside the scope of this project. The black-tailed prairie dog is a Forest Service Region 2 sensitive species. The Forest Service is required to develop and implement conservation strategies for sensitive species and their habitats, in coordination with other Forest Service units, managing agencies, and landowners (FSM 2670.22). Prairie dog expansion will continue to be monitored and addressed within the boundary management zone (BMZ) and interior management zone (IMZ) using adaptive management concepts that utilize a full suite of tools, including expanded rodenticide use and vegetation management through livestock grazing coordination. Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008).

03.04	Range/ Wildlife	Additionally, direct impacts related to mismanagement and uncontrolled prairie dog population is damaging the foliage and native grasses. Riparian areas are invested [sic] with increasing numbers of prairie dogs that are destroying vegetation. The elimination or removal of prairie dogs at the River (riparian area) would greatly enhance grass vegetation. The plan's failure to address this "relevant factor" and direct impact is hindering the plan's purpose	Prairie dog control has been addressed in other decisions. This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations?). The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. The environmental assessment and associated Range and Wildlife Specialist Reports also analyzed the cumulative effects of prairie dogs in the project area, Management of the prairie dog populations is addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008), and is outside the scope of this project. The black-tailed prairie dog is a Forest Service Region 2 sensitive species. The Forest Service is required to develop and implement conservation strategies for sensitive species and their habitats, in coordination with other Forest Service units, managing agencies, and landowners (FSM 2670.22). Prairie dog expansion will continue to be monitored and addressed within the boundary management zone (BMZ) and interior management zone (IMZ) using adaptive management concepts that utilize a full suite of tools, including expanded rodenticide use and vegetation management through livestock grazing coordination. Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008)

05.05	Range/ Wildlife	The EA fails to analyze the impact of the hundreds of acres of occupied prairie dog habitat immediately adjacent to the Cheyenne River in the Big Corral pasture. The prairie dog habitat is a significant factor contributing to the degradation of the riparian area. The prairie dog habitat is also infested with a significant noxious weed infestation covering many acres. The EA is devoid of identifying a carrying capacity of prairie dogs in the area adjacent to the Cheyenne River. An EIS is necessary to evaluate the soil erosion caused by the prairie dog and noxious weed infestation that is degrading the range condition of the riparian area. The LRMP site similarity index is not mentioned concerning these matters.	Prairie dog inventory completed in 2015 indicated there are 44 acres of prairie dog colonies immediately adjacent to the Cheyenne river in the Big Corral allotment. This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. Carrying capacity of livestock or wildlife was not identified as a concern for this project area, and monitoring results did not indicate an issue with the carrying capacity. The environmental assessment and associated Range, Wildlife and Invasive Species Specialist Reports also analyzed the cumulative effects of prairie dogs in the project area, the condition of the vegetative resources, and effects of noxious weeds. Management of the prairie dog populations is addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008), and is outside the scope of this project. Similarity index is not identified in the Forest Plan. The black-tailed prairie dog is a Forest Service Region 2 sensitive species. The Forest Service is required to develop and implement conservation strategies for sensitive species and their habitats, in coordination with other Forest Service units, managing agencies, and landowners (FSM 2670.22). Prairie dog expansion will continue to be monitored and addressed within the boundary management zone (BMZ) and interior management zone (IMZ) using adaptive management concepts that utilize a full suite of tools, including expanded rodenticide use and vegetation management through livestock grazing coordination. Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008)

05.08	Range/ Wildlife	Further, the Forest Service is well aware that in September, 2004, APHIS issued a Categorical Exclusion Record of Operational Activities, approving the use of rodenticides to manage the prairie dog population. This Categorical Exclusion found that the zinc phosphide poison breaks down so rapidly in the digestive system of poisoned animals (prairie dogs) that predators (blackfooted ferrets) eating poisoned prey have shown no negative physiological symptoms or effects. Therefore, any poisoning done to control density of prairie dogs for the environmental and range health of the entire area will not have any direct effect on the black-footed ferret population.	The comment is outside the scope of this project. The black-tailed prairie dog is a Forest Service Region 2 sensitive species. The Forest Service is required to develop and implement conservation strategies for sensitive species and their habitats, in coordination with other Forest Service units, managing agencies, and landowners (FSM 2670.22) Prairie dog expansion will continue to be monitored and addressed within the boundary management zone (BMZ) and interior management zone (IMZ) using adaptive management concepts that utilize a full suite of tools, including expanded rodenticide use and vegetation management through livestock grazing coordination. Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008)
05.10	Range/ Wildlife	The EA improperly sets aside the decision of whether to manage the prairie dog population in the area. This segmented approach provides no mitigation from the environmental damage that has already been caused. The EA does not devote a section to mitigation for the environmental damage to the range caused by the prairie dog population, nor does it give more than perfunctory mitigation measures to offset the damage caused to the range or the impaired river draining the area. The appellants request that these effects be properly evaluated; however, the Forest Service has continued to violate 40 C.F.R. 1502.22(a), which requires that where "information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement."	The comment is outside the scope of this project. Prairie dog population management has been addressed in other Nebraska National Forests and Grasslands National Environmental Policy Act analyses (boundary management zone and interior management zone decisions). This environmental assessment is tiered to those decisions. Those previous decisions address the purposes for which they were intended, and the purpose of the Cheyenne River Area Range allotment management plans analysis is not to revisit those decisions. In preparing this environmental assessment, we considered the existing impacts of those previous decisions that are relevant and useful for cumulative impacts analysis. This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations. The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. The environmental assessment and associated Range and Wildlife Specialist Reports also analyzed the cumulative effects of prairie dogs in the project area and the condition of the vegetative resources. Management of the prairie dog populations is addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008) and is outside the scope of this project.

05.11	Range/ Wildlife/Soils	On Page 61 of the EA, the only reference to the prairie dog effects on soil erosion and sedimentation of the impaired Cheyenne River is "Prairie dog colonies are located in flatter terrain which minimizes the potential for soil erosion." This is an unfortunate and inadequate statement as the appellants have provided Certified Professional Soil Scientist Robert 0. Nielsen's August 29, 2005, study which is titled: Findings of Cheyenne River Basin Prairie Dog Erosion Study on more than one occasion to the Forest Service during the administrative record concerning the prior LRMP Amendments. The inability of the Forest Service to seriously consider the causal nature of the environmental damages caused by the prairie dog proliferation is a violation of its affirmative duties to monitor and study erosion damages and the degradation of the environment from the improper use of soil resources.	The Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units final environmental impact statement (USDA Forest Service 2005) analyzed the potential effects of prairie dog colonies on soil erosion. Prairie dogs can contribute to soil erosion at localized sites, especially during drought. Prairie dog burrowing exposes excavated soils at the ground surface, subjecting them to potential wind and water erosion. Long-term prairie dog foraging and clipping can result in reduced vegetative cover within colony areas. The reduced vegetation cover in these areas can make soils more susceptible to wind and water erosion. However, it is difficult to quantify soil erosion rates both on and off colonies due to highly variable vegetation conditions within and between colonies, concurrent livestock grazing practices, and climatic factors affecting rainfall and vegetation growth and density. Some soils in the project area are inherently more prone to erosion, such as those soils found within the Badlands formation, which accounts for about 7,060 acres within the project area. According to the Nebraska National Forests and Grasslands 2015 prairie dog inventory (USDA Forest Service 2015), a total of 443 acres of prairie dog colony are present within the project boundary, scattered throughout the various allotments. Field observations were performed by the soil and water specialist during 2015. None of the prairie dog colony areas exhibited signs of soil erosion severe enough to result in a loss of soil productivity. Despite 2015 being an extremely wet year – one of the wettest on record, according to National Weather Service and USGS scientists – no evidence of sediment delivery to water bodies was found during field observations. Based on these field observations and annual operational requirements (including required best management practices), it is not expected that soil erosion due to livestock grazing, or in combination with prairie dog activity, will occur in large enough areas to result in a loss of soil productivity or delivery of eroded sediment to water bodies.
05.14	Range/ Wildlife	Not only did the Forest Service bypass the legislative charters or organic acts of the Forest Service and the National Grasslands by segmenting the evaluation areas, but it has not taken a hard look at the causation of overgrazing by prairie dogs, Bison wintering and a defacto wilderness. Continuing to attempt to place the blame on cattle without any scientific basis makes it clear that the Forest Service "has not genuinely engaged in reasoned decision-making."	This environmental assessment analyzes the effects of livestock grazing in the project area. Currently, the desired condition is not being met in some of the riparian areas, as well as portions of the uplands. This is in part due to the fact that livestock are spending a disproportionate amount of time in the riparian areas, as evidenced by field visits, similarity index transects read from 2010-2014, and permittee observations The proposed action has incorporated adaptive management actions that are anticipated to promote better distribution with more livestock use in the uplands and reduced effects in the riparian areas. The environmental assessment also looked at the cumulative effects of prairie dogs in the project area, direct effects of bison grazing as well as the different requirements of the management area designations within the project area. It is unclear from the comment how the management area designations have caused overgrazing. If the comment is directed at the limitations on improvement development within the recommended for wilderness due to the standard requiring the use on natural materials, this is addressed in the environmental assessment on pages 10 and 34.

