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Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest

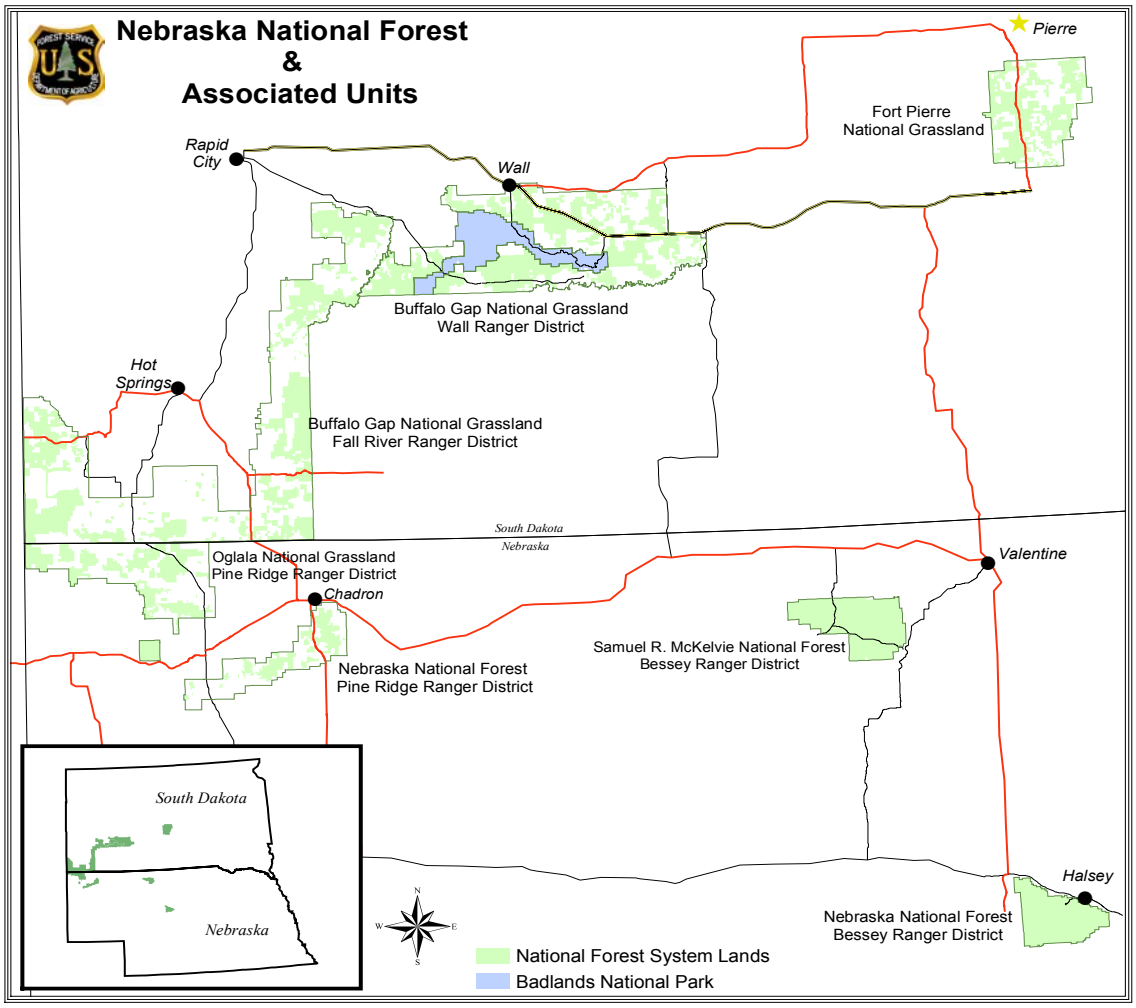
and Associated Units

Including Land and Resource Management Plan Amendment 1

USDA Forest Service
Rocky Mountain Region
Nebraska National Forest

Final Environmental Impact Statement

Figure 1. Project Area Vicinity Map (green areas)



Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units

Including Land and Resource Management Plan Amendment 1

Final Environmental Impact Statement

USDA Forest Service
Rocky Mountain Region
Nebraska National Forest

Located within Dawes, Sioux, Blaine, Cherry, Thomas Counties, Nebraska
and
Custer, Fall River, Jackson, Pennington, Jones, Lyman, Stanley Counties, South Dakota

Lead Agency: **USDA Forest Service**

Cooperating Agencies: **State of South Dakota**
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ABSTRACT: The Land and Resource Management Plan (LRMP) for the National Forest System lands in the project area established direction for black-tailed prairie dog conservation. However, the LRMP deferred direction, pending issuance of state prairie dog plans, on how best to manage prairie dogs along property boundaries to reduce unwanted colonization of adjoining agricultural lands. Many landowners are concerned about encroachment of prairie dog colonies from national grasslands to their lands and the resulting impacts on agricultural production, land values, and public health. The Forest Service has reviewed the recently issued South Dakota prairie dog plan for additional guidance and is in general agreement with the goals and intent of the South Dakota plan to manage for long-term, self-sustaining prairie dog populations while trying to reduce or avoid unwanted impacts to neighboring landowners. This Final Environmental Impact Statement has been prepared to disclose the predicted environmental effects of implementing three alternatives for reducing unwanted prairie dog colonization of adjoining private or tribal lands. Alternative 1 relies primarily on non-lethal methods to manage and reduce prairie dog populations along property boundaries. Under Alternative 2, rodenticide use could be authorized in one-mile boundary management zones on national grasslands along private or tribal lands, pending on-site evaluations of complaints. Alternative 3 prescribes expanded rodenticide use and non-lethal management along boundary management zones that are 0.25 or 0.5 miles in width.

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ABBREVIATIONS AND ACRONYMS

APHIS	Animal and Plant Health Inspection Service
AUMs	Animal Unit Month(s)
B.A.	Bachelor of Arts
B.S.	Bachelor of Science
BA	Biological Assessment
BCR	Bird Conservation Regions
BE	Biological Evaluation
BFF	Black-footed Ferret
BGNG	Buffalo Gap National Grasslands
BGNG	Buffalo Gap National Grassland
BRD	Bessey Ranger District
BTPD	Black-tailed Prairie Dog
CAA	Clean Air Act
CBSG	Conservation Breeding Specialist Group
CD	Compact Disk
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CRP	Conservation Reserve Program
DDT	Dichloro-diphenyl-trichloroethane
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FPNG	Fort Pierre National Grassland
FPNG	Fort Pierre National Grassland
FRRD	Fall River Ranger District
FRWGA	Fall River West Geographic Area
FS	Forest Service
FSM	Forest Service Manual
FWS	U.S. Fish and Wildlife Service
G.A.	Geographic Area
GA	Geographic Area(s)
GIS	Geographic Information System
GPS	Global Positioning System
HUC	Hydrologic Unit Code
LRMP*	Land and Resource Management Plan
M.S.	Master of Science
MA	Management Area
MIS	Management Indicator Species
N.G.	National Grassland
NEPA	National Environmental Policy Act
NF	National Forest
NFMA	National Forest Management Act
NFS	National Forest System

NG	National Grassland
NHPA	National Historic Preservation Act
NNF	Nebraska National Forest
NOA	Notice of Availability
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRDC	National Resources Defense Council
NRHP	National Register of Historic Places
ONG	Oglala National Grassland
ONG	Oglala National Grassland
PRRD	Pine Ridge Ranger District
R.D.	Ranger District
RD	Ranger District
ROD	Record of Decision
SCP	Species Conservation Project
SRMNF	Samuel R. McKelvie National Forest
T&E	Threatened & Endangered Species
U.S.C.	United States Code
USDA	United States Department of Agriculture
WO	Washington Office
WRD	Wall Ranger District

* LRMP is also referred to as the 'Forest Plan'.

DOCUMENT STRUCTURE

How to Read this EIS Document. The Forest Service has prepared this Final Environmental Impact Statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This FEIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed alternatives. The document is organized into four chapters. Chapters 1 and 2 are summaries while Chapter 3 contains detailed supporting information. Below is an explanation of each chapter and/or section.

Summary. This section provides a brief overview of the final environmetal impact statement.

Chapter 1. Purpose and Need for Action: This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2. Description and Comparison of the alternatives: This chapter provides a more detailed description of the agency's proposed alternative methods for achieving the stated purpose. These alternatives were developed based on key issues raised by the public and other agencies. This section also provides a summary table of the environmental consequences associated with each alternative.

Chapter 3. Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the proposed alternatives. Resource areas, including soil, water, air, archeology, paleontology, rangeland, species at risk, recreation, and social and economical factors are listed here.

Chapter 4. Lists: Including List of Preparers and Document Recipients: This chapter provides a list of the preparers; agencies, elected officials, American Indian tribes, organizations, and individuals consulted during the development of the FEIS.

Chapter 5. Response to Comments: This chapter addresses substantive comments of the Draft EIS.

Appendices: The appendices provide more detailed information to support the analyses presented in the FEIS.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Nebraska National Forest Supervisor's Office.

CHANGES BETWEEN DRAFT AND FINAL

Key changes and/or additions between draft and final are briefly described below for each chapter and appendix. Minor corrections of typographical errors, formatting, and changes in sentence structure for better clarification are not identified.

Chapter 1 - Purpose of and Need for Action: Section 1.7 - one additional issue and indicator was added.

Chapter 2 - Descriptions and Comparison of the Alternatives: Section 2.3 - the Fall River County (South Dakota) Commissioners submitted "The Fall River County Prairie Dog Conservation Act for National Grasslands" and requested that the Forest Service consider the Act as an alternative. Also, the USDA Animal and Plant Health Inspection Service (APHIS) suggested additional alternatives. The suggested alternatives were considered but eliminated from further analysis.

Section 2.2 - a total of five standards instead of six standards is proposed for revision in an amendment under Alternative 2 and Alternative 3 (preferred). Reference to a desired condition statement was added.

Chapter 3 - Affected Environment and Environmental Consequences: Section 3.3 - further discussion on soil erosion sources was discussed. A comparison table between cropland, badlands, and prairie dog colony acreages (and percentages by county) is displayed.

Section 3.6 - herbage production was further discussed and analyzed between the alternatives. Analysis of temporary livestock grazing reductions in animal unit months was updated. Further discussion was given on noxious weeds.

Section 3.7 - effects to the black-footed ferret on any national grassland colonies along the Badlands National Park was further discussed. Adverse biological determinations limited to black-tailed prairie dog and western burrowing owl on the Fort Pierre and Oglala National Grasslands under Alternative 2 were further addressed. After considering public comments, the biological determinations for the northern harrier were changed for all alternatives, from "no impact" to "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 rangewide.

Section 3.8 – Table 3-13 was corrected for predicted acres on several Geographic areas. Also, current and predicted acres were illustrated for other non-MIS Geographic Areas. In addition to "at risk" and management indicator species, discussion and effects analysis for other wildlife which commonly use prairie dog colonies was added.

Section 3.10 - additional economic analysis was conducted and added to this section.

Section 3.13 - after reviewing comments, there would be an expected irretrievable commitment of resources from Alternatives 2 and 3, but not irreversible.

Section 3.14 - the cumulative effects discussion was further expanded to several areas, including rodenticide use, droughts and markets, disease, land use, and vegetative management.

Section 3.15 - two additional disclosures were added, the Nebraska National Forest Land and Resource Management Plan and the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan. Appendices are referenced for each of these plans.

Chapter 4 - Lists: Including List of Preparers and Document Recipients: No key changes were made to this chapter.

Chapter 5 – Responses to Comments Received on the Draft EIS: This is a new chapter that is required in the FEIS. It discusses the content analysis of the public comments received and our response to those comments.

Appendix A – Maps: Map numbers were assigned to each map (i.e., A-1, A-2, A-3, etc.).

Appendix B – Implementation Plans: Changes to Appendix B are reflected in the changes made in Chapter 2 under each alternative.

Appendix C - LRMP Amendments: A total of five standards instead of six standards are proposed for revision in an amendment under Alternative 2 and Alternative 3 (preferred). A desired condition statement was re-written for clarification for the Oglala Geographic Area.

Appendix D – Implementation Costs: No key changes were made to this appendix.

Appendix E - Biological Assessment and Evaluation: Analysis of the alternatives was limited to Alternative 3 (preferred) for the FEIS. Analysis of all three alternatives can be found in the DEIS. Map numbers were assigned to each map (i.e., E-1, E-2, E-3, etc.) An additional map was added for black-footed ferret observations on the west half of Buffalo Gap National Grassland (Map E-9b).

Appendix F - Common and Scientific Names: Several species were added to the list.

Appendix G – Glossary: Definitions of encroachment were added.

Appendix H - Consistency Check with the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan: This is a new appendix.

Appendix I – Consistency Check with the LRMP: This is a new appendix.

Appendix J – Determination of Significant or Non-Significant LRMP Amendment: This is a new appendix.

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

This Final Environmental Impact Statement (FEIS) addresses the conservation and management of black-tailed prairie dogs (Cynomys ludovicianus) on several National Forest System (NFS) units in Nebraska and South Dakota. For purposes of this FEIS, the term "conservation" is used in reference to activities for helping ensure long-term persistence and health of black-tailed prairie dog populations across the project area. The term "management" is used primarily in context of reducing prairie dog populations and their habitat along property boundaries. Since prairie dog conservation direction is already established in the Land and Resource Management Plan (LRMP) for the national grasslands and forests in the project area, the primary focus of this FEIS is evaluating alternatives for managing and reducing prairie dogs along property boundaries in response to concerns of neighboring landowners.

The national grasslands and forests illustrated in Table 1-1 define the project area and are collectively managed as an administrative unit (Nebraska National Forest and Associated Units) of the Forest Service. The administrative unit includes the Buffalo Gap and Fort Pierre National Grasslands in South Dakota and the Nebraska and Samuel R. McKelvie National Forests and Oglala National Grassland in Nebraska. For an overview of the environmental, social and economic characteristics of each NFS unit in the project area, consult the Final Environmental Impact Statement (FEIS) for the revised Land and Resource Management Plan (USDA Forest Service 2002 at www.fs.fed.us/ngp).

Current black-tailed prairie dog distribution in the project area is shown in Table 1-1 and Appendix A - Maps. There are no known prairie dog colonies on the Samuel R. McKelvie National Forest and Pine Ridge Ranger District of the Nebraska National Forest.

Table 1-1. National grasslands and forests in the project area with black-tailed prairie dog colonies

National Grassland/Forest	NFS Land Area (Acres)	Current Active Colony Acreage [1] (Fall 2004)	Counties and State
Nebraska National Forest (Bessey Ranger District)	90,200	90	Blaine and Thomas Counties, Nebraska
Oglala National Grassland	94,200	2,220	Dawes and Sioux Counties, Nebraska
Buffalo Gap National Grassland	589,200	26,030 [2]	Custer, Fall River, Jackson and Pennington Counties, South Dakota
Fort Pierre National Grassland	116,100	1,340	Jones, Lyman and Stanley Counties, South Dakota
All Areas Combined	889,700	29,680	11 Counties in Nebraska and South Dakota

[1] Prairie dog survey information from global positioning system (GPS)
[2] Does not include approximately 6,780 acres that were treated with rodenticide in 2004

Since the 1960's, the Forest Service has been challenged to balance our duty to conserve both prairie dog habitat and our agricultural heritage, both vital attributes of the national grasslands we manage for the public. Through the late 1960s and early 1970s, Forest Service prairie dog plans called for colonies to be limited to approximately 3,000 acres through annual use of prairie dog rodenticide. Rodenticide use was halted for several years with the issuance of Presidential Executive Order 11643 in 1972 that banned use of chemical toxicants on federal lands that pose secondary poisoning risks to non-target species. In 1978, rodenticide use resumed when the Forest Service issued an environmental impact statement and prairie dog plan (USDA Forest Service 1978) that prescribed use of a newly developed rodenticide formulation (2 percent zinc phosphide on steam-rolled oats, EPA Label Registration No. 6704-74) along with vegetation management through livestock grazing adjustments in the project area. By then, prairie dog colonies had expanded ten-fold, almost to 30,000 acres. The new direction prescribed retention of approximately 5,200 acres (minimum) of active colonies. The remaining colony acreage was prescribed for potential rodenticide application to reduce prairie dog populations and to maintain forage for permitted livestock on the national grasslands. Rodenticide use was also prescribed to help reduce prairie dog conflicts along national grassland property boundaries with neighboring landowners. By the time this direction was fully implemented in 1981, the acreage of active prairie dog colonies combined with those recently treated with rodenticide totaled almost 44,000 acres.

The 1978 prairie dog direction was amended in 1981 (USDA Forest Service 1981) by further reducing the minimum acreage of active colonies to be retained (no rodenticide) to approximately 3,100 to address continued prairie dog encroachment along property boundaries. This direction remained in effect until 1989 when the direction was once again modified, primarily in response to the recent discovery and successful captive propagation of the endangered black-footed ferret in Wyoming. The Forest Service, with new information on black-footed ferrets and the possibility of future ferret reintroductions, developed a new plan in 1989 (USDA Forest Service 1989) to increase the colony retention acreage from 3,100 acres up to 8,000 acres, mostly located in the Conata Basin area of the Buffalo Gap National Grassland. Annual black-footed ferret releases in Conata Basin were initiated in 1994 under the 1989 prairie dog direction and a separate black-footed ferret reintroduction FEIS (U.S. Fish and Wildlife Service et al. 1994). In 2002, the Forest revised its' Land and Resource Management Plan (LRMP) that provided further guidance for managing the habitat for prairie dogs, black-footed ferret, livestock use and other needs. The 2002 LRMP and this ROD continue to direct management of National Grassland habitat for the black-footed ferret in the Conata Basin.

Other events have set the stage for further modifications to prairie dog conservation and management direction.

- In 1998, the black-tailed prairie dog was petitioned for listing and protection under the Endangered Species Act (ESA). In 2000, the U.S. Fish and Wildlife Service designated the black-tailed prairie dog as a candidate for possible listing as a threatened species under ESA protection (U.S. Fish and Wildlife Service 2000). The USFWS had concluded that listing of this species for federal protection under the Endangered Species Act was "warranted". During this period, there was considerable interest by affected States to maximize black-tailed prairie dog conservation on public

land to prevent the need to list this species so as to reduce pressure on private agricultural lands to otherwise potentially expand prairie dogs. The Forest Service followed by issuing national guidance to limit use of prairie dog rodenticide to situations involving public health and safety risks and damage to facilities. This direction was incorporated into the revised Land and Resource Management Plan (LRMP) and 2002 Record of Decision.

- The Chief of the Forest Service rescinded the national guidance in February, 2004, and encouraged all field units to use existing agency authorities, including direction and guidance in LRMPs, to further the conservation and management of black-tailed prairie dogs on national grasslands and forests. In August, 2004, the U.S. Fish and Wildlife Service concluded from updated population information and the extent of range-wide management planning ongoing for the species especially since conferral of candidate status, that the species was not likely to become endangered in the foreseeable future and removed it from the candidate list.
- The recent drought in South Dakota and Nebraska has led to accelerated expansion of prairie dog colonies, and increased complaints about unwanted colonization of lands adjoining national grasslands. In response to these complaints and a request by the Governor of South Dakota, application of prairie dog rodenticide (2% zinc phosphide, EPA Label Registration No. 56228-14) in selected colonies was conducted by the State of South Dakota on private lands and by the USDA Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) on the Buffalo Gap National Grassland in 2004. Prior to the initiation of rodenticide use, a lawsuit was filed by several conservation/environmental organizations. A stipulated settlement agreement was reached that allowed emergency rodenticide use. As part of the stipulated settlement agreement, no further use of rodenticide would occur until the completion of an environmental impact statement (EIS) and LRMP amendment addressing a long-term solution for management of prairie dog colonies.

1.2 Authorities

Forest Service. The laws, policy, and direction applying to the use of rodenticides and management of prairie dogs by USDA Forest Service can be found in the LRMP FEIS (page 3-157).

Animal and Plant Health Inspection Service – Wildlife Services. The Secretary of Agriculture is authorized by Congress to protect American agricultural and other resources and interests from damage associated with wildlife. That authority includes, if requested, protection of threatened or endangered wildlife and to resolve conflicts between wildlife and human health and safety concerns pursuant to the Act of March 2, 1931, as amended, 7 U.S.C. 426-426b[1]and the Act of December 22, 1987, 7 U.S.C. 426c.

[1] Section 426 as amended on October 28, 2000, authorizes the Secretary of Agriculture to "... conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before October 28, 2000."

Formerly, section 426 specifically mentioned and included management of prairie dogs on National Forest System (NFS) lands, state lands, other areas of the public domain, and private lands.[2] The authorities imparted to the Secretary of Agriculture by the Act of March 2, 1931, as amended, and the Act of December 22, 1987, have been delegated to APHIS, a USDA agency. Within APHIS, these authorities have been delegated to the Wildlife Services (WS) program. Accordingly, APHIS-WS's authorities support and authorize its mission of providing Federal leadership and expertise in managing problems caused by injurious and/or nuisance wildlife to agricultural and other natural resources, including other wildlife; minimizing potential wildlife harm or threats to human health and safety, e.g. zoonotic diseases from wildlife to humans and wildlife causing civilian or military airplane crashes.[3]

The APHIS-WS' "wildlife services" authorities cited above plus other statutory authorities[4] likewise authorize APHIS-WS to enter into cooperative agreements with Federal agencies, States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of injurious animal species and/or nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases. APHIS-WS activities and assistance are contingent upon cooperative funding from those cooperating and/or requesting APHIS-WS's services, including Federal, State, local, private or public associations or organizations, or individuals, and/or upon appropriations and/or specifically delineated authorization or direction from Congress.

1.3 Purpose and Need for Action

The LRMP and 2002 ROD provide programmatic direction for conserving and managing black-tailed prairie dogs on the national grasslands and forests in the project area. This direction prescribes use of lethal and non-lethal tools to regulate and manage prairie dog populations. For example, rodenticide can be used on the national grasslands and forests to reduce or eliminate prairie dog populations posing health and safety risks or causing damage to facilities. This direction involves a small number of prairie dog colonies and results in minimal rodenticide use. The larger and more extensive issue is encroachment of prairie dog colonies from national grasslands onto adjoining private or tribal agricultural lands, where ranchers and farmers are concerned about losses in agricultural production, costs of managing prairie dogs, effects on land values, and risks to health and safety. The Forest Service decided in the LRMP to defer this larger issue until the States of Nebraska and South Dakota completed ongoing prairie dog management planning. The Forest Service also indicated that it would consult statewide prairie dog plans, once they

[2] Section 426 was formerly worded as follows: "The Secretary of Agriculture is authorized to … determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory, or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, … and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals, and birds, and for the protection of stock and other domestic animals …; and to conduct campaigns for the destruction or control of such animals.

[3] See www.aphis.usda.gov/ws/mission.html. Examples of APHIS-WS activities include: training of wildlife damage management professionals; development and improvement of strategies to reduce losses and threats to humans from wildlife; collection, evaluation, and dissemination of management information; cooperative wildlife damage management programs; informing and educating the public on how to reduce wildlife damage; and providing data and a source for limited-use management materials and equipment, including pesticides.

[4] Section 713 of the Agriculture, and Related Agencies Appropriations Act of 2003.

were released and available, for further guidance on how best to respond to unwanted colonization of adjoining agricultural lands (Guideline H-2 in Chapter 1 of the LRMP). The ROD specifically stated:

"As part of being a good neighbor, we will implement management practices such as livestock grazing, land exchange, and prescribe fire that will likely contribute to the increase of prairie dog populations and to reduce conflicts with adjacent landowners. So as to not place a disproportionate share of prairie dogs on national forest system lands, I will work with the states of Nebraska and South Dakota in the preparation of the State-wide prairie dog conservation plan, pursuant to 36 CFR 219.7. I intend to implement the State-wide conservation plan to the extent allowable by law and policy in providing direction for the control of unwanted colonization of prairie dog onto private lands. Should the State-wide conservation plan conflict with provisions of this LRMP, I will propose an amendment to make the LRMP consistent with the State-wide conservation plan."

A February 12, 2004, memo from the Washington Office rescinded the policy letter regarding use of prairie dog rodenticide on National Forest System lands because the restrictions on rodenticide had been incorporated in LRMPs for most prairie dog habitat on NFS lands. Further, the memo stated that many of the LRMPs also emphasize the importance of considering the various state prairie dog management plans. The memo directed that any future rodenticide use proposals are to be carefully reviewed and coordinated with any approved state prairie dog management plans.

On May 5, 2004, USDA Deputy Under Secretary, David Tenny, completed a discretionary review of appeal decisions for the LRMP and affirmed the Chief's appeal decision with instructions regarding the management of prairie dog populations. As the Forest Service implemented the revised LRMP, the Nebraska National Forest was directed to ensure that local land managers work together with state and county officials and local landowners to aggressively implement the spirit and intent of the good neighbor policy. Specifically, the Nebraska National Forest was instructed to work with local interests and landowners to use the full suite of management tools available to reduce the potential for prairie dog colonies to expand onto adjacent non-federal lands. This aggressive application of the good neighbor policy should involve other governmental and local interests, as appropriate, and be done in conjunction with state prairie dog management plan.

In May 11, 2004 letter to the Chief, Regional Forester Rick Cables outlined the actions to be taken in regards to prairie dog management, specifically unwanted colonization onto adjacent non-federal lands. The Regional Forester's letter stated:

"As part of being a good neighbor, aggressive management actions will be taken to achieve LRMP objectives and minimize conflicts with adjacent landowners. We will accelerate active management of unwanted colonization by applying appropriate tools. Prairie dog conservation plans developed by the states will be consulted for guidance on the appropriate response to unwanted colonization onto adjacent non-federal lands. As stated in the ROD, we intend to implement the state-wide prairie dog conservation strategies to the extent allowable when they become available. Any changes in direction for prairie dog control will be done with appropriate consultation and coordination."

The South Dakota Black-tailed Prairie Dog Conservation and Management Plan (www.sdgfp.info/wildlife/hunting/prairiedogfinalplan.pdf) was released in December, 2004, with a revision in January, 2005. The Forest Service is in general agreement with the goals and intent of the South Dakota plan to manage for long-term, self-sustaining prairie dog populations while trying to reduce or avoid unwanted impacts to landowners. With the new plan in hand, the Forest Service is now evaluating, as it indicated it would in the LRMP, the best way to address encroachment of prairie dogs from national grasslands onto adjoining private or tribal agricultural lands. Appendix H describes how the Forest Service addressed the objectives and strategies identified in the South Dakota Black-tailed Prairie Dog Conservation and Management Plan. Other prairie dog conservation and management direction prescribed in the LRMP is already being implemented.

The State of Nebraska has not issued a statewide prairie dog plan. However, the alternatives being evaluated in this FEIS address prairie dog conservation and management on the Forest Service administered lands in both Nebraska and South Dakota. This will assure that the LRMP provides balanced and integrated guidance across the administrative unit. Although the State of Nebraska does not currently have a prairie dog plan, the Forest Service will continue to closely coordinate prairie dog management with Nebraska, as well as South Dakota.

1.4 Proposed Actions

The Forest Service proposes the following actions to meet the purpose and need described in Section 1.3 above:

1) Continue implementing prairie dog conservation direction in the LRMP,
2) Develop a project-level and site-specific implementation plan to reduce unwanted colonization of adjoining agricultural lands along national grassland boundaries,
3) Amend the LRMP as needed to support the site-specific implementation plan and to modify the boundary of the Conata Basin black-footed ferret reintroduction area. The ferret area modification is proposed because it has been determined that a block of 5,130 acres of land is unsuitable for black-footed ferrets and is isolated from the core ferret habitat in Conata Basin.

Alternatives for implementing the proposed actions address a suite of management tools, non-lethal and lethal, including rodenticide and limited shooting in selected colonies to reduce unwanted colonization on adjoining agricultural lands. Rodenticide (2 percent zinc phosphide grain bait) when applied to label specifications is highly effective in eliminating or reducing selected prairie dog populations (Tietjen 1976, Uresk et al. 1986) while shooting is typically less effective but could be a management tool for limiting or regulating prairie dog populations (Vosburgh and Irby 1998). Prairie dog shooting is regulated primarily by state wildlife agencies. However, in 1998 the Forest Service issued a shooting closure in the Conata Basin black-footed ferret habitat. This closure remains in effect.

Non-lethal management tools considered include landownership adjustment and third party solutions. Third party solutions involve other government agencies or private

organizations that provide innovative solutions to site-specific prairie dog management issues. These solutions include but are not limited to financial incentives, conservation agreements and conservation easements with willing landowners to help conserve prairie dogs on their lands and national grasslands. Other non-lethal tools that may be effective and used in a limited number of situations are live-trapping and prairie dog barriers, both visual and physical. Visual barriers could consist of vegetation zones where livestock grazing is significantly reduced or excluded to increase the height and density of grassland vegetation. This reduces visibility and the ability of prairie dogs to detect predators, thus discouraging prairie dog dispersal and colony expansion into the heavier vegetation (Knowles 1986, Uresk 1987, Fagerstone and Ramey 1996). However, the effectiveness of vegetation barriers is substantially reduced during low precipitation periods (droughts). Visual barriers could also be constructed using solid fabric fences that prairie dogs will, at least temporarily, avoid because of reduced visibility and ability to detect predators (Franklin and Garrett 1989). Physical barriers are typically multi-strand fences, including electric fence, which prairie dogs will approach but cannot physically penetrate.

The Forest Service will also carefully evaluate any future proposals for additional pipelines or other livestock water developments near property boundaries. These activities result in soil disturbances and livestock concentrations that attract prairie dogs and typically accelerate the establishment and expansion of prairie dog colonies (Knowles 1986, Licht and Sanchez 1993).

The scope of this proposal is limited to those actions described above. Other issues related to black-tailed prairie dog or black-footed ferret conservation and management in the project area are outside the scope of this proposed action.

Detailed descriptions of the alternatives for implementing the proposed actions are presented in Chapter 2 of this document.

1.5 Decision Framework

This FEIS is not a decision document. Its purpose is to document analyses and disclose direct, indirect, and cumulative effects to the environment from implementing the proposed action and other alternative actions. After allowing the public an opportunity to comment on the alternatives, the Forest Service reassessed the proposed action, other alternatives, and the environmental consequences in order to make the following decisions:

1) Determine whether a site-specific implementation plan is needed for reducing prairie dog encroachment from national grasslands and unwanted colonization of adjoining agricultural lands,
2) If a site-specific implementation plan is needed, determine when, where, and how management tools would be applied,
3) Determine whether an amendment to the LRMP (see Appendix C) is needed for effective prairie dog management and whether the amendment has NFMA significance or non-significance (see Appendix J).

These decisions address both programmatic and site-specific project level planning. The primary purpose of the implementation plan, identified in items 1 and 2 above, is to

provide site-specific environmental analysis and public disclosure for most future projects involving rodenticide use, regulated prairie dog shooting, and some of the non-lethal management tools. Item 3 includes revisions to some of the programmatic direction in the LRMP that relate to black-tailed prairie dogs.

1.6 Public Involvement

A Notice of Intent (NOI) to prepare a DEIS was published in the Federal Register on November 1, 2004. On November 5, 2004, letters were sent to interested parties informing them of the NOI and the 30-day comment period (see Chapter 4, 4.2, Distribution List). Since then, Forest Service officials have met or contacted various individuals, groups, tribes, state agencies, local agencies, and other federal agencies with an interest in prairie dog conservation and management on NFS lands. This includes officials from USDA Animal and Plant Health Inspection Service and the State of South Dakota, both cooperating agencies as indicated in the Federal Register in a December 10, 2004, correction to the earlier Notice of Intent. The State of Nebraska elected not to formally participate as a "cooperating agency" but still has the opportunity to fully participate and provide recommendations and comments.

Another 45-day comment period followed the Notice of Availability (NOA) for the DEIS. The NOA was published in the March 4, 2005, Federal Register, and letters to interested parties informing them of the DEIS and comment period were mailed the same day.

The Forest Service has a long history and considerable experience in prairie dog conservation and management on national grasslands and forests in South Dakota and Nebraska. This includes working with many interested individuals, conservation and industry organizations, landowner associations, tribes and government agencies. As a result, the issues associated with this proposed action are well understood and documented. In addition, the recent revision of the LRMP provided another opportunity for public involvement and for the agency to listen, document and consider public, tribal and agency comments relating to prairie dog conservation and management. Forest Service officials, including members of the FEIS interdisciplinary team, have considered this information in the development and evaluation of the proposed actions and alternatives.

The States of South Dakota and Nebraska recently completed public involvement programs addressing prairie dog conservation and management across each state. Comments from both efforts have been analyzed and documented, and Forest Service officials have also reviewed this information to better understand the issues, from a statewide perspective. The Nebraska and South Dakota public involvement information is available for review at the Forest Supervisor's Office in Chadron, Nebraska.

1.7 Issues

Key issues related to the proposed action identified through public and agency comments include:

- Unwanted prairie dog colonization on adjoining private or tribal lands and effects on landowners and their property,

- Importance of prairie dogs and these public lands, especially the Conata Basin Black-footed Ferret Reintroduction Area, to the recovery of the endangered black-footed ferret and to the partners in the recovery program,
- Prairie dog shooting in designated black-footed ferret habitat,
- Prairie dog colonies as habitat for grassland wildlife and biodiversity conservation,
- Humane treatment of prairie dogs and associated wildlife,
- Costs and effectiveness of prairie dog management on public and private lands,
- Soil, water, livestock forage and prairie dog relationships,
- Environmental and public health and safety risks,
- Economic effects on ranchers and local economic stability.

Some of these issues do not need further evaluation because there are already regulatory and policy requirements that address them. For example, environmental and public health and safety issues associated with rodenticide use can be remedied by ensuring that pesticide label instructions and Forest Service manual policy and procedures for pesticide use (FSM 2150) are followed during storage, transportation and application of rodenticide. Humane treatment issues can be addressed by meeting provisions of the Animal Welfare Act when prairie dogs are live-trapped. Other issues that were: 1) outside the scope of the proposed action or not relevant to the decision to be made; 2) already addressed and evaluated in the LRMP; or 3) conjectural and not supported by scientific or factual evidence are not addressed in this FEIS.

The following indicators will be used to help address most of the key issues identified above:

- Acreage and distribution of active prairie dog colonies,
- Acres of rodenticide use,
- Miles of vegetation management fencing,
- Animal unit months of permitted livestock grazing,
- Biological determinations for black-footed ferrets and other species at risk,
- Habitat for management indicator species,
- Watershed attributes,
- Implementation costs.

There were numerous comments that focused on the issue of financial incentives for adjoining landowners. The Forest Service may be able to identify or facilitate partnerships between willing landowners and other third parties where financial incentives or other innovative solutions can be explored. However, it is impossible at this time to reasonably predict the interest or evaluate the potential effectiveness of third party solutions.

1.8 Other Related Efforts

Landownership adjustments to better consolidate national grassland parcels are very effective long-term solutions to prairie dog boundary conflicts at some locations. These types of actions are ongoing and require separate environmental analyses and public disclosure processes.

Periodic annual rest or light livestock grazing intensities could be used in selected locations as vegetation management tools to help regulate and manage prairie dog populations. These management tools increase the height and density of grassland vegetation around colonies and decrease the amount of soil disturbance, resulting in conditions less suitable for prairie dogs. Long-term modifications to livestock grazing strategies are generally accomplished through a grazing allotment management planning process that requires separate environmental analyses and public disclosure. Annual temporary adjustments in livestock grazing primarily in response to low precipitation periods (drought) conditions usually do not require additional environmental analyses and public disclosure.

The national black-footed ferret recovery program involves a large number of partners that have and continue to contribute substantial financial, operational and professional support to the successful captive breeding of ferrets and the Conata Basin ferret reintroduction program.

Recent drought conditions in Nebraska and South Dakota have greatly accelerated prairie dog colony expansion and establishment. This has resulted in increased complaints from many neighboring landowners about prairie dog colonies encroaching onto their lands from national grasslands. In response to these complaints and the severe drought conditions in 2004, prairie dog rodenticide was recently applied to approximately 6,800 acres of colonies along property boundaries on the Buffalo Gap National Grassland. This was implemented through a cooperative program with State of South Dakota and USDA Animal and Plant Health Inspection Service.

CHAPTER 2. DESCRIPTIONS AND COMPARISON OF THE ALTERNATIVES

2.1 Introduction

This chapter describes and compares three alternatives, a no action and two action alternatives for the proposed action relating to black-tailed prairie dog conservation and management. The two action alternatives require an LRMP amendment. The focus of the alternatives is prairie dog management along boundaries to reduce unwanted prairie dog colonization of adjoining agricultural lands. This chapter includes a summary comparison that defines differences between alternatives, providing a clear basis for determining alternative preference by the decision maker and public.

2.2 Alternatives Considered in Detail

Three alternatives were developed in response to regulatory requirements and issues raised by the public and other government agencies.

2.2.1 Alternative 1 - No Action (Current LRMP Direction)

Summary Description: Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Limited Rodenticide Use

Conservation. Current LRMP direction for prairie dog conservation is unchanged and implemented as funding, staffing and priorities allow. Conservation activities underway include but are not limited to:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion while reducing boundary management conflicts,
- Expansion of the prairie dog colony complex (Management Area 3.63) near Smithwick, South Dakota, as potential habitat for future black-footed ferret reintroductions,
- Establishment and maintenance of designated prairie dog colony complexes (conservation focus areas) on the Fort Pierre and Oglala National Grasslands,
- Live-trapping and relocation of prairie dogs for black-footed ferret recovery program and for accelerating prairie dog colony expansion in selected areas.

In addition to the conservation activities just listed, prairie dog shooting closures identified in the LRMP for ferret reintroduction habitat would be implemented in the Smithwick ferret habitat area (Management Area 3.63) in 2005.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

Boundary Management. LRMP direction to manage prairie dog populations using non-lethal management tools (and limited use of rodenticide) is implemented as appropriate and where it would be most effective over the long-term.

- Non-lethal methods such as vegetation management through livestock grazing modifications are implemented in selected sites to help regulate and manage prairie dog populations. Non-lethal methods are used along property boundaries to reduce colony establishment and expansion rates in these areas. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, to create visual barriers along property boundaries. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If suitable destination sites are available, live-trapping may be used in a few selected colonies along boundaries to remove and relocate prairie dogs. Identification and evaluation of opportunities for landownership adjustment to reduce prairie dog management conflicts with adjoining landowners continues as prescribed in the LRMP.
- Limited use of rodenticide is prescribed and implemented for public health and safety risks and damage to facilities, such as rural residences. Although it has never been confirmed in the project area, a plague epizootic near a rural residence would certainly be considered a health and safety risk. The abundance of rattlesnakes in prairie dog colonies is considered a health and safety issue when colonies expand into and around farm and ranch headquarters and rural residences. Recreational prairie dog shooting near farm and ranch headquarters is also a safety issue. All decisions regarding rodenticide use, including the amount and extent of rodenticide use, on the national grasslands in response to public health and safety risks would be made by the Forest Service after on-site evaluations.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. The plan describes the specific conditions when lethal and non-lethal management tools could be applied on the ground without additional public disclosure or environmental analysis.

LRMP Amendment. There is no LRMP amendment needed under this alternative. As directed in the LRMP (H-2 Guideline in Chapter 1 of the LRMP), state prairie dog plans are to be consulted for additional guidance on how to respond to unwanted colonization

of adjoining agricultural lands. The recently released South Dakota Prairie Dog Conservation and Management Plan calls for rodenticide use along national grassland boundaries to reduce unwanted colonization of adjoining lands. However, under this alternative, the Forest Service does not authorize additional rodenticide use and instead continues to focus on non-lethal methods of prairie dog population regulation with lethal methods only used primarily in response to public health and safety risks.

2.2.2 Alternative 2

Summary Description: Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use Along Property Boundaries (1.0 Mile Boundary Management Zone on all National Grassland Units).

Conservation. Some of the LRMP direction for prairie dog conservation continues to be implemented as funding, staffing and priorities allow. This direction includes but is not limited to:

- Maintain the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. However, successful establishment of a prairie dog colony complex under this alternative that is large enough to support a ferret reintroduction in this area would likely require conservation agreements for additional active colony acreage on adjoining lands.

Boundary Management. LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide use in boundary management zones is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment occurs when a prairie dog colony on national grasslands expands to a point where unwanted colonization of adjoining land occurs and is unwanted by the landowner and/or manager. This definition is taken from the South Dakota Black-tailed Prairie Dog Conservation and Management Plan.

- Non-lethal tools under this alternative also include landownership adjustment, financial incentives and conservation easements. On-site evaluations of complaint areas identifying opportunities for landownership adjustment with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the

annual LRMP Monitoring and Evaluation Report. Financial incentives and conservation easements would involve government agencies and private organizations working with willing landowners to find ways of conserving prairie dogs on their lands and national grasslands.

- Non-lethal methods would be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of the rodenticide. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual barriers. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used will also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure would be conducted as appropriate. Use of physical prairie dog barriers or live-trapping and relocation of prairie dogs may also be used in a few selected areas.
- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in selected colonies in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help reduce prairie dog populations along boundaries to reduce unwanted colonization of adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, acceptable ammunition, and season and shooting hours in selected colonies. It also includes the necessary enforcement and oversight by the Forest Service. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps reduce prairie dog populations in both interior and boundary colonies on national grasslands.
- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. Forest Service defers decisions on prairie dog shooting

restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states.

- Rodenticide use could extend a maximum of one mile into national grasslands from private or tribal property boundaries. This does not apply to boundaries along state school lands, Badlands National Park and other federal lands. All rodenticide use on the national grasslands would be in response to valid complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries and encroachment from a national grassland colony. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The appropriate response to each complaint involving a national grassland colony would be determined by the Forest Service after on-site evaluations and coordination with landowners and South Dakota Departments of Agriculture and Game, Fish and Parks. In Nebraska, on-site evaluations would likely be conducted with landowners and officials from the Game and Parks Commission and USDA Animal and Plant Health Inspection Service.

  Decisions not to use rodenticide in response to some complaints may occur where encroachment is not evident or for a variety of other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.

- Additional criteria apply on some areas before rodenticide use would be authorized. Rodenticide use in the Conata Basin black-footed ferret reintroduction area could only extend to a mile if minimum black-footed ferret population thresholds continue to be met. These thresholds, based on current information, indicate that between 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005). If the minimum thresholds are not being met, rodenticide use would not occur or would be limited to less than a mile from adjoining lands. The black-footed ferret minimum threshold is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. The plan describes the specific conditions when lethal and

non-lethal management tools could be applied on the ground without additional public disclosure or environmental analysis.

LRMP Amendment. A LRMP amendment is needed to support implementation of this alternative and is presented in Appendix C. The main revision to this amendment would respond to H-2 Guideline in Chapter 1 of the LRMP that requires state prairie dog plans to be consulted for additional guidance on responding to unwanted prairie dog colonization on adjoining agricultural lands. The LRMP would also be amended by deleting the objective and guidelines (Chapter 2, LRMP) that prescribe establishment of a new colony complex on the Oglala National Grassland and northeast portion of the Fort Pierre National Grassland. Black-tailed prairie dogs would also be dropped as a management indicator species for both national grasslands. A total of two objectives, two standards, and one guideline would be deleted and not replaced under this alternative. A total of five standards, one guideline, and one desired condition statement would be revised under this alternative.

The LRMP amendment would also revise the boundary of the Conata Basin black-footed ferret reintroduction area. This revision is needed to remove 5,130 acres of land that is isolated from the core ferret habitat in Conata Basin and has been determined to be unsuitable for black-footed ferrets (Livieri and Perry 2005).

2.2.3 Alternative 3 (Preferred)

Summary Description: Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use along Property Boundaries (0.25 Mile Boundary Management Zone – Fort Pierre National Grassland; and 0.5 Mile Boundary Management Zone – Oglala and Buffalo Gap National Grasslands).

Conservation. Most LRMP direction for prairie dog conservation is implemented as funding, staffing and priorities allow. Modifications are made to some conservation measures prescribed in the LRMP including the shooting and rodenticide prohibitions in black-footed ferret reintroduction habitat (Management Areas 3.63).

Priority conservation activities implemented under this alternative include:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction habitat (Management Area 3.63),
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion,
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Establishment and intensive management of prairie dog colony complexes on Fort Pierre and Oglala National Grasslands,
- Third party solutions with willing landowners.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. Under this action, successful establishment of a prairie dog colony complex that is large enough to support a ferret reintroduction in this area may take more than 10 years or may require conservation agreements for additional active colony acreage on adjoining lands.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

Boundary Management. LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide use in boundary management zones is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment is defined as a national grassland colony that extends across a private or tribal property boundary or would likely cross a property boundary within 1 to 2 years. By stopping colonies just before they encroach on an adjoining landowner, the number of chronic problem areas likely to develop and the amount of rodenticide and other management actions requested and needed in the future should be substantially reduced.

More detailed information on how prairie dog management tools would be used in boundary management zones follows:

- Non-lethal management tools include landownership adjustment and third party solutions. On-site evaluations of complaint areas identifying opportunities for landownership adjustment and third party solutions with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat and the designated prairie dog colony complexes on the Fort Pierre and Oglala National Grasslands. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the annual LRMP Monitoring and Evaluation Report. Third party solutions involve other government agencies or private organizations that provide innovative solutions to help conserve prairie dogs on their lands and national grasslands. These solutions include but are not limited to financial incentives, conservation agreements and easements with willing landowners, and other tools identified in the national black-tailed prairie dog conservation assessment and strategy (Van Pelt 1999).
- Non-lethal methods would also be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of rodenticides. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual (vegetation) barriers.

Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation and drought conditions, for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure may be conducted as appropriate. Use of visual and physical prairie dog barriers may also be used in selected areas.

- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat and designated prairie dog colony complexes.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion (April 5, 1994) by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction, is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help regulate prairie dog populations along boundaries to reduce unwanted impacts on adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, type of ammunition, and season and shooting hours for selected colonies. It also includes the necessary enforcement and oversight. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps regulate prairie dog populations in both interior and boundary colonies on national grasslands. Conata Basin colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.
- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. A Forest Service shooting closure would be implemented if annual increases needed to achieve ferret habitat objectives are not being met. Forest Service defers decisions on prairie dog shooting restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states. Smithwick colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.
- Landownership patterns, forage productivity, and prairie dog distribution are different between the Fort Pierre, Buffalo Gap and Oglala National Grasslands, so guidance on rodenticide use is not consistent across the national grasslands. This

is necessary to balance the need for prairie dog conservation with concerns of adjoining landowners. Boundary management zones on the Buffalo Gap and Oglala National Grasslands where rodenticide and other management tools could be used to reduce unwanted colonization of adjoining lands extend a maximum of 0.5 miles from private or tribal property boundaries into the national grasslands. The boundary management zone on the Fort Pierre National Grassland is set at a lesser width of 0.25 miles (maximum) to avoid elimination of most colonies and due to the limited encroachment problems. Boundary management zones are set up only along private or tribal lands and not along state school lands, Badlands National Park or other federal lands.