06.07	Range/ Wildlife	To benefit the river bottom in the Big Corral Allotment, remove the dog town next to the river.	Prairie dogs are colonized on the floodplain not the riverbank. Removing the prairie dogs is outside the scope of this project. Prairie dog inventory completed in 2105 indicated there are 44 acres of prairie dog colonies immediately adjacent to the Cheyenne River in the Big Corral allotment. The effects of prairie dogs in the project area are analyzed in the EA and associated specialist reports. Management of the prairie dog populations is addressed in the Record of Decision for Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 2 (2005) and Record of Decision for Nebraska and South Dakota Black-tailed Prairie Dog Management on the Nebraska National Forest and Associated Units, Including Land and Resource Management Plan Amendment 3 (2008), and is outside the scope of this project.
06.01	Recreation	The recommended Wilderness designation needs to be removed from the Cheyenne River Range Area. The way the Forest Service interprets and implements the policies and regulation of the designation is very restrictive and hampers proper management of resources. Until the recommendation is removed, the Congressional Grazing Guidelines FSM 2323.22 Exhibit 01 should be considered. This exhibit states there shall be no curtailment of grazing in wilderness areas simply because an area is or has been designated as wilderness, nor should wilderness designation be used as an excuse by administrators to slowly "phase out" grazing.	FSM 2323.22, Exhibit 01, allows a reduction in grazing due to the need make revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and the protection of the range resource from deterioration. When we prepared the Forest Plan for the Nebraska National Forests and Grasslands, we determined livestock grazing is compatible with the Recommended Wilderness designation and this designation will not interfere with the appropriate management of livestock on these allotments. Therefore, an amendment to change the Forest Plan management area in which most of the area these allotments are located within would be beyond the scope of the environmental analysis.
06.02	Recreation	It is also a guideline that the placement or reconstruction of deteriorated facilities or improvements should not be required to be accomplished using "natural materials" unless the material and labor costs are such that their use would not impose unreasonable additional cost to permittees.	Currently, a portion of the project area is designated as Management Area 1.2 – Recommended for Wilderness. As discussed in the environmental assessment and Range Specialist Report, this management area designation has a standard that requires the use of natural materials in the construction or reconstruction of livestock facilities. To change this standard or the management area designation would require a Forest Plan amendment and would not be necessary to continue management of these allotments. Such an action is outside the scope of this project.
06.04	Recreation	On page 18 of the EA it states only those structural improvements identified through this process may be constructed. This statement needs to be removed. It is very restrictive, especially if this plan is going to be in effect for 10-20 years. Construction of new range improvements may be approved if they are necessary for range protection (range and/or wilderness) and for the effective management of these resources FSM 2323.26a.	Only improvements that are identified and analyzed through the National Environmental Policy Act process may be constructed.

Appendix B: Monitoring Plan

Monitoring and evaluation are key elements of adaptive management. Monitoring helps determine how Forest Plan and National Environmental Policy Act decisions are being implemented, whether implementation is achieving the desired outcome, as outlined in Nebraska National Forests and Grasslands Land and Resource Management Plan and Forest Service Manual direction, or whether changes in management are needed. Through monitoring, the Forest Service can measure whether or not desired conditions are being achieved in an appropriate timeframe. Through adaptive management, allotment management plans can remain dynamic, relevant, and useful documents over many years.

Two types of monitoring are associated with allotment management plans: implementation monitoring and effectiveness monitoring.

Implementation monitoring (short-term) will measure whether or not Forest Plan standards and guidelines are being met, while effectiveness monitoring (long-term) will evaluate how effective management actions are at moving toward or achieving the desired conditions. All methods shown in the interagency technical guides and the R2 Rangeland Analysis and Management Training Guide and other Forest Service-approved methods are approved for possible use in monitoring efforts. The following methods would generally be used.

Rangeland Implementation (Short-term) Monitoring

Short-term range monitoring techniques will vary depending on the resources being monitored. Monitoring will take place annually at key areas of livestock use. All Forest Service approved monitoring methods can be used in monitoring efforts. The following monitoring techniques will generally be used alone, or in combination:

- Ocular utilization estimate: ocular estimates provide a visual estimate of utilization of riparian and upland herbaceous, or browse species. Estimates are based on a description representing a broad range (class) of utilization rather than a precise amount (USDA Forest Service 1996).
- Stubble height: Adequate stubble height on streamside areas is needed at the end of the grazing period, or at the end of the grazing season, for maintenance of plant vigor and stream bank protection, and to aid in holding sediments for rebuilding degraded stream banks. Measurements of the residual amount of *Carex* spp. are taken along the greenline. Specifically, 3-4 inches of residual *Carex* spp. are required for spring pastures, and 4-6 inches for summer and fall pastures (USDA Forest Service 1996).
- Photographs and photo-points: Photographs are extremely useful in documenting change on the landscape. Photos should capture the essence of the plot, point, or transect, including important characteristics and features of the site. Photos need to include enough of the horizon-line to allow the photographer to easily repeat the photograph from the same angle at a different time.
- Visual obstruction reading (VOR): A measurement of the height that herbaceous vegetation obscures 100% a round pole placed vertically in grassland vegetation.
- Livestock distribution counts: Visual observations of areas used by livestock, especially those areas where adapted management actions have been implemented.
- Utilization mapping-estimates general forage utilization: It is especially helpful when grazing or browsing use must be estimated for large areas with only a few examiners. Utilization levels are

determined by comparing observations with the written utilization class descriptions. The utilization estimates are evaluated against the standards, goals, or objectives for the area. (Wyoming 2008).

- Pellet groups-generally used to enable a rangeland manager to determine the relative use of an area by wildlife, and to confirm or dismiss allegations of conflicts between wildlife and livestock. (USDA Forest Service 1996). For the purpose of this project, this methodology may be adapted to differentiate between areas of use by classes of domestic livestock (Bison and Cattle).

Rangeland Effectiveness (Long-Term) Monitoring

Probably the most important role of monitoring is to determine whether management is successful at maintaining or moving rangeland resources towards desired conditions. Determining trend toward or away from allotment objectives allows rangeland managers to accurately determine the relative success of the management system and to adjust management to speed the accomplishment of objectives. Trend for a variety of rangeland resource parameters may need to be monitored.

The long-term condition of riparian and upland grass and forb resources will be monitored at benchmark areas on each allotment. All agency monitoring methods can be used in monitoring efforts. The following monitoring techniques will generally be used as needed.

- Photographs and photo-points: Photographs are extremely useful in documenting change on the landscape. Photos should capture the essence of the plot, point or transect, including important characteristics and features of the site. Photos need to include enough of the horizon-line to allow the photographer to easily repeat the photograph from the same angle at a different time.
- Multiple indicator method (MIM): This protocol combines observations of up to ten indicators (including greenline, streambank stability, livestock use on woody plants, woody species regeneration, stubble height and streambank alteration) along the same transect. These indicators provide quantitative data to assess the current condition and trend of the streambanks, channels, and vegetation as well as provide data needed to refine and make annual changes to livestock management in order to meet long-term management objectives. (Burton, Cowley, and Smith 2007).
- Similarity index: The present plant community on an ecological site can be compared to the various common vegetation states that can exist on the site. This comparison can be expressed through a similarity index, which is the present state of vegetation on an ecological site in relation to the kinds, proportions, and amounts of plants in another vegetation state possible on the site. When determining a similarity index, the vegetation state or plant community that the present plant community is being compared to must be identified as the reference plant community. (USDA NRCS 2006)
- Presence/absence: Presence or absence of R2 sensitive species is monitored at known sites to determine whether management actions are being effective in maintaining sensitive habitat and populations.

Documentation of rangeland monitoring results will be maintained in the allotment files at the district office.

Past monitoring of the project area has consisted primarily of visual obstruction reading, range allotment inspections, threatened, endangered and sensitive species inventory and mapping, and similarity index (to determine seral community).

Table 15. Monitoring of range conditions in riparian areas and uplands.

Type of Area	Monitoring Type	Proposed methodology	Frequency	Trigger Point	Change Needed
Riparian Areas	Implementation	Stubble Height Utilization mapping Percent utilization on woody species Pellet counts	1-3 years	Continued utilization greater than 40% on riparian species, such as prairie cordgrass, and greater than 60% on upland species, such as western wheatgrass, in key areas near riparian areas.	Implement adaptive management action
Riparian Areas	Effectiveness	MIM (all or in part) Woody regen surveys	5-10 years	Not meeting or moving toward desired condition	Implement adaptive management action
Uplands	Implementation	Utilization mapping Livestock counts VOR Photo points Ocular utilization Pellet counts	1-3 years	No improvement in distribution	Implement adaptive management action
Uplands	Effectiveness	Similarity Index Photo points	5-10 years	Not meeting or moving towards Forest Plan desired condition for upland vegetation (NNFG Forest Plan 2-58)	Implement adaptive management action

*Stubble height will not be measured on prairie dog colonies.

Budgets, personnel, and resource condition will determine the scope and degree of rangeland monitoring activities. A realistic implementation monitoring strategy will be to monitor all of the allotments using both Forest Service and permittee monitoring. Much of the implementation monitoring is actually the responsibility of the permittee. However, Forest Service range managers and other specialists, such as botanists, wildlife biologists, archaeologists, and hydrologists, also monitor compliance with Forest Plan standards and guidelines.

Upland and riparian monitoring areas will be the focus of effectiveness monitoring, which is primarily the responsibility of the Forest Service personnel. However, range permittees and other interested parties are always welcome to participate in effectiveness monitoring. Monitoring of the allotments included in the Cheyenne River Area range allotment management plan will focus on those areas where adaptive management actions are implemented.

Specific monitoring locations (that is, adaptive management action sites) are identified on the proposed action maps. Monitoring will focus on these areas, as actions are implemented, but will also include key areas, primarily riparian areas, of each allotment each year, as budgets, personnel, and resource conditions allow.

All allotments will be monitored regularly, using multiple techniques, and as adaptive management actions are implemented. Actual monitoring will depend on budgets, personnel, and resource conditions. Noxious weed infestations in the project area will be inventoried, treated, and monitored in accordance with current Federal and State law, regulation, and policy.

This monitoring plan is expected to determine compliance with current Forest Plan direction (chapter 2) for vegetation composition and structure, and to determine the success of adaptive management at changing livestock distribution within the project area.

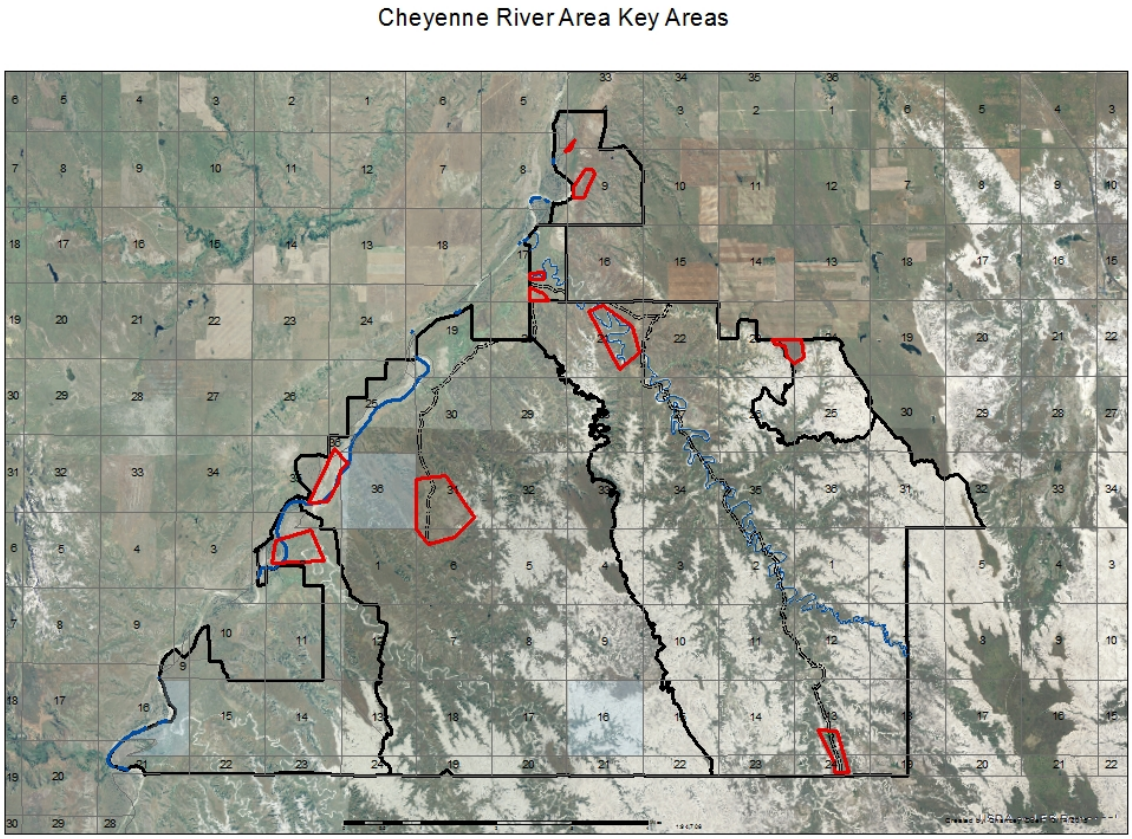

Figure 17. Key areas in the project area

Groundwater, Soil, and Water Monitoring

Two basic types of monitoring are expected to occur within the Cheyenne River Range Allotment Management Plan project area: (1) implementation monitoring, and (2) effectiveness monitoring. The following section discusses the monitoring pertaining to groundwater, soil, and water resources that would be followed if an action alternative is selected. Overall implementation and effectiveness monitoring of required water conservation practices and best management practices measures will be conducted following established best management practices monitoring protocols (USDA Forest Service 2006; 2012) .

If monitoring indicates a departure from meeting or moving towards desired conditions, adaptive adjustments of actions are made, as needed, in order to ensure proper implementation and that resource conditions would meet or move towards desired conditions. The flexibility for management adjustment varies by alternative.

- Alternative 2 – Further analysis and possibly a new National Environmental Policy Act-based decision will be needed to make adjustments to management actions.
- Alternative 3 – Adjustments in management actions are made according to the adaptive options described

Resource Condition: Riparian allowable utilization

Indicators:

1. Stubble height of riparian/wetland species; and

2. Percent of use on riparian woody species.

Trigger: When utilization levels reach or exceed a minimum stubble height standard for *Carex* and *Juncus* species; 3-4 inches in spring use pastures and 4-6 inches in summer or autumn use pastures or if herbaceous vegetation allowable use levels are met or exceeded, remove livestock from pasture or riparian area.

Trigger: When utilization levels reach or exceed riparian woody plants' ability to maintain and/or move towards desired conditions found in Forest Service Handbook 2509.25, remove livestock from pasture or riparian area.

Frequency: Variable

By Whom: Forest Service

Resource Condition: Bank stability/alteration (streams and wetlands)

Indicators:

1. Multiple Indicator Monitoring System;

2. Proper Function Condition ratings following Riparian Service Team Technical References; and/or;

3. Rosgen stream classification and stability assessment methods.

Trigger: When utilization of herbaceous and/or woody species within riparian or wetland areas have exceeded riparian utilization guidelines (listed above), remove livestock from the pasture or riparian/wetland area.

Trigger: When bank stability/alteration monitoring methods indicate that 25 percent or more of an individual stream reach or wetland has experienced detrimental bank impacts causing instability, remove livestock from the pasture or riparian/wetland area.

Frequency: Variable

By Whom: Forest Service

Resource Condition: Soil disturbance and effective cover

Indicators:

1. Soil disturbance monitoring will follow acceptable protocols outlined in Forest Soil Disturbance Monitoring (USDA Forest Service 2009).

2. Increase in residue vegetation and/or litter and duff to reduce bare soil percentages over time.

Trigger: When upland and/or riparian utilization levels are met, remove livestock from the pasture or area.

Frequency: 2 - 3 years

By Whom: Forest Service

Resource Condition: Well abandonment

Indicators:

1. Well abandonment will follow South Dakota State regulations and documenting requirements; and

2. Inspect abandoned wells to verify removal and/or capping of well. Photos and GPS location will be taken. Appropriate Forest Service databases will be updated for each abandoned well (i.e., INFRA, GIS, etc.).

Frequency: Upon project completion

By Whom: Forest Service

Resource Condition: Best management practices / water conservation practices implementation and effectiveness

Indicators:

1. The Forest Service shall monitor best management practices / water conservation practices implementation to ensure that practices are properly applied, and best management practices / water conservation practices effectiveness to ensure that State water quality standards are met and classified uses of water are protected (Region 2 Watershed Conservation Practices Handbook, FSH 2509.25; USDA Forest Service FSM 2532; and USDA Forest Service FSH 2509.19).

2. Pastures with sensitive areas such as streams, springs, wetlands, waterbodies, unstable soils, or organic soils should be emphasized.

3. Monitoring methods will follow USDA Forest Service national best management practices monitoring protocols (USDA Forest Service 2012).

Trigger: When best management practices / water conservation practices are not being met, grazing allotment management will be re-evaluated and adjusted as necessary on an individual allotment scale.

Frequency: 2-3 Years

By Whom: Forest Service

Appendix C: Resource-Specific Design Features for Alternatives 2 and 3

Botany

- Prescribed burning activities and control lines will avoid known Barr's milkvetch locations.
- Mob grazing will be avoided in known Barr's milkvetch locations. If, during mob grazing implementation, new occurrences of Barr's milkvetch or Visher's buckwheat were to be discovered, a botanist would consulted to ensure a minimal amount of impact to the plants.
- Ten percent of known Barr's milkvetch occurrences will be visited every 5 to 7 years to determine impact of livestock grazing on the population. If negative effects are noted, including direct grazing, trampling, encroachment of vegetation, or noxious weed invasion, adaptive measures may be taken to ensure persistence of Barr's milkvetch within the project area.
- During range monitoring, known occurrences of Region 2 sensitive plant species would be monitored and reported to a botanist, ecologist, or other qualified personnel as needed.

Cultural Resources

The standards and guidelines of the Forest Plan require the Forest Service to "protect heritage resources from damage by activities or vandalism through project design, specified protection measures, monitoring and coordination" (Forest Plan, page 1-27). Site avoidance is the preferred mitigation action.