- Rodenticide use would occur on the national grasslands to reduce encroachment (as defined) in response to valid complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries or imminent (1 to 2 years) colonization and that a national grassland colony is a significant contributor to the colonization. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The Forest Service would determine the appropriate response to each complaint involving a national grassland colony after an on-site evaluation.

  Decisions where rodenticide use would not occur or would be limited to less than specified distances may occur in response to: 1) complaints where encroachment is not evident; 2) in accordance with Appendix E Biological Assessment and the USFWS letter of concurrence; or 3) for other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.

- Unique circumstances involving chronic colony-specific encroachment problems may warrant exceeding the specified distances, but these rare exceptions would only be made if additional environmental analyses were conducted.

  - Rodenticide use in the Conata Basin black-footed ferret reintroduction area could extend beyond the specified distance if minimum black-footed ferret population thresholds continue to be met. The minimum threshold for Conata Basin is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work. These thresholds, based on current information, indicate that between and at a minimum 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005).

  - Rodenticide use on Oglala and Fort Pierre National Grasslands (0.5 and 0.25 mile boundary management zones respectively) could only extend beyond the specified distances if reasonable progress can be demonstrated in establishing the prairie dog colony complexes prescribed in the LRMP

for both areas. Reasonable progress is achieved when long-term trends in active prairie dog colony acreage remain above the 1996–98 colony acreages used in the LRMP FEIS analyses.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. This plan provides more detailed management direction, including an adaptive management approach for use of a full suite of management tools.

LRMP Amendment. A LRMP amendment is needed to support implementation of this alternative and is presented in Appendix C. The main revision to this amendment is simply a response to H-2 Guideline in Chapter 1 of the LRMP that requires state prairie dog plans to be consulted for additional guidance on responding to unwanted prairie dog colonization on adjoining agricultural lands. A total of two standards and one guideline would be deleted and not replaced under this alternative. A total of five standards, one guideline, and one desired condition statement would be revised.

The LRMP amendment would also revise the boundary of the Conata Basin black-footed ferret reintroduction area. This revision is needed to remove 5,130 acres of land that is isolated from the core ferret habitat in Conata Basin and has been determined to be unsuitable for black-footed ferrets (Livieri and Perry 2005).

2.2.4 Comparison of Management Tools

Table 2-1 provides a concise summary of prairie dog management tools included under each alternative. With the exception of the modification to the Forest Service shooting closure in Conata Basin, all management tools apply equally to the national grasslands in the project area. The last five tools in the table could be applied to potential complaint areas in the future along the property boundaries of the Samuel R. McKelvie National Forest and Nebraska National Forest, Pine Ridge Ranger District, should prairie dog colonies eventually establish in these areas. They could also be applied to potential future complaints involving prairie dog colonies on the Bessey Ranger District of the Nebraska National Forest.

Table 2-1. Comparison of management tools by alternative

Management Tool	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Rodenticide Use to Reduce Public Health and Safety Risks and Damage to Facilities	Yes	Yes	Yes
Rodenticide Use to Reduce Unwanted Colonization on Adjoining Agricultural Lands	No	Yes (1 mile zone)	Yes (0.25 and 0.5 mile zones) [1]
Shooting Closure Modification in Conata Basin	No	Yes	Yes
Landownership Adjustment	Yes	Yes	Yes
Third Party Solutions [2]	Yes	Yes	Emphasized
Vegetation Management Fencing	Yes	Yes	Yes
Other Visual and Physical Barriers	Yes	Yes	Yes
Live-trapping [3]	Designated Areas	Yes	Yes

[1] 0.25 mile wide boundary management zone on Fort Pierre National Grassland and 0.5 mile elsewhere
[2] Third party solutions could involve financial incentives, conservation agreements, conservation easements and other innovative solutions. Only Alternative 3 addresses the opportunity for other additional innovative solutions through third party partnerships.
[3] Limited to black-footed ferret habitat and designated prairie dog colony complexes under Alternative 1 but not restricted to those areas under Alternatives 2 and 3.

The width of the boundary management zones in Alternatives 2 and 3 are based on the assumption that, all other variables being constant, the effectiveness of a zone in reducing unwanted colonization of adjoining agricultural lands increases as the width of the zone increases. This seems to be a reasonably safe assumption. However, it is acknowledged that there is no research information on the comparative effectiveness of zones of a mile or less in reducing unwanted colonization of adjoining lands. Tables 2-2, 2-3, and 2-4 include a summary of conservation activities that would be implemented under each alternative.

2.2.5 Conservation Measures Common to All Alternatives

These measures apply to all alternatives:

1) Inventory and monitor black-tailed prairie dogs and black-footed ferrets as prescribed in Chapter 4 of the LRMP.
2) Avoid all significant fossil and heritage resource sites when conducting any ground-disturbing projects. Before ground disturbing activities, a Forest Service paleontologist and archeologist would be contacted to review the proposed project to determine if any fossil or heritage resource surveys, reports, or actions are needed.

3) Prior to ground disturbing activities, a journey-level Forest Service biologist/botanist would be contacted to review the proposed project to determine if any biological surveys, reports, or actions are needed.
4) If the predicted range of prairie dog colony acreage listed in Table 3-2 of this document for any national grassland is exceeded, prairie dog management would be revisited. This may involve additional public involvement and environmental analysis.
5) If whooping cranes are sighted in an area where rodenticide is being applied, operations will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.
6) The U.S. Fish and Wildlife Service will be consulted prior to use of rodenticide or shooting in a national grassland colony in the Conata Basin ferret area that is near private or tribal land and within a mile of black-footed ferret habitat on Badlands National Park.
7) Before any on-the-ground management activities (i.e., fencing) occur, review any species at risk timing limitation direction in the LRMP.

Regarding measures 2 and 3 above, new ground disturbances resulting from use of lethal and non-lethal management tools are expected to be minimal. Construction of vegetation management fencing results in minimal soil disturbance.

2.3 Alternatives Considered but Eliminated from Detailed Study

An alternative using only non-lethal prairie dog management methods was suggested. Alternative 1 in this FEIS is essentially non-lethal, except for very limited rodenticide use for public health and safety issues and damage to facilities. Therefore, another non-lethal alternative was not considered.

The Fall River County (South Dakota) Commissioners submitted "The Fall River County Prairie Dog Conservation Act for National Grasslands" and requested that the Forest Service consider the Act as an alternative. The Act specified a one-mile prairie dog free zone and limitations on prairie dog colony acreages on national grasslands in any South Dakota county. The recommendations and comments from the Fall River County Commissioners were received after the Notice of Intent comment period and too late to be incorporated into the DEIS analyses. However, their recommended alternative was eliminated from detailed study because the proposal would transfer authority for managing NFS lands to Fall River County. That would not be a legal or viable alternative.

USDA Animal and Plant Health Inspection Service (APHIS) also suggested additional alternatives. This input from APHIS was received after the Notice of Intent comment period and too late to be incorporated into the DEIS. However, their recommended

alternatives were considered during the development of the FEIS. One of the alternatives would expand the possible use of lethal control (rodenticide) to all national forest system lands in Nebraska, rather than limiting it to only the Oglala National Grassland. Although not considered as a separate alternative, provision for possible rodenticide use in the future on the additional areas in Nebraska was added to Alternatives 2 and 3. Another suggested alternative by APHIS was to address and evaluate management of prairie dogs on adjoining lands. This alternative was not considered for detailed analysis because the scope of the proposed action had clearly been established from the onset of the environmental impact statement process to be limited to prairie dog management on national forest system lands only.

2.4 Comparison of Effects

Tables 2-2, 2-3, 2-4, and 2-5 provide a concise summary of the effects of implementing each alternative on some of the key issues identified in Section 1.7 of this document. Summary tables are not provided for Nebraska National Forest, Bessey Ranger District, because no additional prairie dog conservation or management activities beyond those already existing in the revised LRMP occur, without any additional environmental analysis and public disclosure, under any of the alternatives. Summary tables are also not presented for the Nebraska National Forest, Pine Ridge Ranger District, or Samuel R. McKelvie National Forest because prairie dog colonies do not occur on those areas.

Table 2-2. Effects summary for alternatives and several key issues on Buffalo Gap National Grassland

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Black-footed Ferret Recovery (Conata Basin Only)	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	20,310	15,140	19,290
	Predicted Acreage of Active Colonies By 2012 [1]	34,000 to 65,000 [1]	17,000 to 20,000 [1]	23,000 to 32,000 [1]
	Minimum Habitat Threshold Exceeded	Yes	Yes	Yes
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	26,010	16,360	22,360
	Predicted Acreage of Active Colonies By 2012 [1]	48,000 to 92,000 [1]	18,000 to 22,000 [1]	27,000 to 38,000 [1]
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met	Yes	Yes	Yes
	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
Unwanted Colonization of Adjoining Agricultural Land	Width of Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile Encroachment Colonies Only	Up to 0.5 Mile Encroachment Colonies Only
Public Health & Safety and Damage to Facilities	Authorized Rodenticide Use	Yes	Yes	Yes
Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing [2]	Animal Unit Months (AUM)	3,000 to 6,000	1,000 to 2,000	1,000 to 2,000

[1] These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.
[2] Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.

Table 2-3. Effects summary for alternatives and several major issues on Fort Pierre National Grassland

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	1,260	0	870
	Predicted Acreage of Active Colonies By 2012 [1]	1,900 to 2,700 [1]	0 [1]	1,100 to 1,400 [1]
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met, Including Establishment of a Colony Complex	Yes	No	Likely
	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
Unwanted Colonization of Adjoining Agricultural Lands	Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile Encroachment Colonies Only	Up to 0.25 Mile Encroachment Colonies Only
Public Health & Safety and Damage to Facilities	Authorized Rodenticide Use	Yes	Yes	Yes
Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing [3]	Animal Unit Months (AUM)	375 to 750	200 to 375	200 to 375

[1] These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.
[2] Without additional colonies on adjoining lands being added to the complex through conservation agreements, it may take more than 10 years to develop a complex meeting minimum criteria.
[3] Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.

Table 2-4. Effects summary for alternatives and several major issues on Oglala National Grassland

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	2,220	80	1,170
	Predicted Acreage of Active Colonies By 2012 [1]	3,300 to 6,800 [1]	<100 [1]	1,400 to 1,800 [1]
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met, Including Establishment of a Colony Complex	Yes	No	Yes
	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
Unwanted Colonization of Adjoining Agricultural Lands	Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile Encroachment Colonies Only	Up to 0.5 Mile Encroachment Colonies Only
Public Health & Safety and Damage to Facilities	Authorized Rodenticide Use	Yes	Yes	Yes
Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing [2]	Animal Unit Months (AUM)	250 to 500	125 to 250	125 to 250

[1] These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.
[2] Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.

Table 2-5. Summary of annual implementation costs (2005-2012).

Management Tool [1]	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Inventory and Monitoring	$50,000	$55,000	$50,000
Rodenticide	$6,000	$164,000	$126,000
Management of Limited and Regulated Prairie Dog Shooting (black-footed ferret habitat only)	Not Applicable	$50,000	$50,000
Vegetation Management Fencing [2]	$175,000	$62,500	$62,500

[1] Land adjustment and third party solutions costs are highly variable and are not displayed. Possible costs associated with live-trapping and relocating prairie dogs and with construction of physical barrier fencing are also not included. They are optional tools to consider at selected sites, but their use will likely be minimal due to high costs and/or questionable effectiveness.
[2] Fencing costs will occur only during the first 2 to 3 years of implementation.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter summarizes the physical, biological, social, and economic environment of the project area and effects of implementing each alternative. Additional information on the affected environment in the project area is presented in Chapter 3 of the Final EIS (LRMP FEIS) for the revised LRMP (USDA Forest Service 2002 at www.fs.fed.us/ngp). Major laws and regulations relating to protection, conservation and management of the resources and land uses that could be affected by one or more of the alternatives in this FEIS can be reviewed in the LRMP FEIS.

Effects are categorized as direct, indirect or cumulative for those resources and land uses that may be affected by the actions prescribed in the alternatives. Many of the effects of implementing Alternative 1 (no action) have already been disclosed in the LRMP FEIS. Direct environmental effects are those occurring at the same time and place as an action. Indirect environmental effects occur later in time or are spatially removed from the action. Cumulative effects are impacts on the environment that result from the proposed action(s) when added to other past, present, and reasonably foreseeable related future actions, regardless of what agency or person undertakes such actions. Cumulative impacts could result from individually minor but collectively significant actions taking place over a period of time (50 CFR 1508.7). As defined by ESA, cumulative effects are those resulting from future state and private activities that are reasonably certain to occur. Future federal actions that have been through consultation are included in the environmental baseline and future federal actions will be consulted on separately. Therefore, they do not need to be considered in cumulative effects analysis. Most of the cumulative effects associated with this proposed action are disclosed in Section 3.14 of this document and in the Biological Assessment and Evaluation (Appendix E of the DEIS and FEIS).

Most effects are described in terms of the indicators identified in Chapter 1 of this document, and only those resources or activities affected by implementation of one or more alternatives are addressed in detail. Most of the analyses supporting this FEIS were used to predict effects out to the year 2012 and are based on changes in prairie dog populations, primarily in response to rodenticide use and other management tools. The year 2012 reflects a 10-year projection from 2002 when the LRMP ROD was signed. It needs to be highlighted that analyses of Alternatives 2 and 3 assume all colonies within boundary management zones are eventually treated with rodenticide. In reality, the majority of these colonies would be treated with rodenticide but some would not because they are not encroaching or about to encroach on adjoining lands. Therefore, predictions of annual rodenticide use should be considered maximums, while the predicted prairie dog colony acreages by 2012 should be considered minimums.

Basic information on past, current and predicted prairie dog populations in the project area is presented in Tables 3-1 and 3-2. Distribution maps of current (Fall 2004) prairie dog colonies are provided in Appendix A. A prairie dog colony growth (expansion) model was used to predict future colony acreages (Table 3-2). This model has performed reasonably

well in the past and takes into consideration differences in annual expansion rates of existing colonies during low precipitation years (drought) versus years of normal or above normal precipitation. The colony growth model also factors in establishment of new colonies over time. Minor refinements were made in the model to further improve its performance in support of analyses conducted as part of this FEIS. It's important to point out that for Alternatives 2 and 3, the predicted prairie dog colony acreages displayed in Table 3-2 are acreages expected to occur in the interior areas of the national grasslands and forests away from property boundaries. Under these two alternatives, all prairie dog colonies within the boundary management zones are assumed to be treated with rodenticides for analysis purposes. As stated above, the majority of these colonies would be treated with rodenticide but some colonies would not because they are not encroaching on to other lands due to soils, terrain, and natural barriers, etc. Table 3-2 also provides predictions of the annual rodenticide use under each alternative. A rodenticide use model was used to generate these predictions. This model incorporates both the acres of initial and follow-up rodenticide use, based on a return interval with rodenticide once every 3 years after initial rodenticide application and a 20 percent loss in colony acreage for each retreatment after the first two rodenticide applications. Both the colony growth and rodenticide use models are maintained as part of the project record in the Supervisor's Office in Chadron, Nebraska.

Table 3-1. Black-tailed prairie dog colonies in the project area

Area	Active Colony Acreage 1996-97 [1]	Active Colony Acreage 2002 [2]	Active Colony Acreage 2004 [3]	Number Of Active Colonies 2004	Average Colony Acreage (range) 2004
Buffalo Gap N.G.	13,280	17,690	26,030 [4]	309	84 (<1 to 4,060)
Conata Basin Ferret Habitat	10,890	12,560	20,310 [4]	112	181 (<1 to 4,060)
Smithwick Ferret Habitat	300	670	990	18	55 (<1 to 334)
Fort Pierre N.G.	720	1,110	1,340	53	25 (<1to 313)
Timber/Sand Creek Colony Complex	340	550	850	15	57 (<1to 313)
Oglala N.G. and Colony Complex	740	1,620	2,220	26	85 (<1 to 1,100)
Nebraska N.F. (Bessey)	70	80	90	9	10 (1 to 25)
Combined	14,810	20,500	29,680	397	75 (<1 to 4,060)

[1] Colony acreage used in LRMP FEIS analyses
[2] Colony acreage when Record of Decision was signed for LRMP
[3] Global positioning system (GPS) survey information
[4] Does not include 6,780 acres of colonies treated with rodenticide in 2004

Table 3-2. Effects of alternatives on black-tailed prairie dog colonies and their management

Alternative And National Grassland/Forest	Current Colony Acreage Subject to Possible Rodenticide Use [1]	Predicted Annual Rodenticide Use 2005 –2012 (acres)	Current Active Colony Acreage [3] (Rodenticide Unlikely)	Current Number of ActiveColonies / Average Colony Size [3] (Rodenticide Unlikely)	Predicted Colony Acreage in 2012 [4]
Alternative 1 (No Action)					
Buffalo Gap N.G.	480	<100 [2]	26,010 [5]	308 colonies / 84 acres	48,000 to 92,000 [6]
Conata Basin Ferret Habitat	200	<100 [2]	20,310 [5]	112 colonies / 181 acres	34,000 to 65,000 [6]
Smithwick Ferret Habitat	0	0	990	18 colonies / 55 acres	3,000 to 5,900
Fort Pierre N.G.	80	<100	1,260	49 colonies / 26 acres	1,900 to 2,700
Colony Complex	80	<100	770	11 colonies / 69 acres	1,100 to 1,700
Oglala N.G. and Colony Complex	0	<100	2,220	26 colonies / 85 acres	3,300 to 6,800
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	560	<300	29,580	392 colonies / 75 acres	53,000 to 102,000 [6]
Alternative 2					
Buffalo Gap N.G.	16,450	8,900 to 10,500 [2]	16,360	117 colonies / 140 acres	18,000 to 22,000
Conata Basin Ferret Habitat	8,410	4,700 to 6,200 [2]	15,140	82 colonies / 185 acres	17,000 to 20,000
Smithwick Ferret Habitat	460	230 to 290	530	8 colonies / 66 acres	700 to 800
Fort Pierre N.G.	1,340	470	0	0	0
Colony Complex	850	300	0	0	0
Oglala N.G. and Colony Complex	2,140	750	80	2 colonies / 40 acres	<100
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	19,930	10,120 to 11,720	16,530	128 colonies / 129 acres	18,000 to 22,000
Alternative 3 (Preferred)					
Buffalo Gap N.G.	10,450	6,800 to 8,700 [2]	22,360	190 colonies / 118 acres	27,000 to 38,000
Conata Basin Ferret Habitat	4,260	3,300 to 6,200 [2]	19,290	101 colonies / 191 acres	23,000 to 32,000
Smithwick Ferret Habitat	210	160 to 290	780	14 colonies / 56 acres	1,300 to 1,800
Fort Pierre N.G.	470	120 to 210	870	36 colonies / 24 acres	1,100 to 1,400
Colony Complex	300	90 to 140	550	10 colonies / 52 acres	700 to 900
Oglala N.G. and Colony Complex	1,050	410 to 510	1,170	7 colonies / 167 acres	1,400 to 1,800
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	11,970	7,330 to 9,420	24,490	242 colonies / 101 acres	30,000 to 41,000

See footnotes on following page.

[1] Based on GPS surveys in 2004 and includes colonies that may be a risk to health and safety or facilities (all alternatives) or located in boundary management zones (Alternatives 2 and 3); includes 6,780 acres of colonies treated with rodenticide in 2004

[2] Includes some or all of the colonies treated with rodenticide on the Buffalo Gap National Grassland in 2004

[3] Based on GPS surveys in 2004; includes colonies that are not in boundary management zones or not currently a risk to health and safety or infrastructure

[4] Projections for Alternatives 2 and 3 assume that all colonies within boundary management zones would be treated with rodenticide; low end of each range reflects predicted colony acreages if normal or above normal precipitation patterns prevail through 2012 and the upper end of each range reflects predicted acreages if drought prevails over the next several years; these acreages only reflect predicted alternative effects and should not be viewed as target acreages or management objectives

[5] Does not include those colonies treated in 2004 because of unwanted colonization of adjoining agricultural lands (6,320 acres); prairie dog populations in these colonies are allowed to recover (re-populate) under Alternative 1; under Alternative 1, only those colonies that are potential risks to health and safety or facilities are subject to possible rodenticide use

[6] Does not include colonies treated with rodenticide in 2004; at the upper end of the range, further colony expansion was limited by available habitat (65,000 acres) in Conata Basin; the likelihood of prairie dog colony acreage ever reaching the upper end of the predicted range is low due to anticipated landowner intolerance and an insufficient amount of preferred habitat in some areas

3.2 Air Resources

3.2.1 Affected Environment

The project area occurs in four designated airsheds:

1) North Plains (Fort Pierre and Buffalo Gap National Grasslands - East Half),

2) South Plains (Samuel R. McKelvie National Forest and Nebraska National Forest Bessey Ranger District),

3) Thunder Basin (Oglala and Buffalo Gap National Grasslands – West Half),

4) Wheatland (Nebraska National Forest – Pine Ridge Ranger District).

Each airshed is discussed in more detail in Chapter 3 of the LRMP FEIS. Criteria to determine airshed boundaries include topography, upper-level air flow, and political/civil boundaries where physical boundaries are not apparent. Airsheds are not fixed boundaries like watersheds but none-the-less, serve as useful mechanisms for grouping management areas likely to have similar air quality. Each airshed has the potential to be affected by pollution sources and management activities both in and outside airshed boundaries.

3.2.2 Environmental Consequences

A direct effect of prairie dog burrowing activities is exposure of recently excavated soils and bare mounds to wind erosion, resulting in blowing soils and atmospheric dust. A potential indirect effect of long-term prairie dog foraging and clipping, in combination with permitted livestock grazing, is reduced vegetative cover and increased wind erosion, also resulting in blowing soil and atmospheric dust.

Currently, air quality standards are being met in all airsheds except the Thunder Basin airshed where there is one non-attainment area associated with oil and gas development in Montana and Wyoming (USDA Forest Service 2001). Portions of the Buffalo Gap and Oglala National Grasslands are in this airshed, but the non-attainment area is further west.

It is important to point out that provisions of the Clean Air Act relate to human-caused air pollution. As native wildlife and part of the natural environment, black-tailed prairie dogs were not considered air pollution sources in the LRMP FEIS. It is acknowledged in the LRMP FEIS that, at a more local level, wind erosion may be accelerated on some prairie dog colonies, contributing to atmospheric dust. However, given the relatively small acreages of prairie dog colonies in each airshed, it is highly unlikely that prairie dog colonies are a significant air quality factor in any airshed within the project area. It is also highly unlikely that prairie dog colonies would become a significant air quality factor within the life of this project under any of the alternatives. Highest rates of soil erosion (wind and water) in the northern plains region are attributed to cultivated croplands (USDA NRCS 1996). Also, there appears to be no published or unpublished references documenting and quantifying comparative wind (or water) erosion rates on and off prairie dog colonies. For the reasons identified above, no further analyses were conducted on the direct, indirect, or cumulative effects of the alternatives on air quality.

3.3 Soil and Water Resources

3.3.1 Affected Environment

Black-tailed prairie dog colonies are found on a variety of soils (Clippinger 1989, Reading and Matchett 1997, Reid 1954), but prairie dogs prefer deep and moderately well to well-drained soils on gentle slopes. Preferred soils are deep silty, clayey or loamy, but colonies will expand into less desirable soils that are shallow and/or rocky. They avoid soils that are frequently flooded or excessively sandy and unable to support burrow systems. Prairie dogs also select soils that have been previously disturbed (Knowles 1986, Licht and Sanchez 1993). This includes disturbances commonly associated with past homestead activity, abandoned fields and livestock concentrations (water sources and developments, mineral sites, supplemental feeding sites, oilers, corrals). Prairie dogs in the project area have also selected and colonized rangelands that were pitted or ripped (soil disturbance) in the 1960s and 1970s for livestock forage improvement. Historically, prairie dogs were most likely attracted to areas heavily impacted by bison and other large native herbivores.