CR1: Site Protection during Prescribed Burns

1. Firelines
    a. Those archaeological sites located along existing roads that may be used as fire lines will be protected by hand-clearing those sections of the road/fireline that crosses the sites. Although these roads are generally clear of combustible debris using a small dozer, those sections of roads crossing archaeological sites will be cleared using leaf blowers and leaf rakes. There will be no removal of soil or disturbance below the ground surface during fireline preparation.
    b. Archaeological sites and features that may be located along proposed routes of dozer-constructed firelines, where firelines do not now exist, will be avoided by fireline construction by routing firelines around archaeological sites. Sites that lie along previously constructed dozer lines from past burns will be protected during future burns by hand clearing those sections of line that cross the sites, rather than re-clearing the lines using heavy equipment.
2. Burn Unit Interior
    a. Combustible elements at potentially eligible sites in the burn unit interiors will be protected from damage during the burns by removing fuels from the feature vicinity, and, where necessary, by burning out an area around the feature prior to igniting the main burns. Burning out is accomplished by constructing a set of two hand lines, approximately 30 to 50 feet apart, around the feature and by then burning the area between the two lines while the burn is carefully monitored. A fuel-free zone is thereby created around the combustible elements. Any combustible features that might be located in a burn unit will also be fully documented with photographs and field drawings prior to the burn. For burns in which this mitigation measure is in effect, a Heritage Resources Specialist will be consulted for the pre-burn briefings, and Forest Service personnel will accompany any non-Forest Service crews that may participate in the burn.

b. Those sites containing above ground, non-combustible, cultural features and exposed artifacts will be protected by removing, by hand, any concentrations of fuels that might have built up on the sites and features. Where such fuel concentrations are not present, no mitigation is required.

c. No mitigation measures are proposed for any sites in the burn interior that do not contain combustible elements or other above ground features [as described in (a) and (b) above], because it is not expected that the burns proposed for the project area will harm these sites.

3. Post-burn monitoring will be conducted at those sites that fall under 2(a) mitigation measures, as well as a sample of others, in order to assess the actual effects of the burns on the sites against the expected effects and to check for indirect effects at the sites following the burn. State Historic Preservation Officer consultation will be carried out with respect to mitigation for any sites that suffer unexpected damage during the burn, or that are suffering damage from indirect effects following the burn

CR2: Road Maintenance

Where Forest Service Roads scheduled for maintenance cross archaeological sites, road work will be confined to the existing roadway and ditches.

CR3: Survey of New Range Improvements, Roads to be Reconstructed, Dozer-Constructed Firelines

If activities take place outside those areas not already included in cultural resource surveys, the cultural resource surveys for such activities will be completed prior to project implementation. Appropriate measures (specifically site avoidance) will be applied prior to project implementation to protect any archaeological sites that may be located in these areas. Consultation with the South Dakota State Historic Preservation Officer will be completed prior to project implementation.

CR4: Other Design Features

If it is not feasible to completely avoid an archaeological site and if mitigation measures outlined in CR1 and CR2 are not applicable, then the following steps will be taken:

1. In consultation with the South Dakota State Historic Preservation Officer, the site(s) will be evaluated against National Register of Historic Places significance criteria (36 CFR 60.6) to determine if the site is eligible for, or appears to be eligible for, inclusion in the National Register of Historic Places.
2. In consultation with the South Dakota State Historic Preservation Officer, mitigation measures will be developed which will lessen, or minimize, the adverse effects on the site(s), so that a finding of No Adverse Effect results.
3. The agreed-upon mitigation measures will be implemented prior to initiation of project activities that have the potential to affect the site(s).

CR5: Discovery of Cultural Resources during Project Implementation

Although the cultural resource surveys completed for this project are designed to locate all archaeological sites that might be eligible for the National Register, such sites may go undetected for a variety of reasons. Pursuant to the provisions found in 36 CFR 800.13, should any previously unidentified cultural resources be discovered during project implementation, activities that may be affecting that resource will be halted immediately. The resource will be evaluated by a professional archaeologist, and consultation will be initiated with the South Dakota State Historic Preservation Officer, as well as the Advisory Council on Historic Preservation, if required, to determine appropriate actions for protecting the resource and for mitigating any adverse effects on the resource. Project activities will not be resumed until the

resource is adequately protected and until agreed-upon mitigation measures are implemented with State Historic Preservation Officer approval.

Paleontological Resources

Due to the complexity of the geology, paleontology, and differing range improvements that are proposed to take place within the project area boundary, the mitigation measures for paleontological resources will be developed separately for each range improvement project. However, if fossil resources are discovered during the ground-disturbing activity; the ground disturbance will cease or ground disturbance path will avoid the resource. If avoidance is not feasible, a paleontologist, preferably a Forest Service paleontologist, will be contacted to extract the specimen(s), so the project will continue with as little delay as possible.

Watershed Resources

Design criteria for soil and water resources comes from several sources including Forest Plan standards and guidelines, which, in turn, reference watershed conservation practices found in the Region 2 Forest Service Handbook FSH 2509.25, and State best management practices. Watershed conservation practices are proven practices used to protect soil, aquatic, and riparian systems. If used properly, WCPs will meet applicable Federal and State laws and regulations, including State best management practices. Watershed conservation practices cover five areas: (1) hydrologic function, (2) riparian areas and wetlands, (3) sediment control, (4) soil quality, and (5) water purity. Each watershed conservation practice consists of a management measure and a set of design criteria used to achieve the specific management measure.

Engineering staff, contract preparers, and other project administrators should consult the Hydrologist prior to operations to identify site-specific needs.

- Only the applicable water conservation practices management measures and design criteria relevant to this project are included here.
- Design criteria and water conservation practices apply to all management activities throughout the project area, unless specified otherwise.

1. Minimizing soil disturbance (Mass movement, erosion, and compaction):

a) Avoid soil-disturbing actions during periods of heavy rain or wet soils in order to prevent rutting, compaction, erosion, and sediment delivery to streams. Apply travel restrictions to protect soil and water until soil has dried out (R2 water conservation practices management measure 9b).

2. Maintain ground cover, soil nutrients and coarse woody debris:

a) Maintain enough organic ground cover of each activity area so that soil pedestals, rills, and surface runoff from the activity area are not increased (R2 water conservation practices management measure 2a).

b) Restore the organic ground cover of degraded activity areas within the next plan period, using certified local native plants as practicable; avoid persistent or invasive exotic plants (R2 water conservation practices management measure 2b).

3. Protected stream courses and wetland/riparian buffers:

Protected stream courses and wetlands are identified below and require a buffer referred to as the water influence zone in order to comply with Region 2 watershed conservation practices, Forest Plan standards and guidelines, and State best management practices requirements. The

water influence zone includes the geomorphic floodplain (valley bottom), riparian ecosystem, and inner gorge. Its minimum horizontal width (from top of each bank) is 100 feet on both sides of the stream or surrounding the wetland feature. Management activities can take place within the water influence zone but should be minimized in occurrence as well as extent, and conducted cautiously, and after consulting with watershed personnel.

a) Protected stream courses including the Cheyenne River and Indian Creek.

b) Allow no action that will cause long-term change to a lower stream health class in any stream reach. In degraded systems (that is at-risk or diminished stream health class), progress toward robust stream health within the next plan period. (R2 water conservation practices management measure 3a)

c) Allow no action that will cause long-term change away from desired condition in any riparian or wetland vegetation community. Consider management of stream temperature and large woody debris recruitment when determining desired vegetation community. In degraded systems, progress toward desired condition within the next plan period (R2 water conservation practices management measure 3b).

d) Locate new concentrated-use sites outside the water influence zone if practicable and outside riparian areas and wetlands. Armor or reclaim existing sites in the water influence zone to prevent detrimental soil and bank erosion (R2 water conservation practices management measure 3e).

e) Manage livestock use through control of time/timing, intensity, and duration/frequency of use in riparian areas and wetlands to maintain or improve long term stream health. Exclude livestock from riparian areas and wetlands that are not meeting or moving towards desired condition objectives where monitoring information shows continued livestock grazing would prevent attainment of those objectives (R2 water conservation practices Management measures 3f).

f) Keep stock tanks, salt supplements, and similar features out of the water influence zone if practicable and out of riparian areas and wetlands always. Keep stock driveways out of the WIZ except to cross at designated points. Armor water gaps and designated stock crossings where needed and practicable (R2 water conservation practices management measures 3g).

g) Manage dry meadow and upland plant communities, including Kentucky bluegrass types that have invaded into wetland/riparian areas in a manner that will contribute to their replacement over time by more mesic native plant communities to the extent practicable. Develop site-specific riparian stubble height standards or use the following default levels for *Carex* and *Juncos* species: 3-4 inches in spring-use pastures and 4-6 inches in summer or autumn use pastures; to leave adequate residual stubble height to retain effective ground cover (R2 water conservation practices management measures 3h).

h) Do not allow livestock grazing through an entire growing season in pastures that contain in riparian areas and wetlands. Apply short-duration grazing as practicable (generally less than 20 days) to minimize re-grazing of individual plants, to provide great opportunity for regrowth and to manage utilization of woody species and reduce soil compaction. During the hot season (mid-to-late summer) manage livestock herds to avoid concentrating in riparian areas and wetlands. Apply principles of the grazing response index to livestock management (USFS, 1996a) (R2 water conservation practices management measures 3i).