Soils in the project area are predominately from sandstone and shale. Much of the area is considered to be moderate well to well drained with moderate to slow infiltration rates. Some soils have high clay content that slows water infiltration rates. The soils in the project area are subject to wind and water erosion. Water erosion rates increase as slopes exceed 5 to 10 percent. The geology of the area is predominately stratified sedimentary claystone, siltstone, mudstone, shale, limestone, and sandstone from the marine and or terrestrial Cretaceous, Tertiary, Pleistocene, and Holocene environments. When erosion incises these soft geologic formations, erosion rates increase dramatically resulting in badlands formations.

Precipitation in the project area comes primarily as rain. Normal precipitation ranges from 15 to 21 inches per year. Precipitation events are typically high intensity storms of short duration resulting in localized flooding. Drought is a common and reoccurring event in the project area. Drought is defined as any year or successive years with 75 percent or less of average annual precipitation, recognizing that seasonal distribution of precipitation also

influences drought severity (Reece et al. 1991). From 1910 through 1980 (71 years), annual precipitation was below average for 37 years, and on seven occasions, at least three consecutive years were below average at the Cottonwood Range Experiment Station east of Wall, South Dakota (Johnson 1981). Eighteen (25 percent) of the 71 years met the drought criterion and during two of those years (1936 and 1939), annual precipitation was approximately 50 percent of average. Information presented by Holechek et al. (2001) indicates that for the period 1944 through 1984, drought occurred in 21 percent of the years on the northern plains.

Watersheds within the project area in South Dakota include tributaries to Bad River, Cheyenne River, Rapid Creek and White River. Watersheds in Nebraska include Hat Creek and its tributaries. Hat Creek is a tributary to White River. Watersheds range in elevation from approximately 1,800 to 4,000 feet. Impaired waterbodies in the project area on the South Dakota 303(d) list (Clean Water Act) include segments of Rapid Creek and Cheyenne, Bad and White Rivers. Each of these waterbodies have dissolved or suspended solids as a basis for their listing, pursuant to the Clean Water Act. There are no waterbodies listed in the Nebraska portion of the project area that exceed dissolved or suspended solids standards.

Natural waterbodies within or near prairie dog colonies consist primarily of a few perennial or intermittent streams and rivers, mostly on the Buffalo Gap National Grassland. Small ponds that have been constructed on the national grasslands for livestock, wildlife and recreation are also commonly found within or near prairie dog colonies. The streams and rivers support native fish species, including some sensitive fish species. Some of the small impoundments support both introduced and native fish species but no “at risk” species.

3.3.2 Environmental Consequences

A direct effect of prairie dog burrowing activities is exposure of recently excavated soils and bare mounds to wind and water erosion, resulting in accelerated soil loss. A potential indirect effect of long-term prairie dog foraging and clipping, in combination with permitted livestock grazing, is reduced vegetative cover and increased wind and water erosion, also resulting in accelerated soil loss. However, soils and prairie dog relationships and interactions are poorly studied and understood. This includes the effects of prairie dog colonization on soil development (pedogenesis) and surface erosion. Soil mixing (pedoturbation) from prairie dog burrowing is undoubtedly important in soil development (Carlson and White 1987) but the extent that prairie dogs contribute to soil development relative to soil loss from wind and water surface erosion on prairie dog colonies is unknown. Working on a white-tailed prairie dog colony on the Hutton Lake National Wildlife Refuge in eastern Wyoming, Clark (1970) reported no evidence of increased erosion on the colony and suggested that the benefits from prairie dogs adding organic materials, increasing air and water penetration, and mixing soils might more than offset any accelerated erosion that might occur on a prairie dog colony. Koford, 1958 reported that we do not know enough about prairie dog-soil interactions to adequately assess the comparative effects of prairie dog colonization on soil development and erosion rates. This same lack of comprehensive and quantitative information still appears to exist today.

Acreages of prairie dog colonies in fourth order watersheds in the project area are presented in Table 3-3. This information is presented only for the South Dakota project area because

surveys for prairie dog colonies on other land jurisdictions in Nebraska were not available. The information in these tables demonstrates that prairie dog colonies on national grasslands account for relatively small acreages within 4th order watersheds. The main 4th order watersheds (HUCs 10140202 and 101402201) containing the larger prairie dog colony complexes in Conata Basin and adjoining Pine Ridge Indian Reservation have approximately 4 percent or less of their land area in prairie dog colonies. National grassland colonies accounted for approximately 1 percent or less of those watersheds. As you go up in the watersheds, prairie dog colonies occupy an increasingly larger percentage of some watersheds. In a sample of ninety five 6th order watersheds on the Buffalo Gap and Fort Pierre National Grasslands, ten have more than 4 percent of the watershed in prairie dog colonies and all of those colonies are located in Conata Basin on the Buffalo Gap National Grassland. The highest coverage of prairie dogs in a 6th order watershed in Conata Basin is approximately 52 percent, of which 47 percent of the total colony acreage is located on national grassland. Percentages of watersheds occupied by prairie dog colonies on the Oglala National Grassland are probably similar to those on the Fort Pierre and Buffalo Gap National Grasslands, outside Conata Basin.

Table 3-3. Acreages of black-tailed prairie dog colonies in 4th order watersheds

Hydrologic Unit Code (HUC)	National Grassland	Watershed Acreage	Total Prairie Dog Colony Acreage (% watershed area)	Total NFS Prairie Dog Colony Acreage (% watershed area)
10120109	Buffalo Gap	1,360,624	17,920 (1.3%)	3,434 (0.3%)
10120111	Buffalo Gap	1,005,712	6,652 (0.7%)	216 (0.0%)
10140101	Fort Pierre	2,857,289	4,585 (0.2%)	942 (0.0%)
10140102	Fort Pierre & Buffalo Gap	2,022,920	4,123 (0.2%)	1,582 (0.1%)
10140104	Fort Pierre	440,710	1,358 (0.3%)	166 (0.0%)
10140201[2]	Buffalo Gap	2,444,602	100,545 (4.1%)	2,536 (0.1%)
10140202	Buffalo Gap	1,551,165	30,147 (1.9%)	18,315 (1.2%)

[1] Watershed extends into Nebraska.

Soil erosion from all lands, including colonized and uncolonized grasslands, are sources of sedimentation into rivers and streams, but as stated previously, there appears to be no published or unpublished references documenting and quantifying comparative erosion rates on and off prairie dog colonies, making it difficult to quantitatively assess soil and sedimentation rates from prairie dog colonies. Also, the highest rates of soil erosion in the northern plains region are attributed to cultivated croplands (USDA NRCS 1996), and when considering the relative amounts of cultivated cropland versus black-tailed prairie dog colonies across much of the project area (Table 3-4), it seems unlikely that prairie dog colonies are significant sedimentation sources contributing to the impaired watersheds identified above. Another difficulty in quantifying soil erosion rates on and off prairie dog colonies is that vegetation conditions within and between prairie dog colonies are highly variable based on years of colonization (age of colony), concurrent livestock grazing

practices and other variables. This variability would have to be considered to accurately assess soil erosion rates on prairie dog colonies. Table 3-4 also includes the acreage of badlands in each county within the project area. This information is helpful in putting the acreage of prairie dog colonies into perspective with the extent of badlands, a naturally occurring and highly erosive land type. This comparison further suggests that prairie dog colonies are probably not a major sediment contributor to the impaired rivers and streams in the project area. The Watershed Specialist Report presents the same conclusion. This report is maintained in the project record. None-the-less, it is acknowledged that prairie dogs can contribute to soil erosion problems at localized sites, especially during drought.

Table 3-4. Acreage comparison by county for croplands, badlands, and prairie dog colonies.

County (State)	County Acreage	Cropland Acreage	Badland Acreage	Prairie Dog Colony Acreage
Custer (SD)	999,399	20,556 (2.1%)	24,620 (2.5%)	13,213 (1.3%)
Fall River (SD)	1,118,821	50,214 (4.5%)	49,375 (4.4%)	9,291 (0.8%)
Jackson (SD)	1,198,001	76,114 (6.3%)	125,639 (10.5%)	11,586 (1.0%)
Pennington (SD)	1,780,988	158,373 (8.9%)	122,970 (6.9%)	36,804 (2.1%)
Jones (SD)	621,830	77,183 (12.4%)	0	2,536 (0.4%)
Lyman (SD)	1,092,219	211,234 (19.3%)	0	5,781 (0.5%)
Stanley (SD)	971,233	66,985 (6.9%)	0	5,813 (0.6%)
Dawes (NE)	897,184	76,007 (8.5%)	52,284 (5.8%)	2,949 (0.3%)
Sioux (NE)	1,324,876	59,368 (4.5%)	29,716 (2.2%)	7,858 (0.6%)

For the reasons identified above, black-tailed prairie dogs were not identified as significant agents of soil and water degradation in the LRMP FEIS and no further detailed analyses were conducted in this FEIS on the direct, indirect or cumulative effects of the alternatives on soil and water resources and the hydrologic function of watersheds. However, a simple alternative comparison of the potential risk of localized areas of accelerated soil erosion, due in part to prairie dogs, was completed. By examining the predicted future acreages of black-tailed prairie dog colonies under each of the alternatives in Table 3-2, it's easy to see that the greatest risk of localized areas of accelerated soil erosion would occur under Alternative 1. Under Alternative 1, a range of 53,000 to 102,000 acres of colonies is predicted by 2012, the largest predicted acreage of any alternative. For Alternative 2, the predicted range in colony acreage by 2012 is 66 to 78 percent less than under Alternative 1. For Alternative 3, the predicted range is 43 to 60 percent less than under Alternative 1. For the purposes of this analysis, the comparative soil erosion risks are assumed to be proportional to the differences in predicted colony acreages between the alternatives.

The amount of potential rodenticide (2% zinc phosphide) use also varies by alternative (Table 3-2). As indicated above, a few prairie dog colonies occur on floodplains along streams and rivers, and most colonies have constructed ponds in or near them, so there is a potential, albeit small, for some exposure of prairie dog rodenticide to natural or constructed aquatic habitats. However, based on a chemical risk assessment by APHIS (1994),

contamination of surface water by zinc phosphide would result in no probably risk to freshwater fish, assuming the rodenticide is applied to label specifications. A similar determination was made in the Biological Assessment and Evaluation (Appendix E). Therefore, no further effects analyses were conducted on potential surface water contamination by the rodenticide under each of the alternatives.

3.4 Heritage Resources

3.4.1 Affected Environment

Evidence for human activity within the project area spans the entire chronological sequence of the Great Plains culture area (Table 3-5) (Hannus and Winham 1999, Prentiss and Rosenberg 1996). Paleoindians are typically characterized as big game hunters who occupied large territories, tracking herds and utilizing a communal hunting strategy. Site types are generally kill and butchery localities. In response to significant climatic changes, Plains groups appear to have adapted their subsistence strategies accordingly during the Archaic period. However, evidence for increased utilization of plant and small game resources may be as much a product of differential preservation. Temporally diagnostic projectile point styles change from lanceolate to large side notched types. Site types are generally scatters of chipped stone representing quarry sites or short-term occupation. Hearth features may be present. The Late Prehistoric period is recognized typologically by a technological shift from the atlatl and dart to the bow and arrow; projectile points change from large to small side notched types. Site types are similar to the Archaic period. "Direct or indirect contact with European groups ushered in the Protohistoric period…(with)…the introduction of the horse and the gun" (Hannus and Winham 1999:37). Euro-American settlement in the project area occurred mainly during the homesteading era between the 1880s and 1930s. Site features generally include depressions, foundations and concentrations of historic artifacts. Prairie dog colonies are commonly found in areas with past homesteading activity.

Table 3-5. Approximate chronology for the project area

Cultural Tradition	Time Period
Paleoindian	12,000 – 8000 years before present (BP)
Early Archaic	8000 – 4500 BP
Middle Archaic	4500 – 3500 BP
Late Archaic	3500 – 1500 BP (AD 450)
Late Prehistoric	1500 BP (AD 450) – 400 BP (AD 1550)
Protohistoric	AD 1550 - 1750
Historic	AD 1750 - 1950

Approximately 16 percent (168,893 acres) of the project area has been intensively surveyed for cultural resources and approximately 1150 sites have been recorded. Approximately 60 percent have been identified as prehistoric resources and 40 percent as historic resources. Two sites, the historic Bessey Nursery and the Hudson-Meng Bison Kill Site, are listed on the National Registry of Historic Places (NRHP). Approximately 10 percent have been

evaluated as Eligible to the NRHP, 53 percent are Not Eligible to the NRHP, and 36 percent have not been evaluated against the criteria for eligibility to the NRHP.

All undertakings (as defined in 36 CFR part 800.16[y]) are conducted in accordance with Section 106 of the National Historic Preservation Act, as amended (NHPA). Heritage resources listed on or eligible to the NRHP are avoided during the implementation phase of any new ground disturbing project proposed on the Forest. If a resource cannot be avoided, mitigation measures are applied to resolve any potential adverse effects to the resource.

The present condition of heritage resources on the Forest is on course with the desired condition described in the LRMP (Goal 2b, Heritage Sites, and Standards and Guidelines, section N, Heritage Resources).

If any new and unforeseen ground disturbing activities are proposed as a result of this proposed plan, such as wood post fence construction, the activity would be treated as a separate and distinct undertaking, triggering its own Section 106 process.

3.4.2 Environmental Consequences

A proposed action would be considered significant if it resulted in an "adverse effect" (as defined in 36 CFR part 800.5) to a property that is listed on, eligible for, or potentially eligible for listing on the National Register of Historic Places (NRHP). Potential adverse effects can usually be mitigated through site-specific measures.

Prairie dog management activities in the alternatives have no potential to directly or indirectly affect heritage resources in the project area. None of the tools, including rodenticide use, live trapping, regulated prairie dog shooting, vegetation management, livestock grazing coordination, or landownership adjustment, involve significant new ground disturbing activities. Since the alternatives would not affect heritage resources, it would not change the current condition of heritage resources on the Forest, and it would not move it towards or away from the desired condition as described in the LRMP. For these reasons, no further analyses were conducted on the direct, indirect or cumulative effects of the alternatives on heritage resources in the project area.

3.5 Paleontological Resources

3.5.1 Affected Environment

The paleontological resource within the project area spans a wide realm of depositional environments ranging from deep marine deposits to terrestrial volcanic deposits containing paleosols. However, geologic and paleontologic records span a relatively short time with the oldest exposed unit, the Late Cretaceous Mowry Formation, located on the Fall River Ranger District (west half Buffalo Gap National Grassland) to the youngest unit, Pleistocene deposits which have produced the well-known Hudson-Meng Bison Bone Bed, located on the Oglala National Grassland and the two bull mammoths that locked tusks and died joined together.

Marine geologic units from the Buffalo Gap and Fort Pierre National Grasslands and northern portion of the Oglala National Grassland were deposited from the Late Cretaceous Interior Seaway as shales, siltstones, and limestones. Terrestrial geologic units were

deposited on top of the Cretaceous units from volcanic activity west on these NFS units. Preservation of the paleontological resources in the project area varies from museum quality to very poorly preserved. Vertebrate fossils range from marine reptiles, such as 25 foot mosasaurs and 15 foot fish, to terrestrial mammals such as Brontotheres (three ton rhino-looking animal) to invertebrates such as bivalves, lobsters, ammonites, and snails.

Various partners and fossil permittees have documented 822 paleontological sites in the project area, all since 1991. Five areas are established as Paleontological Special Interest Areas, requiring a permit to collect any fossil. These areas are to protect the resource intact.

3.5.2 Environmental Consequences

All alternatives prescribe mostly non-ground disturbing activities, and new ground disturbance would be minimal. Any new disturbance requires additional environmental analysis and public disclosure. Therefore, paleontological resources are not likely to be negatively impacted under these alternatives, and the activities prescribed under the alternatives are compliant with the paleontological resources direction in the LRMP (Chapter 1 Grassland-wide Direction Section E. Paleontological Resources #3). For these reasons, no further analyses were conducted on the direct, indirect or cumulative effects of the alternatives on paleontological resources in the project area.

3.6 Rangeland Resources

3.6.1 Affected Environment

Much of the discussion and analysis in this section (3.6.1) and 3.6.2 is based on information from the Rangeland Management Specialist Report. This specialist report is maintained as part of the project record in the Supervisor's Office in Chadron, Nebraska.

There are several dominant ecological sites within the mixed grass prairies of the project area, including clayey, shallow clay, loamy, and thin upland. Each ecological site can support two or more plant communities. Annual herbage production between the different plant communities within an ecological site during years of normal precipitation typically varies from more than 1,400 pounds per acre, where cool season midgrass species dominate, to less than 900 pounds per acre, where warm season shortgrass species are dominant. Heavily grazed and impacted sites, like old prairie dog colonies, commonly support plant communities dominated by annual grasses, half shrubs, forbs, and annual weeds. Noxious weeds, like Canada thistle, may occur in some prairie dog colonies. Herbicides are used annually to reduce the spread of noxious weeds both in and out of prairie dog colonies.

Prairie dog colonies are found on each of the dominant ecological sites, as well as on some of the less extensive ecological sites in the project area. In addition to foraging, prairie dogs also clip vegetation to maintain suitable visibility for predator detection and to maintain a complex social system (Fagerstone and Ramey 1996). Long-term prairie dog colonization promotes shortgrass and annual plant communities (Fagerstone and Ramey 1996) which could include annual invasive species, particularly Canada thistle. Lethal and non-lethal management to reduce or remove selected prairie dog populations' results in a shift towards midgrass perennial plant communities. Drought results in reduced annual plant productivity

and accelerated expansion and establishment of prairie dog colonies. Detailed descriptions of these ecological sites and the different plant communities resulting from a variety of natural and other disturbances are presented in the Rangeland Management Specialist Report maintained in the project record.

The national grasslands are grazed annually by permitted livestock. Historically, livestock grazing has been the predominant use on the national grasslands. Heavy livestock grazing rates were reduced to more moderate levels in 1978 across the Conata Basin to bring grazing in line with carrying capacity and to help regulate and manage prairie dog populations (USDA Forest Service1978). These stocking adjustments are still in effect, while stocking on most other NFS lands in the project area remain predominately at moderate levels.

Animal unit months (AUMs) of livestock grazing on national grasslands in 2001-2002 and 2004 are listed in Table 3-6. The 2001-2002 data represent grazing levels during periods of normal or near normal precipitation patterns. The 2004 figures represent grazing levels during a drought. Authorized and actual use may vary annually and are typically less than permitted numbers, especially during drought periods. For example, in 2004, actual use was approximately 34 percent below permitted numbers, primarily in response to drought conditions. In addition to the reduced grazing levels, other grazing modifications were also applied during the 2004 drought, including delayed turn-on dates and faster rotations through pastures.

Table 3-6. Animal unit months (AUMs) of livestock grazing, 2001-2002 and 2004.

Area	Permitted AUMs	Authorized AUMS 2001-2002 (2004)	Actual AUMs 2001-2002 (2004)
Buffalo Gap N.G.	190,739	185,739 (162,557)	166,993 (116,232)
Fort Pierre N.G.	51,206	50,757 (38,432)	47,923 (37,397)
Oglala N.G.	28,817	27,056 (26,566)	25,070 (23,916)
All Areas Combined	270,762	263,552 (227,555)	239,986 (177,545)

3.6.2 Environmental Consequences

Direct/indirect effects include:

- Vegetation loss (standing biomass) from prairie dog foraging and clipping,
- Vegetation gain (standing biomass) following rodenticide application and removal of prairie dogs,
- Shifts in plant communities due to the long-term presence or absence of prairie dogs and other herbivores.
- Changes in annual livestock grazing, including removal of livestock, to facilitate vegetation management fencing as a non-lethal tool for long-term management of prairie dog populations.

This analysis focuses primarily on the environmental consequences of implementing Alternatives 2 and 3. Effects of prairie dog conservation and management on rangeland resources and livestock grazing under Alternative 1 have already been considered in the LRMP FEIS.

Herbage Production

Herbage is defined as the total aboveground biomass of plants (total vegetation) including shrubs regardless of grazing preference or availability. Under Alternative 1, there are no boundary management zones, but it is estimated that up to 560 acres of colonies could be treated with rodenticide and other non-lethal tools to reduce public health and safety risks (Table 3-2). An eventual increase in annual herbage production would likely occur in these colonies after a prolonged absence of prairie dogs. However, this increase would likely be masked dramatically by a much larger loss of herbage production in those colonies that are not treated with rodenticide and continue to expand and age (Range Management Specialist Report). New colonies would also likely establish over time under this alternative.

Under Alternatives 2 and 3, a maximum of approximately 19,930 and 11,970 acres, respectively, of prairie dog colonies in the boundary management zones may be treated with rodenticide over the next several years (Table 3-2). When these acreages are compared with the expanding acreage of prairie dog colonies in the interior areas of the national grasslands, overall herbage production can be expected to increase under Alternative 2 while a slight decrease from current production levels can be expected under Alternative 3 (Rangeland Management Specialist Report).

Livestock Grazing

Temporary annual adjustments to reduce or remove livestock grazing in some boundary management zones to help reduce encroachment, especially during droughts, are anticipated. The extent of these potential temporary reductions is displayed in Table 3-7. Direction to adjust livestock grazing as needed during drought is provided in Chapter 1 of the LRMP.

Table 3-7. Potential annual reductions in animal unit months of livestock grazing due to vegetation management fencing.

Area	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Buffalo Gap N.G.	3,000 to 6,000	1,000 to 2,000	1,000 to 2,000
Fort Pierre N.G.	375 to 750	200 to 375	200 to 375
Oglala N.G.	250 to 500	125 to 250	125 to 250
All Areas Combined	3,625 to 7,250	1,325 to 2,625	1,325 to 2,625

As discussed above, herbage production would likely increase in colonies treated with rodenticides under the criteria established under each of the alternatives. However, that does not imply that the additional herbage and forage in these areas would be allocated to livestock. Any allocation or reservation of additional forage would be made when grazing allotment management plans are revised and updated, and this involves a separate environmental analysis and public disclosure process. At that time, forage could either be allocated to permitted livestock, prairie dog management, or to meet other LRMP objectives and direction. It is also possible that loss of herbage production in interior areas of the

national grasslands where prairie dog colonies would likely continue to expand and age could offset to varying degrees, production gains made in the areas where prairie dog populations have been reduced or removed.

As discussed above, quantity of livestock forage typically increases in colony areas following prairie dog reductions or removal, depending on the current ecological state and concurrent livestock grazing management. On the other hand, forage quality within these colonies may actually decrease because of reduced live-to-dead material ratios, nitrogen content and digestibility of forage in the absence of prairie dog foraging and clipping (Whicker and Detling 1988). The extent of these changes following prairie dog reductions is dependant on the years of on-site colonization (colony age) and vegetation conditions within a colony. There may be some nutritional advantages for herbivores, including cattle, to have access to prairie dog colonies for grazing. However, it is very difficult to quantify the combined and concurrent effects of changes in forage quantity (availability) and quality on livestock grazing as a result of prairie dog colonization and management.

Invasive and Noxious Weeds

Annual herbicide control of noxious weeds, including locating and spraying new infestations would continue under each alternative. Risks of new infestations showing up are likely proportional to the total prairie dog colony acreage expected under each alternative. As indicated in Table 3-2, the largest expected colony acreage by 2012 occurs under Alternative 1, while Alternatives 2 results in the lowest risk. Alternative 3 represents an intermediate level of risk.