i) Design grazing systems to limit utilization of woody species. Where woody species have been historically suppressed, or where the plant community is below its desired condition and livestock are a key contributing factor, mange livestock through control of time/timing, intensity, and duration/frequency of use so as to allow for riparian hardwood growth extension and reproduction. Mange woody species in riparian areas to provide for stream temperature, bank stability and riparian habitat (R2 water conservation practices management measures 3j).

j) Maintain the extent of stable banks in each stream reach at 74% of more of reference conditions. Consider degree of livestock trampling and riparian vegetation utilization on or immediately adjacent to stream banks when timing livestock moves between units (R2 water conservation practices management measures 3k).

k) Adjust management in riparian areas and wetlands to improve detrimental soil compaction whenever it occurs (R2 water conservation practices management measures 3l).

l) A 100-foot buffer in the water influence zone will be established on all sides of protected stream courses, wetlands, riparian areas, springs, and other wet areas. Management activities can still occur within the water influence zone as long as activities are done carefully and in such a manner as to limit damage to riparian vegetation, soil disturbance, rutting, sediment delivery to waters, etc. The hydrologist should be consulted prior to starting activities within the water influence zone to make site-specific assessments whether the activity will adversely impact soil and water resources and provide any additional site specific design criteria.

m) Ground-based equipment operations should be avoided within the water influence zone buffer, surrounding streams, wetlands, and riparian areas, unless site specifically approved otherwise by the hydrologist.

n) Do not excavate earth material from or store excavated soil, fill, or other debris in any water influence zone buffer, protected stream course, wetland, riparian areas, floodplains, or drainage bottoms (R2 water conservation practices management measure 3m, 11a).

o) Avoid any loss of rare wetlands such as springs – these wetlands cannot be replaced in kind (R2 water conservation practices management measure 6e).

p) Avoid long-term reduction in organic ground cover and organic soil layers in any wetland, including peat in fens (R2 water conservation practices management measure 6c).

q) Obtain appropriate State and Army Corps of Engineers permits where necessary.

4. Not applicable

5. Roads and trails:

a) Use existing roads and trails to the extent practical. Minimize construction of new and temp roads (R2 WCP Management Measure 9f).

6. Land and Resource Management Plan, 2009 Revision, Nebraska National Forest and Grasslands

1) Air

a) Meet state and federal air quality standards, and comply with local, state, and federal air quality regulations and requirements, either through original project design or through mitigation, for such activities as prescribed fire, mining, and oil and gas exploration and production. **Standard**

b) Meet requirements of the Prevention of Significant Deterioration (PSD), State Implementation Plans (SIP) and applicable Smoke Management Plans. **Standard**

c) Reduce the impacts to air quality and loss of energy resources by only allowing flaring of gas from oil well during production testing of wells. Connection to a pipeline or re-injections will be required once production is established. Exceptions will be considered on a case by case basis. **Guideline**

d) Partner with local and state government, energy producers, and other appropriate stakeholders to devise dust control plans for unpaved roads. Expedite permitting processes, where necessary, to implement the plans that are developed through this partnership. **Guideline**

2) Water

a) Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff. **Standard**

b) Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (exceptions shall occur in special habitat situations (e.g. prairie dog habitat). **Standard**

c) In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term health and riparian ecosystem condition. **Standard**

d) Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life. **Standard**

e) Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health. **Standard**

f) Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetlands to sustain their ecological function, per 404 regulations. (The 404 regulations are guidelines established by the Environmental Protection Agency. They constitute the substantive environmental criteria used in evaluating activities regulated under Section 404(b)(1) of the Clean Water Act. The full text of these regulations can be found at 40 CFR 230). **Standard**

g) Return and/or maintain sufficient stream flows under appropriate authorities to minimize damage to scenic and aesthetic values, fish, and wildlife habitat, and to otherwise protect the environment. **Standard**

h) Manage water-use facilities to prevent gully erosion of slopes to prevent sediment and bank damage to streams. **Standard**

i) Construct roads and other disturbed sites to minimize sediment discharge into streams, lakes, and wetlands. **Standard**

j) Place chemicals and pathogenic pollutants where such pollutants will not reach surface or ground water. **Standard**

k) Apply runoff controls to disconnect pollutant sources from surface and ground water. **Standard**

l) Apply chemicals using methods described in label instructions that minimize risk of entry to surface and ground water. **Standard**

m) Design activities to protect and manage the riparian ecosystem. Maintain the integrity of the ecosystem including quantity and quality of water. **Standard**

n) Locate facilities away from the water's edge or outside the riparian areas, woody draws, wetlands and floodplains unless alternatives have been assessed and determined to be more environmentally damaging. If necessary to locate facilities in these areas, then:

- Deposit no waste material (silt, sand, gravel, soil, slash, debris, chemical or other material) below high water lines, in riparian areas, in the areas immediately adjacent to riparian areas or in natural drainage ways (draws, land surface depressions or other areas where overland flow concentrates and flows directly into streams or lakes).
- Prohibit deposition of soil material in natural drainage ways.
- Locate the lower edge of disturbed or deposited soil banks outside the active floodplain.
- Prohibit stockpiling of topsoil or any other disturbed soil in the active floodplain.
- Locate drilling mud pits outside riparian areas, wetlands and floodplains. If location is unavoidable in these areas, seal and dike all pits to prevent leakage.
- Rehabilitate gravel pits if located in riparian zones to simulate a natural riparian/aquatic situation. **Guideline**

o) Do not allow new roads to parallel streams. When road location must occur in riparian areas, unless alternatives have been assessed and determined to be more environmentally damaging, cross streams at right angles. Locate crossings at points of low bank slope and firm surfaces. **Standard**

3) Soil

a) Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography and climate. **Standard**

b) Stabilize and maintain roads and other disturbed sites during and after construction to control erosion. **Standard**

c) Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage. **Standard**

d) Prohibit soil-disturbing activities (e.g., road construction, well pad construction) on slopes greater than 40 percent and on soils susceptible to mass failure. **Guideline**

Wildlife and Fisheries Resources

All activities will be consistent with the Forest Plan and Forest Service range management directives (FSH 2209.13). Additionally, the following design features will apply to the proposed action and all action alternatives except no grazing:

- Before any fencing of the river is constructed, alternative water sources would be developed.
- Fencing would be consistent with Forest Plan direction which currently requires natural materials to be used in Management Area 1.2.
- Grazing shortly after prescribed fire would be allowed where appropriate in addressing the need for action.
- The Forest Service will coordinate with private landowners and the South Dakota School and Public Land Commissioner to ensure continued public access resulting from fence repair and construction.
- All fences in these allotments can be repaired to maintain their effectiveness consistent with Forest Plan direction.
- Prescribed burning identified in this analysis will avoid woody draws and isolated cottonwood trees and snags (bat roost habitat).
- Grazing schedules generally remain the same. However, there is flexibility in the annual operating instructions and adaptive management will be used to redistribute livestock to improve conditions.
- Resource conditions will be assessed on an annual basis. Expense estimates for range improvements and assignment of the party responsible for constructing those improvements will be discussed in each review of annual operating instructions with permittees.
- Control of invasive plants will continue in accordance with existing Forest Plan direction, laws, and regulations.
- Road maintenance activities on the allotments will continue according to Forest Service transportation directives (FSH 7709.58).

Use salt and mineral licks to influence livestock distribution patterns, especially away from high use areas (e.g., riparian areas, meadows). Do not allow salt within ¼ mile of water sources. Consider salting locations that are predetermined through coordination between range specialist and permittee.

Riparian pasture objectives should include improving shrub communities, maintaining stable stream banks, and improving aquatic species diversity.

Water Developments/Fences

Prior to development of new watering facilities in the allotments, existing watering facilities should be improved and/or maintained to acceptable standards. Funding should focus on maintenance of current structures unless there is an identified resource concern that warrants a new water development.

Install and maintain wildlife escape ramps in all watering tank structures to prevent accidental death of northern long-eared bat, birds, and small mammals due to drowning. Design and installation of escape ramps should be proven effective in preventing drowning of wildlife. Annually clean stock tanks to remove floating debris and algae that may cause accidental drowning. Water developments should also be designed to allow for open flight paths for northern long-eared bat and bird species when skimming the surface of the water.

To allow big game movement, fences will be built as specified in the Forest Plan.

Prescribed Burning

In accordance with the Forest Plan, there will be no burn preparation within 1 mile of any breeding and nesting grounds for sharp-tailed grouse between March 1 and June 15 unless cleared by the wildlife biologist. If there is a historically active lek in the area and is thought to be inactive, inactivity must be confirmed by a wildlife biologist. Burn preparation may only occur during this time period after 10 a.m. because normal lek times range from sunrise to 9 a.m.

For fire control lines: Prescribed fire control lines should utilize existing trails, roads and other disturbed areas to minimize fire line construction. Do not create control lines in or adjacent to riparian areas, wet meadows or grasslands. Re-contour and reshape control lines as soon as possible after the burn is completed. Prescribed burn plans should incorporate noxious weed treatment post-burn to protect native plant communities. Prescribed burns will be conducted when smoke dispersal conditions are favorable to minimize any undesirable effects on the immediate area. Buffer state and private land control lines by 50 feet, so as not to disturb other lands.