3.7 Species at Risk

3.7.1 Affected Environment

The species at risk included in this analysis include federally listed threatened and endangered species (Table 3-8) and species designated as sensitive by Region 2 of the Forest Service (Table 3-9). There are no additional candidates or proposed species for federal protection under ESA in the project area at this time. Effects of prairie dog conservation and management on most of these species were initially evaluated as part of the recent LRMP revision process, and these evaluations are documented in Chapter 3 and Appendix H of the LRMP FEIS. However, several new species were recently added to the Forest Service's sensitive species list, and several of these species occur in the project area and are evaluated in this analysis. The federally protected species in the project area that are evaluated in detail in this analysis are identified in Table 3-8. Two federally protected species, American burying beetle and blowout penstemon, were eliminated from further detailed study. Both species are endangered and are found on NFS lands in the Nebraska Sand Hills. Because there is no rodenticide use prescribed under any of the three alternatives for this area, there are no possible effects on American burying beetles. Blowout penstemon was eliminated from further detailed analysis because it occurs on unstable soils in sand blowouts, unsuitable sites for prairie dog colonization.

Table 3-8. Species federally protected under ESA that may be affected and their known distribution

Species and Status [1]	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. (Bessey R.D.)
Black-footed Ferret (E)	X [2]	---	---	---
Whooping Crane (E)	X	X	---	X [3]
Bald Eagle (T)	X	X	X	X

[1] E = endangered, T = threatened
[2] Non-essential experimental population
[3] Downstream from Nebraska N.F.

The black-footed ferret population in the Conata Basin/Badlands black-footed ferret reintroduction area on the Buffalo Gap National Grassland and Badlands National Park is listed as a non-essential experimental population under Section 10j of ESA. Under this classification that portion of the population on the national grassland is treated as a "proposed" species for Section 7 consultation purposes under ESA. On the adjoining Badlands National Park, the ferret population is treated like a "threatened" species for consultation purposes. The most recent monitoring during the fall and winter of 2004/2005 resulted in 70 wild-born litters being located on the national grasslands. These surveys indicated a minimum ferret population of 204, including the kits.

Migrating whooping cranes are rarely observed on NFS lands and waters in the project area. Past confirmed sightings have involved a few instances where cranes landed on uplands, presumably to rest and possibly feed, and on another occasion, whooping cranes were observed on the Middle Loup River near the Nebraska National Forest, Bessey Ranger District.

Bald eagles are migrants in the project area and are occasionally observed hunting over prairie dog colonies near the Cheyenne and White Rivers in South Dakota. It is possible that bald eagle nesting could occur in the not-so-distant future in or near the project area.

Sensitive species in the project area that are evaluated in detail in this analysis are listed in Table 3-9. The black-tailed prairie dog is listed as a sensitive species. Other sensitive wildlife species closely associated with prairie dogs in the project area include western burrowing owl and ferruginous hawk. The mountain plover is also commonly associated with prairie dog colonies, but the only confirmed record in recent years occurred during the summer of 2004 when a single bird was observed in Conata Basin. The project area is considered outside their current breeding range. The association between swift fox and black-tailed prairie dog continues to be debated. There's little doubt that swift fox populations are bolstered when large expansive prairie dog colonies dominate grassland landscapes, but the value of smaller more disjunct prairie dog colonies and complexes to swift fox is uncertain. Some biologists feel as though smaller colonies and complexes may serve as a population sink for swift fox because of increased predation rates by golden eagle and coyote on the smaller prairie dog colonies.

The recently designated sensitive species that are analyzed in detail in this analysis include greater sage grouse, grasshopper sparrow, Brewer's sparrow, short-eared owl, chestnut-collared longspur, McCown's longspur, and northern harrier. These species may be seen on prairie dog colonies but none are known to be closely associated with prairie dogs.

Table 3-9. Sensitive species and their known distribution in the project area

Species	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. (Bessey R.D.)
Black-tailed Prairie Dog	X	X	X	X
Swift Fox	X	X	X	---
Greater Prairie Chicken	---	X	---	X
Long-billed Curlew	X	X	X	X
Greater Sage Grouse	X	---	---	---
Northern Harrier	X	X	X	X
Ferruginous Hawk	X	X	X	X
Chestnut-collared Longspur	X	X	X	X
McCown's Longspur	---	---	X	---
Short-eared Owl	X	X	X	X
Western Burrowing Owl	X	X	X	X
Mountain Plover	X [1]	---	---	---
Brewer's Sparrow	X	---	---	---
Grasshopper Sparrow	X	X	X	X
Trumpeter Swan	X	---	---	---
Regal Fritillary	X	X	---	X

[1] One recent confirmed incidental sighting

Numerous sensitive species were eliminated from further detailed analysis. For the most part, these are species known or suspected of occurring in the general project area but are not known to occur in or make significant use of prairie dog colonies. Also, some species were eliminated because they are unaffected by prairie dog foraging, burrowing or management activities, including rodenticide use. More detailed explanations of why each species was eliminated from further detailed analysis are provided in the Biological Assessment and Evaluation (Appendix E).

Those species eliminated from further detailed analysis are:

Fringed Myotis
Townsend's Big-eared Bat
American Bittern
Black Tern
Loggerhead Shrike
Northern Goshawk
Peregrine Falcon
Yellow-billed Cuckoo
Northern Leopard Frog
Plains Leopard Frog
Ottoe Skipper
Finescale Dace
Northern Redbelly Dace
Pearl Dace
Sturgeon Chub
Plains Minnow
Flathead Chub
Barr's Milkvetch

Dakota Buckwheat	Lesser Yellow Lady's Slipper
Hall's Bulrush	Slender Cottongrass
Lesser Bladderwort	Spinulose Woodfern
Lesser Panicled Sedge	Yellow Widelip Orchid

3.7.2 Environmental Consequences

This section summarizes direct, indirect and cumulative effects of expanded prairie dog rodenticide use and prairie dog shooting on species at risk, including black-tailed prairie dogs. More detailed analyses of effects on species at risk are included in the Biological Assessment and Evaluation (Appendix E in this FEIS and/or Appendix E in the DEIS). Non-lethal methods of prairie dog management were evaluated in the LRMP FEIS. Possible direct effects include:

- Reductions in prairie dog populations (within selected colonies) and distribution,
- Primary and secondary poisoning of wildlife,
- Reduced prey base for black-footed ferrets and other predators.

Possible indirect effects include:

- Change in grassland vegetation structure, burrow availability and habitat suitability for other wildlife species following rodenticide application and prairie dog removal,
- Change in grassland structure, burrow availability and habitat suitability for other wildlife species as a result of prairie dog colony expansion in the absence of rodenticide and other prairie dog management tools,
- Risk of lead poisoning to predators and scavengers feeding on prairie dogs that have been shot,
- Disruption of prairie dog social organization as a result of prairie dog shooting,
- Disturbance of prairie dogs and other wildlife by prairie dog shooters and shooting.

All direct, indirect and cumulative effects on each species at risk under each alternative are considered and evaluated in detail in the Biological Assessment and Evaluation (Appendix E in the DEIS). Additional cumulative effects are discussed in Section 3.14 of this document.

The evaluation process culminates with a "biological determination". The menu of biological determinations for federally listed and protected threatened and endangered species is as follows:

- No effect (NE),
- May affect, not likely to adversely affect (MA-NLAA),
- May affect, likely to adversely affect (MA-LAA).

The menu of biological determinations for species proposed for protection under the Endangered Species Act is:

- Not likely to jeopardize continued existence (NLJ),
- Likely to jeopardize continued existence (LJ).

It is important to point out that there has been no critical habitat designated or proposed for any portion of the project area.

The menu of biological determinations identified above for proposed species is applied to the black-footed ferret. Although the species is federally listed as endangered, the reintroduced Conata Basin population is designated as a "non-essential experimental population" under Section 10j of ESA (U.S. Fish and Wildlife Service 1994) and treated as a proposed species for consultation purposes under Section 7 of ESA.

It is the policy of the U.S. Department of Agriculture and Forest Service not to approve, fund or take any action that is likely to jeopardize the continued existence of threatened and endangered species or destroy any critical habitats or habitats necessary for their conservation, unless exemption is granted pursuant to subsection 7(h) of the Endangered Species Act (Departmental Regulation 9500-4 and Forest Service Manual 2670.31). A "may affect, likely to adversely affect" or "likely to jeopardize the continued existence" determination indicates that a listed or proposed species, respectively, could be adversely impacted by the proposed action and preferred alternative.

Forest Service Manual 2670 establishes the menu of biological determinations for sensitive species:

- No impact (NI),
- Beneficial impact (BI),
- 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 rangewide (MAII),
- Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide (LRLV).

It is the policy of the Forest Service to avoid or minimize impacts to species designated as sensitive by the agency (Forest Service Manual 2670.31). A "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide" determination indicates adverse impacts to a species, either at the project scale or range-wide level. If impacts cannot be avoided, the significance of the potential adverse effects has to be analyzed. An action resulting in impacts to a sensitive may be allowed but only when the action would not result in a loss of species viability or create significant trends toward Federal listing.

In this analysis, biological determinations are made for each listed, proposed or sensitive species under each alternative and for each national grassland and forest. This provides consistency with the approach used in the Biological Assessment and Evaluation for the revised LRMP (Appendix H in the LRMP FEIS). This is the most appropriate manner of making biological determinations, given the large distances between the individual

national grasslands and forests in the project area. Biological determinations were made and identified for Alternatives 1, 2 and 3 in the Biological Assessment and Evaluation for the DEIS (Appendix E). Only Alternative 3, the preferred alternative, is re-analyzed in the Biological Assessment and Evaluation for the FEIS (Appendix E). Appendix E of the DEIS should be consulted for more detailed information on the biological determinations for species at risk under Alternatives 1 and 2 and Appendix E in this FEIS should be consulted for the more detailed information on the determinations under Alternative 3 (preferred).

The biological determinations for federally listed species in the project area are provided in Table 3-10. The abbreviation NA stands for "not applicable" meaning that the species does not occur in the area, and a biological determination is not needed.

The biological determination for the black-footed ferret in Table 3-10 is for the non-essential experimental population in the Conata Basin/Badlands reintroduction area. A map of the non-essential experimental population area is provided in Appendix A. As previously discussed, that portion of the Conata Basin/Badlands experimental ferret population using the national grassland is treated as a "proposed" species, while the animals, from the population using the adjoining Badlands National Park is treated as a "threatened" species for Section 7 consultation under ESA. It is important to point out that prairie dog shooting in any national grassland colonies along the Badlands National Park will not be authorized and if any rodenticide use is recommended in these same colonies, it will likely be minimal. Also, before any shooting or rodenticide use is authorized in colonies along the national park, U.S. Fish and Wildlife Service will be consulted first. For these reasons, it is unlikely that any prairie dog management actions on the national grasslands will adversely affect ferrets occurring on the national park. Also, all of the alternatives maintain Conata Basin prairie dog populations and distribution on the national grassland above the minimum habitat threshold projected as needed for long-term persistence of the ferret population (Livieri and Perry 2005). From a habitat perspective, the integrity of the Conata Basin/Badlands experimental black-footed ferret population should be maintained under all alternatives, and adverse effects on ferrets occurring in Badlands National Park are not expected.

Table 3-10. Biological determinations1 for federally listed threatened and endangered species

Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
Black-footed Ferret	NLJ	NA	NA	NLJ	NA	NA	NLJ	NA	NA
Bald Eagle	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA
Whooping Crane	MA-NLAA	MA-NLAA	NA	MA-NLAA	MA-NLAA	NA	MA-NLAA	MA-NLAA	NA

[1] NLJ - Not likely to jeopardize continued existence
MA-NLAA - May affect, not likely to adversely affect
NA – Not applicable, species and/or suitable habitat does not occur.

The biological determinations for sensitive species are summarized in Table 3-11. Adverse biological determinations (LRLV) are highlighted in the table. Most of the biological determinations under Alternative 1 in Tables 3-10 and 3-11 are taken from the Biological Assessment and Evaluation for the revised LRMP (Appendix H in the LRMP FEIS), since Alternative 1 prescribes the prairie dog direction in the revised LRMP. The only new analyses for Alternative 1 are for the newly designated sensitive species.

Adverse biological determinations were limited to black-tailed prairie dog and western burrowing owl on the Fort Pierre and Oglala National Grasslands under Alternative 2 (Table 3-11). Prairie dog colonies provide the core burrowing owl habitat on the national grasslands in the project area and are especially important for burrowing owl nesting and brooding. As previously mentioned, the analyses used in the process of deriving the most appropriate biological determinations assume that all colonies in the boundary management zones are eventually treated with rodenticide. Under this assumption and Alternative 2, prairie dog populations are extirpated or nearly extirpated on the Fort Pierre and Oglala National Grasslands (Table 3-2), resulting in the adverse determinations. However, it is unlikely that every colony will be treated with rodenticide during the life of this project, but at this time and without site-specific evaluations, the extent of actual rodenticide use is unknown. It is possible that after site-specific evaluations to determine if encroachment is actually occurring or imminent, rodenticide may be recommended and applied only to some colonies within the boundary management zones. Depending on the number and acreage of colonies not treated with rodenticide, the biological determinations for both the prairie dog and burrowing owl could be downgraded to “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 rangewide”. It is also important to point out that the current adverse determinations for both of these species are based on concerns about the long-term sustainability of these species at the scale of the individual national grassland, and not at the larger scale of the range-wide distribution of the species.

The biological determinations for the northern harrier were changed for all alternatives, from “no impact” to “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 rangewide. This was done between the DEIS and FEIS after considering public comments expressing concern over potential effects of lead and secondary poisoning risks to the species.

The biological determinations in Tables 3-10 and 3-11 do not consider the possibility of plague epizootics since plague has never been confirmed in the project area. However, the possibility of future plague in the prairie dog populations cannot be ruled out, and the Forest Service would coordinate with other state and federal agencies if plague eventually occurs in the project area.

Several of the sensitive bird species are granivorous and could be at some risk of primary poisoning if they ingested rodenticide bait (oats). To reduce primary poisoning risks to sensitive bird species, as well as other migratory landbirds, the LRMP provides direction that defers rodenticide applications until October 1 but before December 31. In this manner, most of the migratory birds have migrated out of the area and are not present during rodenticide applications. It’s also important to point out that Tietjen (1976) found

that when properly applied, zinc phosphide rodenticide bait (oats) do not pose significant hazards to non-target species, and he further reported that it was not necessary to exclude non-target species during rodenticide application. He further stated:

"…if prairie dog colonies are treated according to the final recommended bait-treatment standard for 2 percent zinc phosphide-treated steam-rolled oats, several factors should contribute to low primary and secondary hazards: (1) the food habits, preferences, and feeding patterns of the domestic and wild nontarget species; (2) the relatively low concentration of zinc phosphide in the bait; (3) the small amount of bait applied per unit area; (4) the widely scattered bait distribution pattern; and (5) the short time most of the bait is exposed. Taking these into consideration, we believe that the baiting treatment we recommend would present no significant hazards to nontarget species…"

This information, along with the delayed rodenticide application date specified in the LRMP, suggests that risks to non-target landbirds, as well as other wildlife species, are minimal where and when EPA label requirements for the application of zinc phosphide rodenticide are followed. His comments relate equally to other resident wildlife. His assessment of low primary and secondary risks to non-target birds is further supported by studies conducted in Conata Basin (Apa et al. 1991, Uresk et al. 1988). However, losses of non-target small mammals to zinc phosphide rodenticide may be more significant. Another study in Conata Basin documented short-term reductions in deer mice following zinc phosphide applications and suspected possible non-target losses of *Perognathus* spp. and *Dipodomys* spp. (Deisch et al. 1990).

Table 3-11. Biological determinations[1] for sensitive species in the project area

Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
Black-tailed Prairie Dog	MAII	MAII	MAII	MAII	LRLV	LRLV	MAII	MAII	MAII
Swift Fox	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Greater Prairie Chicken	NA	MAII	NA	NA	MAII	NA	NA	MAII	NA
Long-billed Curlew	NI	NI	NI	NI	NI	NI	NI	NI	NI
Greater Sage Grouse	NI	NA	NA	NI	NA	NA	NI	NA	NA
Northern Harrier	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Ferruginous Hawk	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Chestnut-collared Longspur	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
McCown's Longspur	NA	NA	MAII	NA	NA	MAII	NA	NA	MAII
Western Burrowing Owl	MAII	MAII	MAII	MAII	LRLV	LRLV	MAII	MAII	MAII

Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
Short-eared Owl	MAII	MAII	MAII	NI	NI	NI	NI	NI	NI
Mountain Plover	NI	NA	NA	NI	NA	NA	NI	NA	NA
Brewer's Sparrow	NI	NA	NI	NI	NA	NI	NI	NA	NI
Grasshopper Sparrow	MAII	MAII	MAII	NI	NI	NI	NI	NI	NI
Trumpeter Swan	MAII	NA	NA	MAII	NA	NA	MAII	NA	NA
Regal Fritillary	MAII	MAII	NA	NI	NI	NA	NI	NI	NA

[1] MAII – 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 rangewide
NA – Not applicable
LRLV - Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide
NI - No impact

3.8 Management Indicator Species and Other Wildlife

3.8.1 Affected Environment

Management indicator species for rangeland and grassland habitats in the project area are black-tailed prairie dog, greater prairie chicken, plains sharp-tailed grouse, and greater sage grouse. The biological communities that they represent on the national grasslands and forests are presented in Table 3-12. Only those NFS lands that support black-tailed prairie dog populations are listed in the table, and maps of the six geographic areas identified in the table for the Buffalo Gap National Grassland are provided in Appendix A – Maps of this FEIS.

Habitat relationships for each indicator species are discussed in Appendix H of the LRMP. Prairie dogs prefer and maintain low structure grassland habitat while the others select for diverse high structure grassland habitats on mixed grass and sandhills prairie. Where prairie dogs expand uniformly over extensive grassland areas, habitat suitability for the other management indicator species decreases. The desired mix of grassland structure levels and resulting habitat conditions for management indicator species was addressed in Chapter 2 of the LRMP by establishing grassland structure objectives for each NFS unit and geographic area. The objectives specify the desired amounts of low, moderate and high grassland structure, recognizing low structure grasslands would extend beyond just prairie dog colonies.

Potential habitat for each management indicator species was assessed and mapped for each national grassland and forest as part of the LRMP revision process. The potential habitat information is summarized and presented in Tables 3-129, 130, 131, and 132 in the LRMP FEIS and addendum. Some modifications and refinements to the geographic information system model used to predict potential black-tailed prairie dog habitat in the

LRMP FEIS were recently applied, but the changes in model outputs were minor. Also, a cooperative sagebrush aerial survey and mapping project with the South Dakota Department of Game, Fish and Parks was recently completed in the Fall River West Geographic Area. This project provided more accurate information than previous mapping projects on the distribution and amounts of sagebrush and potential sage grouse habitat. Approximately 15,800 acres of sagebrush habitat were listed in Table 3-131 of the LRMP FEIS, and the new survey indicates that the more accurate figure is approximately 14,560 acres.

Population and habitat objectives for each management indicator species are provided in Chapter 2 of the LRMP and are summarized here. Objectives for black-tailed prairie dogs vary between national grasslands and geographic areas. The objectives for black-tailed prairie dogs for Fort Pierre and Oglala National Grasslands are to increase prairie dog populations and habitat and to establish a colony complex on each area. The colony complexes are to meet specified criteria to help ensure long-term persistence of prairie dog populations in those areas. The criteria call for a minimum of 1,000 acres in 10 or more colonies with inter-colony distances not exceeding 6 miles and are based on information from Hanski 1997, Knowles 1985, Luce 2001, and Samson 2000. It is important to point out that the LRMP specifies that colonies on adjoining lands protected under conservation agreements or easements can be counted as part of each complex. In Conata Basin (Wall Southwest Geographic Area), the objective is to increase prairie dog populations and habitat and to maintain the colony complexes already established in the Basin.

Table 3-12. Management indicator species

Area	Biological Community	Management Indicator Species
Buffalo Gap N.G.		
Fall River Northeast G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Fall River Southeast G.A.	Diverse high structure grasslands Prairie dog colonies and low structure grasslands	Plains sharp-tailed grouse Black-tailed prairie dog
Fall River West G.A.	Sagebrush with tall, dense and diverse understories Prairie dog colonies and low structure grasslands	Greater sage grouse Black-tailed prairie dog
Wall North G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Wall Southeast G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Wall Southwest G.A.	Prairie dog colonies and low structure grasslands	Black-tailed prairie dog
Fort Pierre N.G.	Diverse high structure grasslands Diverse high structure grasslands Prairie dog colonies and low	Plains sharp-tailed grouse Greater prairie chicken Black-tailed prairie dog

Area	Biological Community	Management Indicator Species
	structure grasslands	
Oglala N.G.	Diverse high structure grasslands Prairie dog colonies and low structure grasslands	Plains sharp-tailed grouse Black-tailed prairie dog
Nebraska N.F. **(Bessey Ranger District)**	Diverse high structure grasslands Diverse high structure grasslands	Plains sharp-tailed grouse Greater prairie chicken

Management objectives for plains sharp-tailed grouse and greater prairie chicken are to provide diverse and quality habitats to help support stable to increasing populations. The objectives further specify that this would be accomplished by meeting, in a timely manner, the objectives for high grassland structure prescribed in the LRMP.

Objectives for greater sage grouse in the Fall River West Geographic Area are similar to those for sharp-tailed grouse and greater prairie chicken. However, there have been no sightings over the last couple years of the small flock that has traditionally used the national grassland in this area. Only one sage grouse display ground is known to have been active in the area over the last couple decades, and in the spring of 2003 and 2004, the display ground was not used. The abandonment of this display ground coincided with arrival of West Nile virus in this area. This population may have moved or may have simply been a victim of small population biology and possible disease.

Current habitat suitability for each management indicator species, except greater sage grouse, is presented in Tables 3-129, 130 and 132 in the LRMP FEIS and addendum. Recent monitoring suggests that these levels of habitat suitability have not appreciably changed (USDA Forest Service 2004). The recent cooperative sagebrush and sage grouse habitat project in the Fall River West Geographic Area provided information to further assess habitat suitability for greater sage grouse. Of the 14,060 acres of sagebrush habitat, approximately 19 percent consists of moderate to high density sagebrush that provides higher levels of suitability for nesting, brooding and wintering.

There are a large number of wildlife species, in addition to “at risk” and management indicator species, which commonly use prairie dog colonies. This list includes, but is not limited to: pronghorn, coyote, badger, cottontail, golden eagle, numerous small mammal and bird species, and several reptile and amphibian species (Agnew et al. 1986, Sharps and Uresk 1990). Other wildlife species that prefer taller grassland vegetation patches would be negatively affected if prairie dog colonies expand to occupy major portions of individual landscapes. These species include, but are not limited to: bobolink, dickcissel, greater prairie chicken, short-eared owl and prairie vole.

3.8.2 Environmental Consequences

Direct and indirect effects on management indicator species of implementing Alternatives 2 and 3 are evaluated based on the likelihood of achieving the objectives for long-term population trends and habitats by 2012. The effects of implementing Alternative 1 have

already been evaluated as part of the recent LRMP revision process but are included and presented in this analysis for comparative purposes.

Direct effects on the black-tailed prairie dog as a management indicator species are the result of the use of prairie dog rodenticide and to a lesser extent, regulated prairie dog shooting in Conata Basin. Indirect effects generally relate to the use of non-lethal methods to modify habitat suitability for black-tailed prairie dogs, but these activities were already analyzed in the revised LRMP.

Direct effects on the other management indicator species are the risk of rodenticide ingestion and primary poisoning. Indirect effects are the result of changes in habitat suitability (grassland vegetation structure) following increases or decreases in prairie dog populations. Under Alternative 1, the desired levels of low structure for each geographic area where the plains sharp-tailed grouse, greater prairie chicken, and sage grouse are management indicator species, exceed the predicted 2012 prairie dog colony acreages. Therefore, the predicted future prairie dog colony expansion under Alternatives 1 and 3 is not expected to detract from attainment of the population and habitat objectives for the other management indicator species. Management of livestock grazing is the primary factor influencing the likelihood of attaining long-term objectives for the other management indicator species.

Black-tailed Prairie Dog. Colony acreages and estimated prairie dog populations in the geographic areas where the black-tailed prairie dog is a management indicator species are presented in Table 3-13. The base years used for comparison purposes in the table are 1996-97; the survey information used in the LRMP FEIS analyses. The estimated prairie dog populations in the table are based on the range of prairie dog densities found across colonies in Conata Basin (Livieri and Perry 2005). The prairie dog densities range from a low of 6 prairie dogs per acre to a high of 15 per acre. As demonstrated in the table, comparisons of the 1996-97 colony acreages with the predicted acreages for 2012 indicate upward prairie dog population trends under Alternatives 1 and 3 in each of the national grasslands and geographic areas. Alternative 2 results in upward trends on the Buffalo Gap National Grassland geographic areas and negative trends in colony acreage on the Fort Pierre and Oglala National Grasslands (geographic areas). Under Alternative 2, the prairie dog population on Fort Pierre National Grassland is essentially extirpated, assuming all the prairie dog colonies in the boundary management zone are eventually treated with rodenticide. If extirpation occurred on the national grassland under Alternative 2, the distribution of prairie dog colonies on NFS lands in the project area would be substantially reduced.

The population trend analysis in the preceding paragraph uses changes in colony acreage as an indicator of population trend. When comparing the population estimates, rather than the colony acreages, from the 1996-97 baseline information to the predicted populations in 2012, Alternative 1 clearly indicates positive population trends in all areas. The population trends on the Oglala and Fort Pierre National Grasslands under Alternative 2 are obviously down. However, under Alternative 2 the ranges for the 1996-97 baseline populations and the predicted 2012 populations overlap for the Buffalo Gap National Grassland geographic areas. If midpoints of the ranges are compared for Alternative 2, upward population trends are indicated for each of the geographic areas on the Buffalo Gap National Grassland, as did the comparison of colony acreages (preceding

paragraph). Under Alternative 3, the predicted population ranges for the Wall Southwest Geographic Area and the Fort Pierre and Oglala National Grasslands overlap with the respective 1996-97 ranges, but again, if the midpoints of the ranges are compared, upward population trends are indicated. The population ranges for the other geographic areas on the Buffalo Gap National Grassland clearly indicate an upward population trend.

Current and predicted colony acreages in each of the colony complex areas prescribed in the LRMP for Fort Pierre and Oglala National Grasslands are presented in Table 3-14. A colony complex meeting and exceeding the minimum criteria already exists on the Oglala National Grassland and would be retained and expanded under Alternatives 1 and 3. Attainment of a colony complex meeting the specified criteria on the Fort Pierre National Grassland by 2012 under Alternative 1 could be attained by 2012 but under Alternative 3, some additions to the complex in the form of colonies on adjoining lands under conservation agreements or easements would certainly help meet the criteria in a timelier manner. Otherwise, a few more years beyond 2012 of colony expansion on the national grassland would be needed to eventually attain the minimum criteria. Attainment of the colony complexes on the Oglala and Fort Pierre National Grasslands is not feasible under Alternative 2, assuming that all or most of the prairie dog colonies in the boundary management zones are eventually treated with rodenticide.

Greater Prairie Chicken. Black-tailed prairie dogs and greater prairie chicken both occur on the Fort Pierre National Grassland. As prairie dogs expand, increases in low grassland structure and corresponding decreases in moderate and high structure would be expected, thus reducing overall habitat suitability for greater prairie chicken. However, under Alternatives 2 and 3, prairie dog colony acreages decrease or remain similar over the next several years and therefore do not detract from attainment of greater prairie chicken population or habitat objectives (Table 3-13). The long-term population trend for greater prairie chicken on the Fort Pierre National Grassland is clearly upward (Moravek 2004).

Plains Sharp-tailed Grouse. Black-tailed prairie dogs occur in all the geographic areas where the plains sharp-tailed grouse is identified as a management indicator species. Under Alternatives 2 and 3, prairie dog colony acreages decrease or remain similar over the next several years and therefore do not detract from attainment of sharp-tailed grouse population or habitat objectives in any of the geographic areas where it is a management indicator species (Table 3-13). The long-term population trend for sharp-tailed grouse on the Fort Pierre National Grassland is stable to slightly upward (Moravek 2004). However, current data are insufficient to assess long-term population trend of this species on the Oglala National Grassland, but a systematic monitoring protocol is being developed and would be implemented beginning in the spring of 2006. This protocol would allow sharp-tailed grouse populations monitored and trends to be determined. Similar protocols are also being developed for the Buffalo Gap National Grassland. Limited data for the Wall Southeast and North Geographic Areas show an upward trend from 1985 through 1999 but then plummets from 2000 to 2004 (South Dakota Department of Game, Fish and Parks, unpublished data). This is likely the result of drought conditions during that period.

Greater Sage Grouse. Black-tailed prairie dogs occur in the Fall River West Geographic Area where the greater sage grouse is identified as a management indicator species (Table 3-12). There is one colony located close to the traditional sage grouse display

ground, but it has essentially remained the same size for the last 15 or more years, as indicated in the Biological Assessment and Evaluation (Appendix E). This colony is bordered by sagebrush and has not been treated with rodenticide. Although black-tailed prairie dogs have been observed and reported to gradually remove sagebrush from the periphery of colonies, this has not been observed at this site. It appears that other factors resulted in the loss or movement of the sage grouse population from this area. It is highly unlikely that implementation of Alternatives 2 and 3 would have any significant effects on sagebrush habitat in this area over the next several years or on potential sage grouse populations that could eventually re-establish in the area.

Other Wildlife Species. Direct effects could include direct loss of graniverous birds and small mammals (APHIS 1994, Deisch et al. 1990, Apa et al. 1991, Uresk et al. 1988) from consumption of zinc phosphide grain bait. Primary poisoning risks to native ungulates like pronghorn are likely insignificant and discountable due to low application rates specified by the pesticide label. Adherence to pesticide label requirements also reduces primary poisoning risks. Forest Service also defers rodenticide applications until October 1 or later, and this further reduces risks to migratory birds that typically leave the area prior to this date. A risk assessment on chemical methods of animal damage control prepared by APHIS (1994) provided an excellent review of primary and secondary non-target risks to wildlife from use of 2% zinc phosphide rodenticide bait.

Indirect effects include both secondary poisoning risks and altered habitat structure following prairie dog removal or colony expansion. Because zinc phosphide breaks down rapidly in the digestive tract of the target species, secondary poisoning risks to predators and scavengers appear to be discountable (APHIS 1994). Also, ferruginous hawks and golden eagles have been repeatedly observed feeding on prairie dog carcasses and stripping and setting the gastro-intestinal tract to the side, without consuming any of the guts or their contents. Other buteos probably consume their prey in a similar manner, and this behavior undoubtedly reduces the risks of secondary non-target poisoning.

Indirect effects on grassland birds from altered habitat structure resulting from prairie dog removal or colony expansion have already been analyzed and discussed earlier in this section for management indicator species and for other grassland birds in Chapter 3 of the LRMP FEIS.

In terms of native ungulates, pronghorn are attracted to prairie dog colonies for foraging, but it is unlikely that prairie dog populations would change significantly in response to changes in prairie dog colony acreages (Krueger 1986, Whicher and Detling 1993).

Table 3-13. Active colony acres and estimated prairie dog population (in thousands)

Geographic Areas with Black-tailed Prairie Dog as MIS	LRMP FEIS (1996-97) [2]	Alternative 1 Current (2004)	Alternative 1 Predicted (2012) [3]	Alternative 2 Current (2004)	Alternative 2 Predicted (2012) [3]	Alternative 3 Current (2004)	Alternative 3 Predicted (2012) [3]
Buffalo Gap N.G.							
Fall River Southeast[1]	490 (2.9 to 7.3)	2,160 (13.0 to 32.4)	4,700 to 9,500 (28.2 to 142.5)	720 (4.3 to 10.8)	900 to 1,100 (5.4 to 16.5)	1,170 (7.0 to 17.5)	1,800 to 2,500 (10.8 to 37.5)
Fall River West[1]	240 (1.4 to 3.6)	600 (3.6 to 9.0)	900 to 1,800 (5.4 to 27.0)	260 (1.6 to 3.9)	300 to 400 (1.8 to 6.0)	470 (2.8 to 7.0)	600 to 800 (3.6 to 12.0)
Wall Southwest[1]	11,940 (71.6 to 179.1)	20,182 (121.1 to 302.7)	30,000 to 62,000 (180.0 to 930.0)	14,965 (89.8 to 224.4)	16,500 to 19,900 (99.0 to 298.5)	19,060 (114.4 to 285.9)	22,700 to 32,000 (136.2 to 480.0)
Fort Pierre N.G.[1]	720 (4.3 to 10.8)	1,260 (7.6 to 18.9)	1,900 to 2,700 (11.4 to 40.5)	0 (0)	0 (0)	870 (5.2 to 13.0)	1,100 to 1,400 (6.6 to 21.0)
Oglala N.G.[1]	740 (4.4 to 11.1)	2,220 (13.3 to 33.3)	3,300 to 6,800 (19.8 to 102)	80 (0.5 to 1.2)	<100 (<1.5)	1,170 (7.0 to 17.6)	1,400 to 1,800 (8.4 to 27.0)
Other Geographic Areas	**LRMP FEIS (1996-97) [2]**	**Alternative 1 Current (2004)**	**Alternative 1 Predicted (2012) [3]**	**Alternative 2 Current (2004)**	**Alternative 2 Predicted (2012) [3]**	**Alternative 3 Current (2004)**	**Alternative 3 Predicted (2012) [3]**
Buffalo Gap N.G.							
Fall River Northeast	960 (5.7 to 14.4)	1676 (10.0 to 25.1)	2,500 to 5,100 (15.0 to 76.5)	107 (642 to 1.6)	100 to 200 (0.6 to 3.0)	822 (4.9 to 12.3)	1,000 to 1,400 (6.0 to 21.0)
Wall North	420 (2.5 to 6.3)	338 (2.0 to 5.1)	500 to 1,000 (3.0 to 15.0)	0 (0)	0 (0)	138 (0.8 to 2.1)	200 to 300 (1.2 to 4.5)
Wall Southeast	870 (5.2 to 13.1)	1078 (6.5 to 16.2)	1,600 to 3,300 (9.6 to 49.5)	300 (1.8 to 4.5)	300 to 400 (1.8 to 6.0)	697 (4.2 to 10.5)	800 to 1,200 (4.8 to 18.0)

[1] Geographic area where black-tailed prairie dogs are a management indicator species.
[2] Analyses in the LRMP FEIS used 1996-97 prairie dog colony survey information
[3] Lower end of each range for colony acreage is predicted if precipitation patterns tend to be normal to above normal over the next several years, while the upper end of the range is predicted if extended dry conditions prevail

Table 3-14. Current and predicted colony complexes on Fort Pierre and Oglala National Grasslands

	Alternative 1 (No Action)	Alternative 2	Alternative 3
Fort Pierre N.G.			
Current NFS Complex	770 acres 11 colonies	0	550 acres 10 colonies
Predicted NFS Complex (2012)	1,100 to 1,700 acres >11 colonies	0	700 to 900 acres > 11 colonies
Oglala N.G.			
Current NFS Complex	2,220 acres 26 colonies	80 acres >1colony	1,170 acres >10 colonies
Predicted NFS Complex (2012)	3,300 to 6,800 acres >26 colonies	<100 acres >2 colonies	1,400 to 1,800 acres >10 colonies

3.9 Recreation Resources

3.9.1 Affected Environment

Recreation associated with prairie dog colonies consists mostly of wildlife viewing and recreational prairie dog shooting. For purposes of this analysis, opportunities for viewing wildlife commonly found on prairie dog colonies are assumed to be proportional to the acreage of active prairie dog colonies.

Forest Service shares responsibilities with state agencies for management of wildlife on national forests and grasslands. In terms of recreational prairie dog shooting, the Forest Service (Nebraska National Forest) has issued prairie dog shooting restrictions and prohibitions in designated black-footed ferret habitat on the Buffalo Gap National Grassland. However, elsewhere on the national grasslands and forests in the project area, with the exception of administrative sites, Forest Service defers to the states for decisions relating to prairie dog shooting restrictions, prohibitions and regulations. Interagency coordination and consultation between the Forest Service and state agencies on proposed prairie dog shooting restrictions and regulations affecting NFS lands is critically important, regardless of the lead agency.

More information on these activities is presented in Chapter 3 of the LRMP FEIS.

3.9.2 Environmental Consequences

Quantitative data on the number of recreation visitor days associated with wildlife viewing on prairie dog colonies in the project area are not available. Instead, it was assumed that prairie dog viewing opportunities on the national grasslands and forests were proportional to predicted increases or decreases in total colony acreage by 2012. Direct effects of

alternatives on wildlife viewing opportunities associated with prairie dog colonies were determined by simply comparing current and predicted (2012) prairie dog colony acreages under each alternative. The predicted acreages of active prairie dog colonies by 2012 under each alternative are presented in Table 3-2. Under Alternatives 1 and 3, wildlife viewing opportunities associated with prairie dog colonies would increase by approximately 161 and 20 percent by 2012, respectively. Under Alternatives 2, viewing opportunities would decrease by approximately 33 percent. These percentages are based on comparisons of the midpoints of the predicted colony acreage ranges presented in Table 3-2.

Forest Service is not proposing any additional prairie dog shooting restrictions under any alternative. Under Alternatives 2 and 3, the Forest Service is considering modifying its existing prairie dog shooting prohibition in Conata Basin by allowing some regulated prairie dog shooting in selected colonies along the outer boundaries of the black-footed ferret habitat area to help reduce unwanted colonization on adjoining lands. It is anticipated that the amount of prairie dog shooting in Conata Basin would be very limited and its effects on recreational opportunity insignificant. Therefore, no further analysis or discussion on recreational prairie dog shooting is presented.

It is recognized that recreational prairie dog shooting and wildlife viewing on prairie dog colonies can be conflicting activities. Because prairie dog shooting opportunity is not expected to change significantly under any alternative, no analysis of the relationship bteween these two activities was conducted.

3.10 Social & Economic Factors

3.10.1 Economic Affected Environment

A description of the economic and social environment in the project area is documented in Chapter 3 of the LRMP FEIS (www.fs.fed.us/ngp) under the Community and Lifestyle Relationships discussion.

Economic issues addressed below in Section 3.10.2 include:

- Effects of unwanted colonization on adjoining private or tribal lands,
- Costs and effectiveness of prairie dog management on public and private lands,
- Local economic stability.

3.10.2 Economic Environmental Consequences

Generally, economic efficiency and cost effectiveness are not considered “environmental issues” pursuant to the National Environmental Policy Act (NEPA). However, it is a policy in Region 2 of the Forest Service to conduct and consider financial and cost efficiency information for projects where an environmental analysis (EA) or EIS is prepared or where the total costs over the life of a project is expected to equal or exceed $50,000. This proposed action meets both of the above criteria.

Two economic analyses were completed for this proposed action by experienced economists. One of the economic analyses was completed early in the DEIS process on preliminary data

to provide some insights on the potential long-term effects of prairie dog management under each of the alternatives on future permitted livestock grazing on national grasslands. The second economic analysis was conducted between the DEIS and FEIS. Both economists reported too little data to complete traditional benefit – cost analyses. Also, both economists acknowledged that many of the considerations associated with a project of this type, especially benefits, are difficult to quantify economically.

Effects of unwanted colonization on adjoining private or tribal lands. Many adjoining landowners have expenses for managing prairie dogs on their lands. However, available quantitative information on these expenses was minimal. One ranching family adjacent to national grasslands commented that their typical annual costs for prairie dog management are as follows:

- $10 per acre of colony from forage loss,
- $6 per acre for rodenticide cost and application,
- $50 per acre for tilling and re-seeding.

Their total annual economic loss due to prairie dogs was greater than $17,000. It was uncertain whether the re-seeding costs were an annual re-occurring cost or just a single one-time cost?

The total costs and losses for an individual landowner would obviously be dependent on the acreage of colonies on his or her land. The extent that the national grasslands are contributing to these additional costs for individual landowners is obviously very difficult to quantify and assess.

Costs and effectiveness of prairie dog management on public and private lands. A least-cost analysis of prairie dog management on the national grasslands for the period 2005 through 2012 identifies Alternative 1 as the least costly alternative ($966,000) because the alternative does not include the extensive rodenticide applications and costs for regulating shooting. Alternative 2 is the most expensive alternative ($1.93 million) because of costs associated with regulating shooting and the more extensive rodenticide use. Alternative 3 is less expensive ($1.68 million) than Alternative 2 because of less extensive rodenticide use. The economic attractiveness of Alternative 1, in terms of present net value (PNV), is short-lived because of the significant increases in prairie dog colony acreages on the national grasslands and further encroachment issues, despite an investment of almost a million dollars. It needs to be reiterated that non-lethal tools typically reduce, not stop, rates of annual colony expansion and establishment of new colonies.

A financial revenue-cost analysis compared the direct costs to the Forest Service of implementing each alternative through 2012. The direct costs were:

- Alternative 1 = $657 thousand,
- Alternative 2 = $1.97 million,
- Alternative 3 = $1.69 million.

Both of these analyses consider the opportunity costs lost due to the estimated temporary reductions in permitted livestock grazing, as a result of vegetation management fencing. However, the least cost analysis uses RPA market values for grazing while the financial

analysis uses the actual Forest Service grazing fee. The complete financial revenue-cost and least-cost analyses are both maintained in the project record at the Supervisor's Office in Chadron, Nebraska.

Adjoining landowners are generally concerned about the effects of prairie dog movement from national grasslands on the effective life of rodenticide applications on their lands. Colonies treated with rodenticides re-populate sooner when prairie dogs move in from adjoining lands or other nearby active colonies. When this occurs, landowners generally apply rodenticides more frequently and to larger colony acreages, thereby increasing their expenses.

Local Economic Stability. A long-standing issue associated with prairie dog conservation and management has been concern over the impacts of prairie dogs on the economic well-being of local agricultural families and communities. This concern was reinforced in comments received in response to the DEIS.

Livestock production from NFS lands on the Northern Great Plains is very important to the people who hold grazing permits. Overall, though, the national grasslands and forests of the Northern Great Plains play a minor role in the total production of cattle and sheep. Total production from the 37 counties in the area of influence (those counties containing or adjacent to National Forest System lands in the planning area) is approximately 2.2 percent of the national cattle herd size. Of the 37-county cattle production total, less than 4 percent of the 2.2 percent contribution to the national cattle herd is derived from the national grasslands and forests on the Northern Great Plains (Census of Agriculture 1992; Forest Service grazing records1). However, livestock production from the national grasslands is very important to local agricultural families with national grassland grazing permits. Many grazing permittees have an interdependent relationship with the national grasslands. Therefore, any increase or decrease in forage for permitted livestock on the national grasslands may cause adjustments in herd size or other ranch operations. These adjustments may cause some economic hardship on individual ranches. The effects of any future adjustments in permitted livestock grazing on local economic stability as a result of this proposed action are minor since the proposed action is primarily limited to prairie dog and vegetation management along property boundaries. Any adjustments in permitted livestock grazing under this proposed action (Table 3-7) will be temporary and limited to property boundary areas primarily during drought. Under Alternative 1, the potential reductions could be 1 to 3% of the grazing levels typically authorized during years of normal or better precipitation patterns. Under Alternatives 2 and 3, potential reductions could be 1% or less of the authorized grazing levels shown in Table 3-6. Any long-term or permanent adjustments in permitted livestock grazing across entire grazing allotments, including interior areas, would be addressed in the allotment management planning process, and it is possible that reductions in permitted livestock grazing made at that time could be more substantial, and result in some economic impacts in the form of jobs and income. This was evident in the economic analysis conducted earlier in the DEIS process on some preliminary data.

The proposed action described in this FEIS is primarily focused on reducing prairie dog colony encroachment on adjoining lands along national grassland property boundaries. However, it was beyond the scope and timeframes of this FEIS to quantify and assess the economic impacts of prairie dog colonization on adjoining private or tribal lands that could be attributed to national grasslands. The Forest Service acknowledges economic impacts to

private or tribal landowners and managers from prairie dogs and their management. It also acknowledges the difficulty in determining and quantifying the impacts that could be attributed solely to the national grasslands. Prairie dogs from colonies on national grasslands obviously cannot be distinguished from prairie dogs that immigrate from colonies on other land jurisdictions. Beyond the year of a rodenticide application, prairie dogs that survive a rodenticide application and help re-populate the same colony cannot be distinguished from prairie dogs that may have immigrated from other colonies on the same ranch or from other adjoining lands. The matter is less complicated where you have individual colonies that spread across property lines from national grasslands, but in some cases, it is difficult to assess the original direction of spread or source(s) of prairie dogs.

Economic dependency and diversity are important features of local economies that can assist managers in measuring and assessing the effects of land and resource management decisions on the affected communities. Economic dependency refers the extent a local economy depends on a limited number of industries. The larger a single industry's role is in the economy, the more dependent the economy is on that industry. Economic dependency is estimated by determining the approximate percentage of the total economy of each county that can be attributed to a particular industry. Of special interest in this analysis are those industries that can be affected by each of the three alternatives. In this case, the primary effects are limited to agriculture (livestock production). Numerous counties in the project area are dependent on livestock production for more than 10 percent of their total employment (USDA Forest Service 2001). These counties include Jackson, Fall River, Jones, Lyman, Stanley Counties in South Dakota, and Dawes and Sioux Counties in Nebraska. However, only a fraction of the livestock grazing within these counties occurs on national grasslands, and more specifically, only those national grassland areas along property boundaries. Other industries in the area are either unaffected or the potential economic impacts are minor.

Economic diversity is a measure of how much variety there is in a particular economy and is closely related to economic dependency. It is believed that diverse economies are more resilient to external impacts than less diverse economies. A relatively diverse economy would not be dependent on just one or a few industries. County economic diversity has been measured by an index, called the Shannon-Weaver Entropy Index, and includes all the different economic sectors within those counties (LRMP FEIS). The resulting diversity indices are a function of the number of economic sectors in a county economy and the distribution of employment across those sectors. Usually the larger and more diverse the economy, the larger the index. The index varies between 0 and 1, with higher numbers indicating greater diversity. The Shannon-Weaver Index for the planning units range between 0.5277 and 0.6488.

It’s acknowledged that some of the economic analyses presented in the LRMP FEIS were based on a scale larger than the scale of the local community. However, given that the proposed action is limited primarily to a small portion of each national grassland located along property boundaries, the economic impacts on individual local communities will be minor under any of the three alternatives.

3.10.3 Social Environmental Consequences

General Effects. No alternative is expected to have a substantial effect on the demographic trends within the project area. Communities that are in decline or are growing would continue to decline or grow independent of the alternatives. The primary factor determining the economic health of many communities would be the market price for livestock, oil, gas, and coal, which is outside the span of control of the communities and the Forest Service in the project area.

This section addresses the primary public user/interest groups involved in prairie dog conservation and management on the national grasslands and provides a summary of the effectiveness of the alternatives in responding to the primary preferences, interests and concerns of each major public user/interest group.