Prescribed burns should be medium to low intensity in order maintain soil/litter layer and plant rooting zone of most native plants, and protect mature cottonwood trees and woody draws which provide roosting habitat for bat species. Treatments should be completed in the late fall and winter months after the egg laying/development season of threatened and endangered species (mid-May through early August).

Draft Decision Notice and Finding of No Significant Impact

Cheyenne River Area Range Allotment Management Plan

USDA Forest Service, Rocky Mountain Region

Wall Ranger District, Nebraska National Forests and Grasslands

Pennington County, South Dakota

Decision

I have decided to implement Alternative 3 based on my careful review of the information documented in the Cheyenne River Area Range Allotment Management Plan Environmental Assessment (June 2016) and the finding of no significant impact documented below (see page 8), both of which are incorporated by reference into this decision notice along with public comments and other documents contained in the project record.

I will continue to permit livestock grazing on six Forest Service allotments in the Wall Southwest Geographic Area using an adaptive management approach which is intended to help make progress toward achieving the Forest Plan desired conditions and objectives on these allotments. The adaptive measures are meant to change the distribution of livestock, and therefore, change conditions toward achieving forest plan objectives for riparian areas, and vegetative structure and composition.

The Indian Creek land exchange environmental analysis states, “Current stocking and season of use would not change on the federal allotments where the non-federal parcels are located. Any change would be analyzed when the allotment management plans for those allotments are updated.” Permanent grant of these animal unit months may occur if monitoring under this decision shows the capacity is available on a long-term basis.

A full description of this alternative begins on page 14 of the environmental assessment.

Rationale

Alternative 3 would result in the most appropriate distribution of livestock on these allotments in order to allow vegetative structure and composition in the project area to be more similar to the Forest Plan’s desired conditions and objectives.

I reviewed all comments received in scoping. Using the comments from the public, the interdisciplinary team developed a list of issues and resource concerns to address. I considered all public concerns in terms of whether they would be elevated to issues for analysis or for which alternatives would be developed. After considering the public concerns, I determined that none would be issues requiring the development of alternatives. My rationale is as follows:

Management Restrictions Imposed by “Recommended for Wilderness” Designation

Public comments stated the concern that much of the area in the four southern allotments is designated by the Forest Plan as Management Area 1.2 (“Recommended for Wilderness”). One of the standards for management of land under this management

> designation requires the use of natural materials in the construction or reconstruction of livestock facilities (Forest Plan, page 3-7). This requirement may prevent the appropriate distribution of livestock because it increases the cost of building fences and limits the construction of water developments, other than dams and dugouts, because they must be constructed of natural materials within Management Area 1.2.

The land management planning process that produced the Forest Plan has determined that livestock grazing is compatible with the "Recommended for Wilderness" designation and that this designation would not interfere with the appropriate management of livestock on these allotments. This determination is supported by management direction in the Forest Plan. Therefore, I have determined that a Forest Plan amendment to change the Forest Plan management area in which most of the allotments are located would be beyond the scope of this project.

Use of Prescribed Fire as an Adaptive Management Tool

> Public comments stated the concern that the proposed action applies prescribed fire on these allotments as a management tool. Some members of the public believe prescribed fire could get out of control, burning more livestock forage than planned, and leaving large sections of allotments without enough forage to graze. They also believe increased grazing would have the same beneficial effects as prescribed fire, with less risk of getting out of control, would provide more forage for livestock, and would manage weeds. Other members of the public support the use of prescribed fire.

Mixed grass prairies evolved with disturbances such as fire and grazing, and both are important tools to manage the vegetation. Prescribed fire has been shown as an effective tool in the management of range vegetation. Prescribed fire allows more appropriate redevelopment of vegetation than increased grazing intensity. Fire more effectively removes litter accumulation and provides more nutritious and young grass growth than increased short-term grazing. Burning, in conjunction with grazing, leads to better consumption of plant material and helps soil nutrient cycling.

On certain allotments, we may increase grazing before using prescribed fire and only use prescribed fire if increased grazing does not yield desired results.

Use of Herding as an Adaptive Management Tool

> Public comments stated the concern that the proposed action applies herding of livestock on these allotments to attain proper livestock distribution. Livestock permittees would be obligated to herd their livestock, and some believe herding and constant monitoring of where their livestock graze would be an unnecessary burden, costing time and money, and would reduce the weight of livestock at sale.

Herding is a standard livestock management practice and may be necessary to obtain desired disturbance. Herding plans will be discussed with individual permittees and spelled out in individual allotment management plans, in annual operating instructions, or both. Where herding is not practical or successful, other adaptive management tools and techniques will be used.

Change in Location of Authorized Use (Combining Allotments) as an Adaptive Management Tool

> Public comments stated the concern that that a change in location of authorized use (combining allotments) would adversely affect the genetic characteristics of their herds. Each livestock permittee turns bulls out at different times of the grazing season. Livestock permittees select their bulls for specific traits such as calving ease, growth, and

> breed. Permittees prefer to use their own bulls on their cows. Livestock permittees also have different vaccination programs, and concerns were expressed that a change in location of authorized use (combining allotments) could increase the risk of disease transmission between herds.

A change in location of authorized use (combining allotments) is a tool that should be available because it would help change livestock distribution patterns and meet the Forest Plan's forest-wide guideline to avoid season-long grazing in riparian areas (Forest Plan page 1-22). If other adaptive management actions are successful in improving livestock distribution, this adaptive management action would not be necessary.

Fence along the Cheyenne River

> Public comments stated the concern that the placement of fence along the Cheyenne River to keep livestock out of riparian areas would make it difficult for livestock to access water. They also expressed the concern that this fence would restrict access to land not under Forest Service ownership, such as South Dakota School and Public Land and privately owned parcels within the boundaries of the Buffalo Gap National Grassland.

Fencing along sections of the Cheyenne River would be consistent with existing Forest Plan direction and may be necessary if other adaptive management tools do not successfully reduce impacts along the river. It would only occur if alternative water sources are in place. It would not be used to exclude grazing along the Cheyenne River but to limit the timing and duration of grazing along the river. The Forest Service will work closely with other land owners and managers to ensure access is maintained. Under certain conditions, it may be desirable to allow livestock in riparian pastures along the river.

Need for Action

The need for the Cheyenne River Area Range Allotment Management Plan is based on the Forest Plan management direction. This action is needed because existing conditions are not meeting Forest Plan direction for desired diversity of vegetation structure and vegetation composition. These conditions are primarily due to concentrated grazing along riparian areas and lack of grazing or other disturbance in upland areas.

The project area is currently not meeting Forest Plan objectives, due in part to concentrated livestock use in the riparian areas, including the Cheyenne River, Indian Creek, and Big Corral Draw, and limited livestock use of some upland areas.

Extensive rangeland monitoring data indicates the project area (Management Areas 1.2 and 6.1) is moving towards Forest Plan objectives for the Wall Southwest Geographic Area. The remainder of the geographic area is Management Area 3.63 which emphasizes prairie dog colonies for black-footed ferret reintroduction habitat. The objectives for Management Area 3.63 result in more early or early intermediate seral communities with low structure. At 74,000 acres, Management Area 3.63 can meet the early and early intermediate seral-low structure objectives for the geographic area, leaving a need for more late intermediate and late seral communities and moderate and high structure in the project area.

Grazing livestock instinctually concentrate their activities in areas of these six allotments that are most attractive to them. These areas have the easiest access to water and to vegetation of the composition and structure livestock prefer to graze. These attractive areas are grazed the most, and there is a disproportionate lack of livestock grazing or other desirable disturbance in upland areas.

When livestock are distributed over the allotments in this manner, vegetation conditions shift further away from desired conditions for vegetative composition (in terms of seral stage) and objectives for vegetative structure as specified in the Forest Plan. Areas currently being underutilized have been identified through observations of livestock use, excessive litter buildup, and an increase of non-native cool season grasses.

The health of riparian systems is largely dependent on the condition of the vegetative community. Healthy riparian vegetation provides overhead cover, temperature moderation, and root strength for bank stability. It filters sediment, stores water, and dissipates floodwater energy.

Riparian areas can also provide habitat for many unique plant species and many wildlife species. Where disturbance occurs in riparian areas, there is an increased risk of erosion and reduced productivity, thereby reducing the buffering effect the riparian area has on streams and the protection of beneficial uses. Nearly all riparian areas in the project area exhibit signs of livestock concentration including trampled and hoof-sheared banks; over-utilization of cottonwoods, willows, grasses and forbs; excess sediment deposition; and extensive manure within, and immediately adjacent to, stream channels (environmental assessment, page 7).

Public Involvement

A comprehensive scoping package was mailed or emailed to the Wall Ranger District mailing list, including Tribal entities. The scoping package contained a description of the proposed action, the purpose and need, and a map of the proposed project. On March 4, 2015, a total of 141 letters were mailed: 55 to individuals and groups; 10 to elected officials at the state and national level; 29 to Federal, State, and County agencies; 39 to Tribal entities and contacts; and 8 to permittees in the project area.

On March 12, 2015, 29 letters were mailed to Tribal entities and contacts, specifically inviting Tribal consultation in the process. The proposal was first listed in the Forest Service’s schedule of proposed actions in April 2015.

A total of 16 respondents submitted comments in response to the scoping package. Several meetings where held with interested members of the public during the development of the proposed action. Comments were recorded from 17 members of the public at these meetings. Comments from the public meetings and a list of individuals, groups, and agencies who participated during the development of this environmental assessment are in the project record.

The scoped proposed action included the installation of an interpretive sign. This activity has been withdrawn from the proposed action. A decision on whether to install the sign will be issued after a separate analysis.

A draft of this environmental assessment was released for public comment in January of 2016. The public was notified of the environmental assessment’s availability for review and comment through letters and through publication of a legal notice in the Rapid City Journal on January 27, 2016.

A 30-day public comment period began on January 28, 2016 as required by 36 CFR §218.24. Public meetings were also held during the comment period on February 5 and February 12, 2016. A summary of the comments received and my responses is in Appendix A of the environmental assessment.

Consistency with Laws and Regulations

National Forest Management Act

My decision is consistent with the National Forest Management Act. It is consistent with the standards, guidelines, desired conditions, and objectives of the Land and Resource Management Plan 2001 Revision Nebraska National Forest and Associated Units, including management direction specified in that plan for the Wall Southwest Geographic Area and the management areas (Management Area 1.2 – "Recommended for Wilderness" and Management Area 6.1 – "Rangeland with Broad Resource Emphasis") within which the project is located.

Sensitive Wildlife, Aquatic, and Botanical Species

The environmental assessment considered potential effects to wildlife and aquatic (environmental assessment, page 46), and botanical (environmental assessment, page 42) species considered sensitive in the Rocky Mountain Region of the National Forest System. After considering effects to all sensitive species assumed to be present in the project area, my decision will either have "beneficial effects," or "may adversely impact individuals, but not likely to result in a loss of viability on the planning area." Considered in the context of each of the species that my decision may adversely affect, those effects will not be significant when considered in the context of the species' viability throughout the planning area.

Species Listed under the Endangered Species Act

My decision is consistent with the Endangered Species Act. I consulted with the U.S. Fish and Wildlife Service for potential effects to listed least tern, northern long-eared bat, rufa red knot, and whooping crane. My determinations are that my selected alternative "may affect, not likely to adversely affect" these species (environmental assessment, page 45). The Fish and Wildlife Service concurred with my determinations in a letter dated March 9, 2016.

Heritage Resources

Pursuant to the National Historic Preservation Act, as implemented by regulations at 36 CFR §§800.4 and 5, and in accordance with the stipulations of the 2014 Programmatic Agreement between the Nebraska National Forests and Grasslands and the South Dakota State Historic Preservation Officer, cultural resource inventories and a determination of eligibility and effects have been completed for the Cheyenne River Range Allotment Management Plan project area. The South Dakota State Historic Preservation Officer concurs that cultural resource surveys for the project area meet current standards and also concurs with the Forest's determination both of National Register significance and eligibility for the various archaeological sites and of the expected project effects on significant sites. Copies of correspondence relating to this consultation are on file with the Nebraska National Forests and Grasslands.

Paleontological Resources

Paleontological Resources are a minerals and geology management program element under Forest Service directives at 2800/2880 (Geologic Resources, Hazards, and Services) and also Forest Service Manual chapters 2880.2, 2880.3, 2880.42, and 2884.11. Administration of paleontological resources is governed by the Paleontological Resources Preservation Act of 2009 (Pub. L. 111–011, Title VI, Subtitle D, Sec. 6310), and Forest Service regulations for Paleontological Resources Preservation at 36 CFR Part 291, which implement requirements of the Paleontological Resources Preservation Act and became effective on May 18, 2015.

Regulatory Framework for Geologic, Soil, and Water Resources

Multiple-Use Sustained-Yield Act

The proposed project is consistent with the intent of the Multiple-Use Sustained-Yield Act of 1960, which states that management of the National Forests must provide "sustained yields in perpetuity without impairment of the productivity of the land," because project activities will not irreversibly damage watershed functions.

National Forest Management Act (NFMA)

The National Forest Management Act requires that all lands be managed to ensure maintenance of long-term soil productivity, hydrologic function, and ecosystem health. All management activities associated with the Cheyenne River Area Range Allotment Management Plan Project would be consistent with this direction. Design criteria and best management practices have been included to ensure site productivity is maintained. Furthermore, the proposed project is consistent with the intent of the National Forest Management Act because project activities will only occur on stable soils and hillslopes; project design criteria and best management practices have been included to protect soil and water resources and thus project activities are not expected to irreversibly damage soil or water resources; and site productivity will not be permanently impaired.

Executive Orders 11988-Floodplains, 11990-Wetlands, and Municipal Water Supplies

The proposed project is consistent with executive orders regarding floodplains, wetlands, and municipal water supplies because proposed activities avoid floodplains, wetlands, and municipal water supply intake areas. The implementation of design criteria and best management practices is fully expected to protect any floodplain and wetland areas that may be adjacent or downstream of the project area. The implementation of project activities, along with best management practices and soil and water design criteria, will not significantly alter or hinder flood conveyance. Adverse effects to wetland and riparian areas are not expected because activities would not take place directly in or immediately adjacent to riparian areas or wetlands.

Clean Water Act, Safe Drinking Water Act, and State Water Quality Laws

The proposed project is consistent with all applicable State and Federal water quality laws because project design criteria and best management practices have been included to protect soil and water resources from non-point pollution. Thus, erosion and sediment transport are not expected and identified beneficial uses will continue to be supported. Furthermore, stream and wetland/riparian buffer widths are included as project design criteria, thus further protecting water and riparian resources from damage and pollution.

All alternatives would meet the requirements of the Clean Water Act by maintaining beneficial uses at current levels. Water quality for downstream water rights, including municipal water supplies, would also be maintained. This project would not lead to further impairment of existing or listing of additional impaired water bodies. State storm water discharge permits are not necessary. Design criteria and best management practices have been included in the project to avoid and protect wetland areas. Thus the proposed project complies with intent of the Clean Water Act and the associated subset of laws.

USDA Forest Service Manual and Handbook Direction

The proposed project is consistent with the standards, goals, and objectives for water resources set forth in FSM 2500, FSH 2500, and Region 2 supplements because project design criteria and best management practices have been included to protect soil and water resources. All proposed activities have been

designed not to disturb rare groundwater dependent ecosystems and not to minimize detrimental soil disturbance and will be monitored during and following the project to ensure this has been met.

Nebraska National Forests and Grasslands Plan Compliance

The proposed project activities are aligned with the goals and objectives for soil and water resources set forth in the Nebraska National Forests and Grasslands Forest Plan (USDA Forest Service, 2009). This project is consistent with the Forest Plan because Forest Plan standards and guidelines are included as project design criteria and best management practices to protect soil and water resources.

Appendix C of the environmental assessment lists the design criteria designated for this project and the Forest Plan standards and guidelines that each design criteria is associated with. Monitoring of watershed conservation practices (also referred to as best management practices monitoring) takes place annually across the Forest.

Environmental Justice

Based on the minority status and poverty data presented in the environmental assessment, environmental justice issues appear unlikely. The minority population in the analysis area does not exceed 50 percent nor is it greater than the minority population for the state. In addition, the poverty rates in the analysis area are lower than those for the state.

The benefits of rangeland improvements may offset short-term costs of these improvements to permittees. Although costs to permittees may increase relative to current management, the changes are not expected to affect the financial feasibility of ranching. Therefore, no environmental justice consequences are anticipated.

Pre-Decisional Administrative Review Opportunities

The Cheyenne River Area Range Allotment Management Plan is not a hazardous fuel reduction activity as defined by the Healthy Forests Restoration Act of 2003, as amended (Public Law 108-148), section 101(2). Therefore, this activity is subject to pre-decisional administrative review consistent with the Consolidated Appropriations Act of 2012 (Public Law 112-74) as implemented by subparts A and B of 36 CFR Part 218 (36 CFR §218.7(a)(2)).

Pre-decisional objections will only be accepted from those who have previously submitted specific written comments regarding the proposed project during scoping or other designated opportunity for public comment in accordance with §218.5(a). Issues raised in objections must be based on previously submitted timely, specific written comments regarding the proposed project unless based on new information arising after the designated comment opportunities.

Objections, including attachments, must be filed via mail, express delivery, or messenger service: (to Objection Reviewing Officer, USDA Forest Service, Rocky Mountain Region, 740 Simms Street, Golden, CO 80401); FAX to (303) 275-5134; email to r02admin_review@fs.fed.us; or by hand-delivery (Monday through Friday, 8:00 a.m. to 4:30 p.m., excluding holidays at USDA Forest Service, 740 Simms Street, Golden, CO 80401).

Objections must be submitted within 45 calendar days following the publication of this notice in the Rapid City Journal. The publication date in the Rapid City Journal is the exclusive means for calculating the time to file an objection. Those wishing to object should not rely upon dates or timeframe information provided by any other source.

The objection must contain the minimum content requirements specified in §218.8(d) and incorporation of documents by reference is permitted only as provided in §218.8(b). It is the objector's responsibility to ensure timely filing of a written objection with the reviewing officer pursuant to §218.9. All objections are available for public inspection during and after the objection process.