Adjacent landowners. This group includes adjoining landowners who are mostly agricultural producers. Their primary interests relate to the effects of the alternatives on adjoining agricultural lands. Approximately 150 to 200 landowners in the project area could potentially express concerns about unwanted prairie dog colonization of their agricultural lands that adjoin national grasslands. In some cases, the colonies likely originate from national grasslands, but, at other locations, the colonies appear to have started on the private or tribal lands. Alternatives 2 and 3, with their full suite of management tools, would substantially decrease unwanted prairie dog colonization of private or tribal lands. As a result, Alternatives 2 and 3 provide the most effective response to adjoining landowners while Alternative 1 provides the least effective response.

In addition, approximately 20 rural residences and associated facilities occur in or near prairie dog colonies that also extend onto national grasslands. Prairie dog colonies in close proximity to their residences and outbuildings raised health and safety concerns relative to diseases, rattlesnakes and black widow spiders as well as prairie dog shooting. All alternatives address the health and safety issue, although Alternatives 2 and 3 implement a boundary management zone that provides additional safeguards.

Agricultural Producers. This group includes grazing permittees that have interests related to stable grazing levels on their permitted grazing use. Grazing levels will fluctuate based on annual weather patterns and other factors as has occurred in the past. It is documented that the accelerated expansion of prairie dog colonies occurs during drought periods and is further accelerated by the failure to adjust livestock use during drought. These fluctuations will continue in the future under all alternatives, but would be highest under Alternative 1 due to the inability to utilize a full suite of management tools.

American Indian Community. All alternatives recognize the rights of American Indians within the project area. In general, American Indian communities have expressed concern that national grasslands are contributing to unwanted prairie dog impacts on adjoining tribal lands. Their primary interests are the economic impacts on the Pine Ridge Indian Reservation and Lower Brule Indian Reservation. Alternative 2 and 3 would reduce impacts from prairie dogs to adjacent tribal agricultural lands through the use of a full suite of management tools. Alternative 1 would have some impacts on tribal agricultural lands.

Government. This group is made up of representatives and elected officials from a variety of local, state, and federal agencies and offices. Management preferences vary depending on

agency mission or the views of each entity's constituency. Some of the more prevalent interests across this group are: the continued availability of natural resources and opportunities; diverse vegetation, recreation opportunities, wildlife habitat; and stable economic conditions/lifestyles.

Alternative 1 would have some impact on forage available to livestock and would require some shift in resource uses. Alternatives 2 and 3 would have minor impact on forage available for livestock and could cause some minor shifts in resource uses. Alternative 1 would provide the most diverse vegetation and wildlife habitat. Alternative 3 would rank second in a comparison with Alternative 2. Alternative 1 may have some minor impacts causing some economic and social adjustments. Alternative 2 and 3 would most likely maintain the current economic and social conditions.

Conservationist/Preservationists/Environmentalists. This group includes conservation, preservation, and environmental organizations and advocates. Primary management preferences include black-footed ferret recovery, biological diversity, protection of unique wildlife habitat, and animal welfare. Alternative 1 would provide the most acres of prairie dog colonies for black-footed ferret recovery, followed by Alternative 3. Alternative 1 would provide more biological diversity and more unique wildlife habitat, followed by Alternative 3. Alternative 1 would have the least impact to animal welfare due to its emphasis on non-lethal tools.

3.11 Oil and Gas Resources

3.11.1 Affected Environment

Approximately 187,390 acres of the Buffalo Gap and Oglala National Grasslands are administratively available for oil and gas leasing. There's currently 14 operating oil and gas wells on the Buffalo Gap National Grassland, and it is estimated that there is a potential for a total of approximately 85 oil and gas wells in these areas. Currently, there are approximately 2,800 acres of prairie dog colonies within the available lease area. Although unlikely, most or all of these areas could be stipulated (no surface occupancy) based on known locations of burrowing owl nests. There's also other prairie dog management direction in the LRMP that could affect oil and gas development. This includes a standard in the LRMP prohibiting activities that would alter water flow regimes and flood prairie dog burrows and a guideline that limits road construction in prairie dog colonies.

3.11.2 Environmental Consequences

The predicted direct and indirect effects on oil and gas resources are based on land area available for lease. No surface occupancy stipulations would be applied to known locations of burrowing owl nests in prairie dog colonies. Under Alternative 1, approximately 2,800 acres could be stipulated based on the current distribution and acreage of prairie dog colonies. Under Alternatives 2 and 3, the acres of land potentially stipulated for burrowing owl nests would decrease by 88 and 74 percent, respectively. These same reduction levels would apply to potential limitations on oil and gas development from the standard and guideline limiting new road construction and water discharge (flooding) in prairie dog colonies.

3.12 Short-term Uses and Long-term Productivity

The proposed action could result in annual adjustments in permitted livestock grazing on the national grasslands during droughts to help regulate prairie dog populations and dispersal during drought periods through vegetation management. Also, public use of affected areas may be disrupted during rodenticide applications. All areas where rodenticides are applied would be posted with restricted use pesticide advisory signs, and although public use of affected areas is not prohibited, the signing may discourage some recreation use during the 1 to 2 week period when the areas are posted.

3.13 Irreversible and Irretrievable Commitments of Resources

There are no irreversible and irretrievable commitments of resources as a result of implementation of Alternative 1. There is an expected irretrievable commitment of resources from Alternatives 2 and 3, but not irreversible. Both alternatives propose rodenticide use which would have effects on several species. Chapter 3, Section 3.7 Species at Risk and Section 3.8 Management Indicator Species discusses these effects. Special consideration is given in all alternatives to meeting and exceeding minimum black-footed ferret habitat thresholds on the Buffalo Gap National Grassland in Conata Basin. This would help ensure a high level of probability for long-term persistence of the nonessential experimental ferret population.

3.14 Cumulative Effects

This cumulative effects analysis focuses on the key issues associated with the proposed action of reducing unwanted colonization of prairie dogs on private or tribal lands adjacent to national grasslands. These issues primarily revolve around the effects of lethal management tools, primarily rodenticide, on prairie dog populations and other species closely associated with prairie dogs, especially black-footed ferret and burrowing owl. Environmental effects of applying non-lethal management tools were already disclosed in the LRMP FEIS (Chapter 3 and Appendix H). The social and economic issues are primarily the costs of prairie dog management on both public and adjoining lands and impacts on agricultural production and land values on adjoining lands (see economic analysis).

The geographic scope for this cumulative effects analysis includes the Buffalo Gap, Fort Pierre and Oglala National Grasslands and the adjoining private, tribal and national park lands. This is the most appropriate scale given the key issues associated with this proposed action. For example, this scale is inclusive of the prairie dog colony encroachment issue involving national grasslands and also encompasses the entire Conata Basin black-footed ferret population. Some additional information was available only at the state (Nebraska and South Dakota) level, and this larger scale information helps habitat trend assessment for more mobile wildlife species like burrowing owl. The time frame for this analysis varies, based on the issue.

A variety of human activities and natural events are factors that influence prairie dog populations, colony expansion, and associated species. Many of these activities and events can also affect adjoining landowners, either directly or indirectly. Some of the human activities that influence prairie dog populations and distribution, in addition to rodenticide

use, include livestock grazing practices (vegetation management), prairie dog shooting, and farming (cultivation). Weather (drought) is a natural event that also influences prairie dog colony expansion and establishment rates, which in turn can impact private landowners. Disease can be another factor influencing prairie dog colony expansion and distribution but to date, has not been a factor. Some of these relationships are discussed in more detail in the FEIS and Biological Assessment and Evaluation (Appendix E).

Rodenticide Use

Past and future rodenticide programs on other land jurisdictions add to the effects of the proposed action on prairie dog populations and colony distribution in the vicinity of the project area. For example, approximately 24,250 acres of colonies were reported as treated with rodenticide on private land in the vicinity of the Buffalo Gap National Grassland in 2004 (South Dakota 2005). This was in addition to 6,780 acres that were treated with prairie dog rodenticide on the national grassland in 2004. During the 1970s and 1980s, over 85 percent of the prairie dog colony acreage on the national grassland was treated (USDA Forest Service 1981 and project record). At about the same time, rodenticide was applied to approximately 458,618 acres of colonies on the nearby Pine Ridge Indian Reservation (U.S. Fish and Wildlife Service 2004). Approximately 240,000 acres were re-treated from 1985 through 1986. In regards to future prairie dog rodenticide programs, the Rosebud and Cheyenne River Sioux Tribes recently purchased enough rodenticide to control 16,000 acres of black-tailed prairie dog colonies (Diane Mann-Klager, personal communication). These acreages total approximately 40,000 acres, about 10 percent of the current statewide colony acreage of 412,000 acres.

At a state-wide scale, the Animal and Plant Health Inspection Service (APHIS) has limited information regarding sales of prairie dog rodenticides by their own agency and the State of South Dakota (U.S. Fish and Wildlife Service 2004). Their rodenticide sales information provides only a partial picture of prairie dog rodenticide activities in the region. The South Dakota Department of Agriculture sold approximately 27,000 pounds of zinc phosphide rodenticide in South Dakota and Nebraska in 2000, 43,000 pounds in 2001, 98,000 pounds in 2002, and 135,000 pounds in 2003. At least 16,189 pounds of zinc phosphide rodenticide were purchased from South Dakota and applied in Nebraska in 2002. The above numbers may indicate the potential for impacts to black-tailed prairie dog populations at a statewide scale. If all of the rodenticide purchased in 2003 was applied within the year of purchase at the recommended application rate, approximately 405,000 acres could have been treated that year in South Dakota and Nebraska. The estimated acreage of prairie dog colonies in Nebraska and South Dakota in 2003 was approximately 549,000 acres.

Drought and Markets

Drought results in reduced plant productivity and accelerated expansion and establishment of prairie dog colonies. The combined and cumulative effects of the 2004 drought and related prairie dog colony expansion on livestock forage and crops have also elevated rancher and farmer concerns over prairie dogs in the project area. The long-term depressed farm and ranch economy is also contributing to the increased attention being focused on prairie dogs by landowners and agricultural producers. These are major factors contributing to the increased complaints from landowners about encroachment of prairie dog colonies from national grasslands. These complaints and interest in prairie dog population reductions by

landowners can be expected to continue and may increase if extreme drought conditions continue.

Disease

Plague has never been suspected or confirmed in any prairie dog colonies within the project area, but the potential for plague to occur in the project area cannot be discounted. Plague was confirmed in a prairie dog colony in western Custer County, South Dakota, in September, 2004 near the border of Wyoming and South Dakota. Surveys for additional plague were conducted this last winter in Pennington, Custer, Fall River and Shannon counties with results pending. Prairie dogs are highly susceptible to plague, and it is considered to be a serious threat to the persistence of local prairie dog populations (USDA Forest Service 2001).

Plague is a major factor currently influencing black-tailed prairie dog populations and distribution across much of the range of the species. However, recent information indicates that prairie dog populations are not as vulnerable to the disease as previously thought (U.S. Fish and Wildlife Service 2004). Recent data suggests, in some portions of its range, prairie dog populations affected by plague can recover to near pre-plague population levels within a few years. For example, a 1995 survey across a portion of the Comanche National Grassland indicated approximately 4,500 acres of active prairie dog colonies. A year later in 1996, all of the colonies inspected had experienced total or near total extirpation as a result of a plague epizootic. By 2004, most of the prairie dog populations in these colonies had recovered.

Land Use

Another major factor effecting local and regional prairie dog populations is the conversion of prairie and rangeland to cropland and other uses. The extent of this conversion across the Great Plains is displayed in information presented by Sieg et al. (1999). This information suggests that in the vicinity of the project area, 40 to 60 percent of the rangeland in some areas has been converted to other uses. Although approximately 14.7 million acres of cropland have been enrolled in the conservation reserve program (CRP) on the northern plains (Natural Resources Conservation Service 1996), few of these areas provide suitable habitat for black-tailed prairie dogs.

Prairie dog population declines have also contributed to range reductions of other wildlife species that are closely associated with prairie dog colonies, including black-footed ferret, western burrowing owl, and mountain plover. These species are affected by local and landscape scale changes in the abundance and distribution of prairie dog populations and their colonies. In the vicinity of the project area, rodenticide and rangeland conversion (cultivation) appear to be the major impacts. Reductions in the ranges of these species represents declines in their genetic diversity and therefore in their ability to adapt to environmental change.

Vegetation Management

Management designed to conserve biodiversity depends on habitats and plant communities with varying successional and structural stages, especially at the extremes of the vegetative continuum. LRMP direction prescribes a diversity of habitats with varying successional and structural stages to provide for enhanced biodiversity on the national grasslands. Generally, habitat suitability for prairie dogs and associated species will decline where moderate and

high structure grasslands are desired but will be enhanced where low structure grasslands are prescribed. However, objectives in the LRMP for desired levels of vegetation composition and structure across each national grassland will easily accommodate the current and expected prairie dog populations and colony acreages specified in Table 3-2 for each of the alternatives.

Livestock production from the national grasslands is very important to local agricultural families with national grassland grazing permits. Any increase or decrease in forage for permitted livestock on the national grasslands due to prairie dog management may cause adjustments in herd size or other ranch operations. These adjustments may cause some economic hardship on individual ranches. The effects of any future adjustments in permitted livestock grazing on local economic stability as a result of this proposed action are minor since the proposed action is primarily limited to prairie dog and vegetation management along property boundaries. None-the-less, the Forest Service acknowledges economic impacts to individual private or tribal landowners and managers from prairie dogs and their management.

3.15 Other Required Disclosures

National Environmental Policy Act regulations (40 CFR 1502.25a) directs "to the fullest extent possible, agencies shall prepare environmental impact statements concurrently with and integrated with …other environmental review laws and executive orders." The Forest Service has consulted with the following agencies to ensure compliance with other laws:

- Nebraska and South Dakota State Historical Officers, in accordance with the National Historic Preservation Act (E.O. 11593) for ground disturbing actions in historical places;
- U.S. Fish and Wildlife Service in accordance with ESA implementing regulations for projects with threatened or endangered species;
- Environmental Protection Agency in accordance with the National Environmental Policy Act , 42 U.S.C. 4231, Council on Environmental Quality (CEQ) regulations 40 C.F.R. Parts 1500-1508, and Section 309 of the Clean Air Act (CAA).

The following executive orders and plans have been reviewed for compliance:

Executive Order 12898, Environmental Justice. Executive Order 12898 directs each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

There is no evidence that the effects attributable to prairie dog movement on federal lands, or the actions outlined in these alternatives, are disproportionately high or adverse on minority populations and low-income populations when compared with the effects upon non-minority or non-low-income populations. A detailed effects analysis can be found in the project record.

Executive Order 11990, Protection of Wetlands. Executive Order 11990 directs agencies to avoid to the extent possible the long and short-term adverse impacts associated with the

destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Known major wetland areas (as defined in Sec 6., (c)), have been protected or managed specifically for the protection of wetland resources in past management strategies. There is no evidence that the effects attributable to prairie dog management on national grasslands or the actions outlined in any alternative, would impact wetlands.

Executive Order 11988, Floodplain Management. Executive Order 11988 directs agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This proposed action or the activities prescribed in any alternative do not modify or develop floodplains.

Nebraska National Forest Land and Resource Management Plan. Appendix I identifies the LRMP direction related to black-tailed prairie dog management activities. Alternative 2 and Alternative 3 (preferred) are compared to this direction for consistency. Where direction is not being met under Alternative 2 or 3, direction is proposed to be deleted or revised under an amendment to the LRMP. This proposed amendment and associated changes can be found in Appendix C. Alternative 1 is the no action alternation and therefore is meeting current LRMP direction.

South Dakota Black-Tailed Prairie Dog Conservation and Management Plan. The Forest Service has reviewed the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan (State Plan) in response to the direction stated in the 2002 ROD for the Land and Resource Management Plan (LRMP).

The South Dakota State Plan is organized by objectives and strategies. These items were reviewed by and responded to by the Forest Service and can be found in Appendix H. The Forest Service's response gives concurrence or non-concurrence and rational and/or discussion (where needed) to each of these items either directly or through this FEIS and/or associated Record of Decision (ROD).

CHAPTER 4. LISTS: INCLUDING LIST OF PREPARERS AND DOCUMENT RECIPIENTS

4.1 Contributors

The following people were contributors in the preparation of this final environmental impact statement. We would like to acknowledge the following individuals for their efforts and assistance in developing the Draft and Final EIS: **Administrative Record and associated duties**: Marsha Fish and Carla Loop. **Content Analysis Team**: Jeana Lam-Pickett, Tom Geiser, Charon Geigle, Jan Stojohann, Dennis Pry, Bill O'Dea, Bob Novotny, Jennifer Lemmon, and Ed Welsh. **Content Analysis Team Support**: Marsha Fish, Laura Koenig, Lara Daily, Carla Loop. **Printing and Mailings**: Helen Kent, Laura Koenig, Carla Loop, and Marsha Fish. **Artistic talent and contributions of artwork**: Lynn Hetlet. **Regional Office Review and Support**: Nancy Warren, Joan Friedlander, Peter McDonald, Ken Capps, Dan Nolan, Jerry Freeouff, and Mike Retzlaf.

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Weisbeck, Tonya Rangeland Management Specialist	Education: B.S. Environmental Management, South Dakota State University; B.S. Biology (minor in Chemistry), University of Nevada, Las Vegas	Professional Experience: 7 years experience including Interdisciplinary Range/Wildlife, US Forest Service, Nebraska National Forest (Pierre and Wall, SD); Prior experience as Range Technician, US Forest Service, (Wall, SD); and Senior Field Wildlife Biologist, Southern Nevada Environmental, Las Vegas, NV.

4.2 Distribution List

The DEIS was made available for review to the following Federal agencies and elected officials, federally recognized tribes, State and local governments and elected officials, organizations, and other individuals.

Federal Agencies and Elected Officials
Advisory Council on Historic Preservation
Animal and Plant Health Inspection Service, Wildlife Service
Badlands National Park
Bureau of Land Management
Environmental Protection Agency
Federal Aviation Administration
Federal Highway Administrator (Nebraska & South Dakota)
Fortenberry, Jeff, Nebraska, United States Representative
Hagel, Chuck, Nebraska, United States Senator
Herseth, Stephanie, South Dakota, United States Representative
Johnson, Tim, South Dakota, United States Senator
LaCreek National Wildlife Refuge
National Agricultural Library
Natural Resource Conservation Service
Nelson, Ben, Nebraska, United State Senator

Office of Environmental Policy & Compliance, Department of Interior
Osborne, Tom, Nebraska, United States Representative
Thune, John, South Dakota, United States Senator
U.S. Army Engineers, Northwestern Division
U.S. Coast Guard, Environmental Impact Branch
U.S. Department of Energy
U.S. Fish and Wildlife Service, Department of Interior

State Agencies and Elected Officials
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Baron, Leland, South Dakota Office of Water Quality
Carlson, Merlyn, Nebraska Department of Agriculture
Cooper, John, South Dakota Department of Game, Fish & Parks
Daugaard, Dennis, Lieutenant Governor of South Dakota
Dunn, LouAnn, South Dakota Animal Industry Board
Duxbury, Alexis, North Dakota Department of Game and Fish
Gabriel, Larry, Secretary, South Dakota Department of Agriculture
Gale, John, Secretary of State, Nebraska
Garnos, Cooper, South Dakota House of Representatives
Gray, Bob, South Dakota Senate
Healey, Bryce, South Dakota School and Public Lands
Heineman, David, Governor of Nebraska
Howie, Gordon, South Dakota House of Representatives
Jensen, Barry, South Dakota House of Representatives
Koskan, John, South Dakota Senate
Landguth, Dennis, South Dakota Department of Transportation
Lintz, Jim, South Dakota Senate
Louden, LeRoy, Nebraska Senate
Olson, Ryan, South Dakota House of Representatives
Patterson, Roger, Director, Nebraska Natural Resource Department
Pederson, Gordon, South Dakota House of Representatives
South Dakota Environmental and Natural Resources Department
Rounds, Michael, Governor of South Dakota
Rounds, Tim, South Dakota House of Representatives
Sattgast, Rich, South Dakota State Auditor
South Dakota Archeological Research Center
South Dakota Association of Conservation District
South Dakota Department of Tourism and State Development
Two Hawk, Webster, Tribal Government Relations Office for State of South Dakota
West River Agricultural Center, South Dakota Cooperative Extension District

County, City, Local Governments and Elected Officials
Black Hills Resource Conservation & Development
Blaine County Commissioners, Nebraska
Cherry County Commissioners, Nebraska
Custer County Commissioners, South Dakota
Dawes County Commissioners, Nebraska
Dawes County Extension Service, Nebraska

Eastern Pennington Conservation District
Fall River County Commissioners, South Dakota
Hughes County Commissioners, South Dakota
Jackson County Commissioners, South Dakota
Jones County Commissioners, South Dakota
Lyman County Commissioners, South Dakota
Pennington County Commissioners, South Dakota
Sioux County Extension, Nebraska
Sioux County Commissioners, Nebraska
Stanley County Commissioners, Nebraska
Thomas County Commissioners, Nebraska
Upper Niobrara White Natural Resources District, Nebraska

American Indian Organizations
Cheyenne River Sioux Tribe
Cheyenne/Arapahoe Tribes of Oklahoma
Crow Creek Sioux Tribe
Eastern Shoshone Tribe
Flandreau Santee Sioux Tribe
Grey Eagle Society
Kiowa Ethnographic Endeavor for Preservation
Lower Brule Sioux Tribe
Northern Arapaho Business Council
Northern Cheyenne Tribe
Omaha Tribe of Nebraska
Oglala Sioux Tribe
Ponca Tribe of Nebraska
Rosebud Sioux Tribe
Santee Sioux Nation
Sisseton-Wahpeton Sioux Tribe
Southern Arapahoe Tribe
Southern Cheyenne Tribe
Spirit Lake Sioux Tribe
Standing Rock Sioux Tribe
Three Affiliated Tribes
Winnebago Tribal Council
Yankton Sioux Tribe

Others:
Approximately 2,000 organizations, media, individuals were sent an executive summary and notification of the DEIS availability.

CHAPTER 5. RESPONSES TO COMMENTS

The Draft EIS was released for a 45-day comment period on March 4, 2005. Fourteen thousand, three hundred twenty-seven (14,327) letters and emails were received by the end of the comment period on April 18, 2005. Each letter or email was assigned a unique number and logged into a database for future reference and retrieval. Copies of all comment letters are in the Administrative Record and are available for review at the Supervisor's Office in Chadron, Nebraska.

Comment Analysis

A team was assembled and trained to properly identify and code substantive comments in each comment letter. Original comments were entered verbatim into a database (spreadsheet) along with a unique letter number and other information. Comments that were duplicated in form letters were entered into the database once. The database was then reviewed by EIS team members and line officers, and then, to the extent possible, team members consolidated comments and prepared responses for review by the deciding officer (see Section 5.2).

5.1 List of Agencies, Organizations, and Individuals that Commented on the Draft Environmental Impact Statement

This section includes a list of agencies, organizations, and individuals that commented on the DEIS during the public comment period. A letter tracking number has been assigned to each submitted letter received within the comment period. Some letters were received after the 45-day comment period and were not assigned a tracking number. All letters received were read and considered, however, the authors of those received after the comment period do not have eligibility to appeal the decision.

Since the vast majority of the comment letters received on the DEIS were form letters of primarily three varieties, the comments contained within the form letters were coded once. Nearly 500 original comments were coded individually.

The following lists are those entities and individuals that have provided comment letters to the Draft EIS. The following section (5.2) contains the Interdisciplinary Team's responses to those comments.