At a minimum an objection must include the following (36 CFR 218.8(d)): 1) The objector's name and address, with a telephone number, if available; 2) a signature or other verification of authorship upon request (a scanned signature for email may be filed with the objection); 3) when multiple names are listed on an objection, identification of the lead objector (verification of the identity of the lead objector shall be provided upon request); 4) the name of the proposed project, the name and title of the Responsible Official, and the name(s) of the National Forest(s) and/or Ranger District(s) on which the proposed project will be implemented; and 5) a description of those aspects of the proposed project addressed by the objection, including specific issues related to the proposed project if applicable, how the objector believes the environmental analysis or draft decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; supporting reasons for the reviewing officer to consider; and 6) a statement that demonstrates connection between prior specific written comments on the particular proposed project or activity and the content of the objection.

Implementation Date

Once objections are resolved, this decision would be issued and implementation would begin immediately.

Draft Finding of No Significant Impact

As the responsible official, I am responsible for evaluating the impacts of the project relative to the definition of significance established by the Council on Environmental Quality regulations (40 CFR §§1508.13 and 1508.27). Significance is defined as a function of context and intensity. Consideration of the likely intensity of changes, impacts, or effects, with the context in which they might occur, allows me to determine the material consequences or significance of the impacts predicted in the analysis.

I have reviewed and considered the environmental assessment and documentation included in the project record, all of which are hereby incorporated by reference, and I have determined that the Cheyenne River Area Range Allotment Management Plan will not have a significant impact on the quality of the human environment. As a result, no environmental impact statement will be prepared. My rationale for this finding is as follows, organized by sub-section of the Council on Environmental Quality definition of significance cited above.

Context

For the proposed action and alternatives the context of the environmental impacts is based on the environmental analysis in this environmental assessment. The consideration of the context of an environmental impact determines the meaning, relevance, or material importance of the potential changes that are likely to result from the action being analyzed. Therefore, context, in a National Environmental Policy Act sense, gives meaning to an environmental change.

The actions included in Alternative 3 are described in detail on pages 14 through 33 of the environmental assessment. The disclosure of impacts may differ by the resource and by the scale of analysis. Therefore, multiple scales and levels of analysis were used to determine the significance of the activities' impacts on the human environment.

The selected alternative for the Cheyenne River Area Range Allotment Management Plan allows cattle grazing on approximately 30,000 acres. This represents no change to the number of acres that have been grazed in the project area for several decades.

The selected alternative will continue to authorize cattle grazing on the Cheyenne River area range allotments in numbers similar to those allowed under current management. Only the distribution of cattle on the allotments is expected to change in order to allow resource conditions to progress toward desired Forest Plan goals and objectives. These changes in conditions would not be significant impacts when considered in the regulatory context of Forest Plan direction.

Any adverse or beneficial effects to resources would be localized and negligible when considered in the context of the full range of occurrence of the resource, regulatory policy, or socioeconomic considerations.

Intensity

Intensity is a measure of the magnitude, speed, extent, and duration of likely environmental changes. It is based on information from the impacts analysis of this environmental assessment and the references in the project record. The impacts of this project have been appropriately and thoroughly considered with an analysis that is responsive to concerns and issues raised by the public. The agency has taken a hard look at the environmental impacts using relevant scientific information and knowledge of site-specific conditions gained from field visits. My finding of no significant impact is based on the intensity of impacts and the contexts in which they are considered, using the following ten factors identified in 40 CFR 1508.27(b).

1. 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.

   There will be no significant beneficial or adverse effects. The beneficial and adverse impacts of this decision are addressed in the “Environmental Impacts of the Proposed Action and Alternatives” section of the environmental assessment, beginning on page 35. The impacts of my decision are consistent with the standards, guidelines, goals, and objectives in the Forest Plan. The adverse effects of my decision are seasonal, minor in nature, and limited in geographic extent. The selected action provides the best combination of ecological and social benefits.

2. The degree to which the proposed action affects public health or safety.

   There will be no significant effects on public health and safety. Water quality would be maintained or improved, consistent with the desired conditions in the Forest Plan and with requirements of the Clean Water Act, Safe Drinking Water Act, and State water quality laws (environmental assessment, page 61). This improvement would not be significant when considered in the context of Forest Plan desired conditions and water quality conditions on the Nebraska National Forests and Grasslands as a whole.

   At the project scale and considering the lack of effects that can be meaningfully evaluated under current science, modeling, and policies, I cannot discern significant climate change effects of this project (environmental assessment, page 67) when considered in the context of the whole planet.

   Design features and best management practices (environmental assessment, Appendix C) will maintain or improve resource conditions.

3. Unique characteristics of the geographic area such as the proximity to historical or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

Cultural resource surveys have been completed. Agency guidance in regards to grazing permit re-issuance and the National Historic Preservation Act compliance process was followed to assess potential effects of grazing on heritage resource values. Documentation review and monitoring was utilized to fulfill Section 106 requirements. It has been determined that there will be no adverse effect to historic properties (environmental assessment, page 63).

The Forest Plan permits grazing in management areas designated as "Recommended for Wilderness" (Management Area 1.2). The management of grazing in this management area will be consistent with the standards and guidelines developed to sustain the health, diversity, and productivity of this area. These standards and guidelines were developed during the forest planning process as required by the National Forest Management Act and are set forth in the Forest Plan.

Floodplains and wetlands would be improved as rehabilitation measures are implemented (environmental assessment, page 61).

The project will have no effect on the following areas because none are located within the project area:

- Parklands or ecologically critical areas;
- Research Natural Areas or Special Interest Areas designated by the Forest Plan;
- Inventoried Roadless Areas; or
- Congressionally designated areas, such as Wilderness, National Recreation Areas, or Wild and Scenic Rivers

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.

   The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the environmental effects of the project. There are differing opinions in the community on the management actions necessary and the science used. The level of controversy or interest in what course of action to take regarding grassland management is not the focus of this factor; rather it is the degree of scientific controversy over the effects disclosed in the analysis. No significant disagreements have been identified with the disclosure of effects in the environmental assessment. The Nebraska National Forests and Grasslands Land and Resource Management Plan (Forest Plan) permits all of the activities proposed in this project and these activities have historically been conducted in this area. The environmental assessment (beginning on page 35) effectively addressed, analyzed and disclosed effects associated with the project. During scoping, 30-day public review and comment period of the environmental assessment, and effects analysis, no scientific controversy over unacceptable effects was identified. Concerns voiced during the 30-day comment period are listed and responded to in the project record.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

   We have considerable experience with the types of activities to be implemented. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk (environmental assessment, beginning on page 35). The best available scientific information provided the foundation for designing the Cheyenne River Area Range Allotment Management Plan (environmental assessment, and resource specialists' reports, Literature cited, project record). Livestock grazing has been implemented successfully on the Wall Ranger District. These past activities have been monitored (project file) and the monitoring results provide a good baseline for predicting future

outcomes. Recent monitoring has found that best management practices for the protection of soil and water resources are effective in keeping detrimental impacts to within Forest Plan standards. I am satisfied that the project, as designed, and the effects disclosed in the environmental assessment present no highly uncertain or unknown risks.

6. The degree to which the action may establish precedent for future actions with significant effects or represents a decision in principle about a future consideration.

   The action is not likely to establish a precedent for future actions with significant effects, because livestock grazing is not a new activity within this project planning area and has occurred in numerous parts of the Nebraska National Forests and Grasslands. Livestock grazing and associated management activities are all allowed activities in this area by Forest Plan management direction. The environmental assessment effectively addressed and analyzed all major issues associated with the project.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

   The cumulative effects determinations in the environmental assessment are not significant (environmental assessment, beginning on page 35). The list of past, present, and reasonably foreseeable future activities in the area that were considered for the cumulative effects analysis for each resource topic is in the project record. I recognize some cumulative effects will occur. However, these cumulative effects will not be significant in terms of magnitude, speed, extent, duration, or the context in which these effects were considered.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

   The action will also not cause loss or destruction of significant scientific, cultural, or historical resources. Identified sites and any newly recorded sites will continue to be monitored for potential impacts (environmental assessment pages 63 and 64) from grazing activities. The Forest Service has complied with Section 106 of the National Historic Preservation Act for the Cheyenne River Area Range Allotment Management Plan Environmental Assessment (environmental assessment page 63 and item 3 on page 9 of this decision notice and finding of no significant impact). We have also complied with the Paleontological Resources Preservation Act (PRPA) of 2009.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

   The Biological Assessment determined that the selected alternative “may affect, not likely to adversely affect” listed least tern, northern long-eared bat, rufa red knot, and whooping crane. I consulted with the U.S. Fish and Wildlife Service for effects to these species and they issued concurrence with my determinations. No other listed species would be affected.

   I also analyzed effects to the black-footed ferret which is proposed for Endangered Species Act listing and the determination was that the selected alternative would “not likely to jeopardize continued existence of the species.” I received concurrence with this determination in conferencing with the U.S. Fish and Wildlife Service.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Consistency with Federal, State, or local law or requirements is disclosed on page 5 of this decision notice.

Contact Information

For additional information regarding this decision, contact Kurt Pindel, District Ranger, Wall Ranger District, at (605) 279-2125 x203

Approved by:

Kurt Pindel, District Ranger
Wall Ranger District

Date