Name and Letter Number:

Abbott, Jennifer, 195
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Almaraz, Andre, 169
Anderson, Anne, 727
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The Humane Society of the United States, 9745

Federal Agencies and Elected Officials:
United States Environmental Protection Agency, Region VII, 7734
USDA, Animal and Plant Health Inspection Service, 9746
USDI, Office of Environmental Policy and Compliance, 11443
Thune, Honorable John, Senator – South Dakota, (no letter number, received after comment period)

State Agencies and Elected Officials
Amack, Rex, Director, Nebraska Game and Parks Commission, 39
Cooper, John, South Dakota Game, Fish, & Parks Department, 4355
Gabriel, Larry, Secretary, South Dakota Agriculture Department, 4355
Vogt, Lyndon, Upper Niobrara White NRD, 7731
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County, City, Local Government and Elected Officials
Kling, Kim W., Butte County Commissioners, 4305
Custer County Commissioners, 4303
Dawes County Commissioners, 7728
Fall River County Commissioners, 130
Jackson County Commissioners, 4306
Mallow, Robert, Meade County Commission, 9739
Kjerstad, James, Pennington County Commissioners, District 4, 4304
Sioux County Commissioners, 4302

American Indian Organizations
None received.

5.2 Responses to DEIS Comments

COMMENTS RELATED PRIMARILY TO BOUNDARY MANAGEMENT ZONES

COMMENT 1: Boundary management zones need to be 1-mile wide to comply with the South Dakota Prairie Dog Conservation and Management Plan.

RESPONSE: In the 2002 Record of Decision for the Revised Land and Resource Management Plan (LRMP), the Forest Supervisor made a commitment to implement the Nebraska and South Dakota state-wide prairie dog conservation plans, to the extent allowable by law and policy, in providing direction for the control of unwanted colonization of prairie dogs onto private lands. In accordance with NEPA, a range of alternatives was developed and considered. Boundary management zones 1 mile in width were a component of Alternative 2. Alternative 3 was developed to respond to public scoping comments and to better achieve the multiple use objectives set forth in the revised LRMP, including the objective to maintain prairie dog populations and colonies on the Fort Pierre and Oglala National Grasslands.

COMMENT 2: Boundary management zones need to be prairie dog free.

RESPONSE: Neither Alternative 2 or 3 in the EIS or the South Dakota prairie dog plan call for a prairie dog free zone. Instead, each landowner complaint will be evaluated on-the-ground and appropriate action taken to address valid encroachment issues. There will likely be some prairie dog colonies in boundary management zones that are not encroaching onto private land and will not be treated with rodenticide.

COMMENT 3: Boundary management zones that are 1-mile wide are extreme and would result in near eradication of prairie dogs on some areas.

RESPONSE: For the analyses in the EIS, we assumed all prairie dog colonies in boundary management zones would eventually be treated with rodenticide. Under this assumption, prairie dogs on the Fort Pierre and Oglala National Grasslands would largely be extirpated under the 1-mile boundary management zone prescribed in Alternative 2. (Also see response to Comment 1)

COMMENT 4: The 1-mile wide exception to the 0.25 and 0.5 mile boundary management zones under Alternative 3 is simply a loophole. Please be more specific and give examples of conditions warranting the exception.

RESPONSE: We disagree. As prescribed in the EIS, use of the 1-mile exception will require additional public notice and environmental analysis. An example of where this exception might be applied is a location where rapid prairie dog population recovery after rodenticide application can be expected because of close proximity of numerous active colonies.

COMMENT 5: Rodenticide should be applied to every prairie dog colony greater than 50 acres in size, regardless of the boundary management zone.

RESPONSE: None of the alternatives considered in the EIS use colony size as a criterion for rodenticide use. Rodenticide use in a colony that is encroaching on adjoining land would be considered whether the colony is more or less than 50 acres in size.

COMMENT 6: Boundary management zones should be applied around state school sections.

RESPONSE: The 2002 Multi-State Conservation Plan for the Black-tailed Prairie Dog identified the need to integrate management programs of state and federal agencies and Native American tribal governments. Similarly, the South Dakota Prairie Dog Conservation and Management Plan considered all ownerships as potentially contributing to achieving and maintaining the state-wide colony acreage goal. Furthermore, there are many areas where no significant colony encroachment is occurring or expected on state school lands. An example is state school lands adjacent to the Oglala National Grassland in Nebraska.

COMMENT 7: Boundary management zones and rodenticide should only be considered during drought conditions.

RESPONSE: This strategy was initially considered by the EIS team. However, such a strategy could likely result in more rodenticide use over the long-term, rather than less. By

implementing strategic management earlier, future encroachment issues and the amount of annual rodenticide use would likely be reduced.

COMMENT 8: A boundary management zone that requires destruction of adjoining lands as a prerequisite for rodenticide use does not meet the intent of a "good neighbor policy."

RESPONSE: Alternative 3 provides for rodenticide use if encroachment has not yet occurred but is likely within the next year or two.

COMMENT 9: Boundary management zones will be ineffective if prairie dog colonies in interior areas are not treated with rodenticide. Interior colonies are the heart of the problem.

RESPONSE: The Forest Service recognizes that prairie dogs disperse from interior as well as boundary colonies and that management of interior colonies is an important component of a comprehensive prairie dog conservation and management strategy. However, the scope of this EIS and decision is limited to colony encroachment along boundaries. Issues regarding management of interior colonies are very complex and would take considerable additional time to evaluate and collaborate with interested agencies, organizations and individuals.

COMMENT 10: Please disclose the acres of boundary management zone in each management area prescription and evaluate the impacts of the boundary zones on achievement of management area objectives.

RESPONSE: Management areas within national grasslands and forests are prioritized for a particular emphasis or theme. There are 15 management areas listed in Chapter 3 of the revised LRMP. However, only the 3.63 management area prescription for black-footed ferret reintroduction habitat includes LRMP direction that applies specifically to prairie dogs or their management. As a result, there's no reason to address the other 14 management area prescriptions.

COMMENT 11: There is no scientific basis demonstrating effectiveness of boundary management zones of any width.

RESPONSE: We are uncertain whether the comment is referring to the effectiveness of boundary management zones in addressing the issue of encroachment of individual colonies onto adjoining lands or individual prairie dogs dispersing from national grassland colonies to other existing (or newly established) colonies on adjoining lands. Colony encroachment and prairie dog dispersal are two very different issues, and this EIS and decision addresses colony encroachment issues. Responding to prairie dog dispersal issues is more difficult and problematic since research has demonstrated that prairie dogs can successfully disperse over several miles. Whether there's a 1-mile or quarter mile zone, some prairie dogs will likely succeed in dispersing across these areas, albeit fewer would probably succeed across the wider boundary management zones.

Uses of both lethal and non-lethal tools in boundary management zones are prescribed in the EIS, and there is scientific information available that demonstrates the effectiveness of rodenticide and vegetation management in managing prairie dog populations.

COMMENT 12: Replace the boundary management zone approach with a requirement to develop site-specific management plans.

RESPONSE: This EIS contains site-specific analyses of the expected effects under each alternative. Also, an on-site evaluation of each encroachment complaint is prescribed under Alternatives 2 and 3, and a management strategy will be determined for each valid complaint. With or without boundary management zones, a site-specific strategy would have to be developed to help ensure short and long-term management effectiveness.

COMMENTS RELATED PRIMARILY TO PRAIRIE DOG MANAGEMENT TOOLS

COMMENT 13: The use of rodenticide is cruel and unnecessary.

RESPONSE: The Forest Service is also concerned about animal welfare and recognizes that lethal animal damage control methods such as shooting and rodenticide are controversial. However, to respond effectively and in a timely manner to encroachment issues usually requires the use of lethal measures, primarily rodenticide. Non-lethal measures such as vegetation management provide long-term, not short-term or immediate results, and by proposing concurrent use of non-lethal management tools, the Forest Service will reduce the amount of lethal measures needed in the future.

COMMENT 14: Use of rodenticide is a concern because of environmental contamination and risks to people and non-target wildlife species. Risk of aquatic contamination from zinc phosphide rodenticide should be included in the EIS.

RESPONSE: The Forest Service will closely monitor rodenticide application to help ensure that the toxicant is applied according to label specifications. The use of rodenticide and their effects on threatened, endangered and Forest Service sensitive species are analyzed in the EIS and documented in detail in Appendix E of the DEIS and FEIS. Discussion was added to the EIS on the risks of contamination to aquatic habitats and organisms.

COMMENT 15: Lethal management tools and boundary management zones foreclose on black-footed ferret recovery opportunities.

RESPONSE: We disagree. Provisions included under all the alternatives provide for attainment of the black-footed ferret recovery objectives specified in the 1994 Record of Decision and black-footed ferret reintroduction EIS and the 2002 Record of Decision and revised LRMP. The compatibility of this proposed action with black-footed ferret recovery is evaluated and documented in detail in Appendix E of the DEIS and FEIS.

COMMENT 16: Rodenticide should only be used after other management tools have been evaluated and determined to be ineffective and only after consultation with the U.S. Fish and Wildlife Service.

RESPONSE: As discussed in our response to Comment 13, non-lethal tools like vegetation management take time to work. To respond effectively and in a timely manner to encroachment issues usually requires the use of lethal measures. We acknowledge that in

some cases, the possibility of a successful landownership adjustment might circumvent the need to use lethal management measures, but generally, landownership adjustments are also considered long-term rather than immediate solution to encroachment issues.

COMMENT 17: The Forest Service should be liable for damage on private property if they wait until colonies encroach on adjoining lands before using rodenticide.

RESPONSE: According to a Memorandum Opinion from United States District Court, District of South Dakota, Western Division, regarding Civil Case 80-5070 (American Farm Bureau Federation, et al. vs. John R. Block et al), the Forest Service is not legally responsible for damage caused by prairie dogs and is not liable for money damages.

COMMENT 18: It may take multiple rodenticide applications to prevent prairie dog populations from recovering in treated colonies.

RESPONSE: We concur and this is taken into account in the rodenticide use estimates disclosed in Table 3-2 in the EIS and in the cost estimates for rodenticide use in Appendix D of the FEIS.

COMMENT 19: Periodic use of rodenticides can actually help maintain the long-term health of prairie dog colonies and associated wildlife populations.

RESPONSE: We agree that this might be possible However, the scope of this decision is limited to addressing unwanted colonization by prairie dogs, and use of rodenticide in the manner suggested was not considered or analyzed in this EIS.

COMMENT 20: Rodenticide should be applied to all prairie dog colonies within a quarter mile of county roads.

RESPONSE: We acknowledge that this might further reduce prairie dog dispersal, but the scope of this EIS and decision is limited to encroachment of individual colonies onto adjoining lands.

COMMENT 21: Rodenticide should be applied to centers of colonies to prevent colony expansion and to increase the effectiveness of boundary management zones.

RESPONSE: When a decision is made to apply rodenticide to an encroachment colony within the boundary management zone, the entire colony, not just the center, will likely be treated.

COMMENT 22: Use of rodenticide on the national grasslands before October 1 should be allowed.

RESPONSE: To reduce primary poisoning risks to sensitive bird species, as well as other migratory birds, the LRMP provides direction that defers rodenticide applications until October 1. In this manner, most of the migratory birds have migrated out of the area and are not present to ingest grain bait during rodenticide applications. Use of rodenticide prior to October 1 would have unacceptable impacts on non-target wildlife and therefore was not considered in this EIS.

COMMENT 23: Adjoining landowners should be able to apply rodenticide on national grassland colonies within boundary management zones.

RESPONSE: All use of pesticides on national grasslands and forests has to be evaluated and approved by the Forest Service (Forest Service Manual 2150). It also has to meet all pesticide label and application requirements of the Environmental Protection Agency and state agencies.

COMMENT 24: Decisions regarding use of rodenticide in complaint areas, including along private inholdings and small isolated tracts, should be made through consensus by officials of the Forest Service, South Dakota Departments of Agriculture and Game, Fish and Parks, affected counties and landowners. This should apply to black-footed ferret habitat as well.

RESPONSE: Encroachment complaints involving private inholdings and small isolated tracts outside Conata Basin will be considered. Incentives and land exchanges will continue to be emphasized for the few tracts in Conata Basin. As indicated in the EIS, the Forest Service makes the final decision regarding the site-specific management strategies to be applied to national grassland colonies in boundary management zones. This will involve coordination with the affected landowner(s), and the Forest Service will consider input from state and county officials as well, as described in Appendix B.

COMMENT 25: Rodenticide use should be restricted if whooping cranes are observed in an area and should not be resumed until the whooping cranes move out of the area.

RESPONSE: This has been added as a conservation measure common to all alternatives in Section 2.2.5 of the EIS.

COMMENT 26: Burrow fumigants should be allowed on the national grasslands as a prairie dog management tool.

RESPONSE: To reduce risks to non-target wildlife species, use of burrow fumigants was prohibited by direction in the revised LRMP.

COMMENT 27: Vegetation management fencing will be ineffective in managing prairie dog colonies and in reducing colony encroachment on adjoining lands.

RESPONSE: We do not imply that any of the prairie dog management tools, including rodenticide, are 100% effective. However, the Forest Service has information and photographical records that demonstrate a high level of effectiveness of relatively tall and dense vegetation reducing encroachment and establishment of new colonies. Therefore, we believe that vegetation management can substantially increase the long-term effectiveness of rodenticide applications and reduce the extent and frequency of follow-up rodenticide treatments. The Forest Service also acknowledges vegetation management may be less effective during extreme drought years and on some of the less productive range sites.

COMMENT 28: Vegetation management fencing is expensive and who's going to pay for it? Conservation practices funds should not be used for prairie dog management.

RESPONSE: Yes, costs to construct vegetation management fencing are expensive, but rodenticide applications are also expensive. Vegetation management should help reduce the extent and frequency of future re-applications of rodenticide, thereby reducing long-term costs of repeated rodenticide applications.
In response to concerns expressed about the costs and effectiveness of vegetation management fencing, we have reduced our original projections of the amount of future fencing and will be more selective in where it is applied.

Regarding use of conservation practices funds for prairie dog management, the Forest Service's Grazing Permit Administration Handbook (FSM 2209.13) clearly provides for use of these funds to implement any land use practices needed to achieve desired resource conditions as described in land and resource management plans and project-level decisions.

COMMENT 29: Livestock grazing is a traditional and historic use of national grasslands and should not be reduced for prairie dog management purposes.

RESPONSE: The Forest Service recognizes the importance and significance of multiple uses, including livestock grazing, on the national grasslands and forests. In fact, the Forest Service is mandated by Congress to manage for multiple uses, and in some cases, this results in the need to make adjustments in some uses to accommodate others. At the same time, we need to be as cost effective as possible in the long-term in responding to colony encroachment issues, and this includes concurrent use of rodenticide and vegetation management. Vegetation management along boundaries may require adjustments in livestock grazing.

COMMENT 30: Livestock grazing on national grasslands in chronic colony encroachment areas should be stopped until sufficient vegetative structure has developed.

RESPONSE: The Forest Service will use livestock grazing as a tool to help manage prairie dog populations in encroachment complaint areas. However, the most appropriate strategies will be determined when the on-the-ground site-specific evaluations are completed.

COMMENT 31: Vegetation management fencing and associated reductions in permitted livestock grazing are not appropriate in national grassland areas with a range management emphasis (Management Area 6.1).

RESPONSE: There is no direction or guidance described in Chapter 3 of the revised LRMP that would indicate that vegetation management and adjustments in livestock grazing would be inappropriate under Management Area 6.1.

COMMENT 32: The potential to use livestock grazing to facilitate immediate or rapid re-colonization of prairie dogs in colonies treated with rodenticide needs to be considered.

RESPONSE: When a decision is made to use rodenticide in a prairie dog colony that is or about to encroach on adjoining lands, our intent will be to discourage, not encourage, prairie dog population recovery in the colony.

COMMENT 33: The proposal to amend the F-2 LRMP Standard regarding livestock grazing modifications during drought should be dropped and remain a standard, not a guideline.

RESPONSE: This standard will not be changed to a guideline.

COMMENT 34: The Forest Service allowed overgrazing in Conata Basin by both prairie dogs and livestock during the recent drought, which further exacerbated the effects of the drought. Now, there may be a larger reduction in livestock grazing.

RESPONSE: The 2004 drought in Conata Basin was extreme and significantly affected forage availability for both prairie dogs and permitted livestock. This could result in a need to further modify grazing levels as specified in annual operating plans.

COMMENT 35: Effects of livestock grazing and management during drought on vegetation and prairie dog dispersal and colony expansion need to be considered.

RESPONSE: The potential effects of drought have been adequately considered and evaluated in Chapter 3 of the EIS.

COMMENT 36: The Forest Service has the authority to reduce livestock grazing as a prairie dog management tool, but there's no record of the agency ever using this tool. Reductions in livestock grazing in those areas where complaints have been filed should be mandatory.

RESPONSE: Significant adjustments in livestock grazing to facilitate the long-term effectiveness of prairie dog management have been made in Conata Basin. This is discussed in Section 3.6.1 of the EIS. Under both Alternative 2 and 3, each landowner complaint will be evaluated on-the-ground and appropriate action taken to address verified encroachment.

COMMENT 37: There's a double jeopardy in effect. If livestock grazing permittees complain about prairie dogs, the Forest Service may construct vegetation management fencing and reduce livestock grazing. Either way, permittees lose livestock forage to prairie dogs or to vegetation management fencing.

RESPONSE: We acknowledge the potential loss of livestock forage. It will be necessary for the Forest Service to use both lethal and non-lethal management tools to achieve the desired conditions and overall multiple use objectives specified in the LRMP.

COMMENT 38: Stocking rates for livestock in Conata Basin were reduced in 1978. Prairie dog populations have not been reduced and should be reduced now.

RESPONSE: Alternatives 2 and 3 call for reductions in prairie dog populations in boundary management zones. It is acknowledged that prairie dog populations in most interior colonies will likely expand in the future over current levels, but use of rodenticides in these areas is outside the scope of this decision. Current direction provides for use of non-lethal tools in interior and boundary areas to help slow the rate of future prairie dog colony expansion, but some expansion in these colonies is still expected.

COMMENT 39: The Forest Service has not provided a comparison of direct costs of the various alternatives or provided an alternative that looks at various combinations of poisoning and grazing management that would reduce or eliminate future rodenticide costs.

RESPONSE: We disagree. The three alternatives clearly include different combinations of lethal and non-lethal management tools, and Appendix D in the EIS provides cost estimates for implementing each alternative.

COMMENT 40: There is substantial evidence from the historical record that using rodenticide without also managing livestock grazing will only result in future prairie dog encroachment and more poisoning (Forrest and Luchsinger, in press). Unless livestock grazing management is made an explicit part of the individual site plans described under the proposed alternative, annual rodenticide use will continue to be needed into the foreseeable future.

RESPONSE: We believe there will likely be encroachment and a need for rodenticide use in the future, with or without integrated livestock grazing and vegetation management. The question is how much encroachment and subsequent rodenticide use will occur in the future. If livestock grazing and vegetation management is successfully integrated with rodenticide use, the rate of prairie dog population recovery in colonies treated with rodenticide and the annual expansion rate of active colonies in boundary management zones will be reduced. The rate of establishment for new colonies in boundary management zones will also be reduced, and when combined, these factors should reduce future rodenticide use. In the long run, use of other non-lethal methods such as land ownership adjustments are also expected to reduce the need for rodenticide.

COMMENT 41: Livestock grazing adjustments are real long-term solutions for reducing encroachment, yet more NEPA is required to make those adjustments. Yet, shooting and live-trapping can be done without any additional NEPA. Why?

RESPONSE: Appendix B provides the project level implementation criteria under each Alternative to determine when decisions by the Forest Service concerning various management actions, including prairie dog shooting or live-trapping, may or may not require NEPA procedures. Livestock coordination through annual operating instructions may not require additional NEPA procedures. Additional site-specific analysis will be necessary to conduct allotment management planning.

COMMENT 42: Shooting can be used as a tool to help manage prairie dogs and, at the same time, contribute to the local economy. Shooting should be allowed in Conata Basin.

RESPONSE: The management priority on the national grasslands in Conata Basin is black-footed ferret recovery and not economic development. However, Alternative 2 and 3 provide some opportunity for closely regulated shooting in boundary management zones in Conata Basin. The primary purpose of the shooting would be as a tool to help slow expansion of colonies that could eventually expand across property boundaries.

COMMENT 43: All of the national grasslands, including black-footed ferret habitat, should be open to recreational prairie dog shooting.

RESPONSE: As stated in the EIS, the Forest Service defers to the state regarding regulation of prairie dog shooting outside black-footed ferret reintroduction habitat. Under Alternatives 2 and 3, the current Forest Service shooting restrictions in the Conata Basin black-footed ferret habitat are modified to include the opportunity for some regulated prairie dog shooting in boundary management zones.

COMMENT 44: There is no evidence that prairie dog shooting can be effective in reducing colony encroachment on adjoining lands.

RESPONSE: There is some research indicating that prairie dog shooting can reduce prairie dog densities within colonies. Reduced prairie dog densities within colonies could result in reduced annual expansion rates and encroachment on adjoining lands, but to our knowledge, this has not been confirmed through research. This is acknowledged in the analysis of effects presented in Chapter 3 of the FEIS.

COMMENT 45: Prairie dog shooting is inhumane.

RESPONSE: (See response to Comment 13)

COMMENT 46: Lead fragments from prairie dog shooting pose risks of environmental contamination and poisoning of prairie dog scavengers and predators, including black-footed ferrets.

RESPONSE: These risks are evaluated and disclosed in Appendix E of the DEIS and FEIS.

COMMENT 47: Shooting scares prairie dogs and makes them more difficult to observe.

RESPONSE: Shooting does appear to make prairie dogs more wary of humans. However, there are colonies within Conata Basin and the nearby Badlands National Park where shooting is prohibited.

COMMENT 48: The Forest Service should restrict prairie dog shooting in areas other than just black-footed ferret habitat.

RESPONSE: The Forest Service defers to the state wildlife management agencies regarding shooting outside designated black-footed ferret reintroduction habitat.

COMMENT 49: Prairie dog shooting restrictions as prescribed for the Smithwick black-footed ferret habitat in the revised LRMP should be implemented.

RESPONSE: Shooting restrictions would be implemented when progress is made in initiating a cooperative ferret reintroduction plan. This is one of the changes proposed under Alternatives 2 and 3 in Appendix C of the EIS.

COMMENT 50: The Forest Service fails to describe how it would manage or regulate prairie dog shooting in selected areas.

RESPONSE: This is discussed in Sections 2.2.2 and 2.2.3 of the EIS for Alternatives 2 and 3, respectively.

COMMENT 51: The Forest Service is helping reduce prairie dog populations on adjoining private lands which, in turn, will funnel more prairie dog shooters to public lands. Ecological values associated with prairie dog colonies should be the priority on public lands, not recreational prairie dog shooting.

RESPONSE: We agree that ecological values associated with prairie dog colonies are important, but we are unable to predict how the reductions in prairie dog colony acreages on national grasslands in boundary management zones and the possible acreage reductions on adjoining private and tribal lands will affect the number and distribution of shooters.

COMMENT 52: There's no data presented that suggests lethal methods are necessary and sufficient to address complaints from adjacent landowners.

RESPONSE: Rodenticide applications to label specifications usually result in 90% or more reduction in prairie dogs. However, depending on the proximity of other active prairie dog colonies, prairie dog populations in treated colonies may recover to near pre-treatment levels in 3 or 4 years (breeding seasons). This may require a re-application of rodenticide. When vegetation management is applied in addition to rodenticide, re-population rates are typically reduced, thereby extending the life of the rodenticide treatment.

COMMENT 53: Where would live-trapped prairie dogs be released?

RESPONSE: They would be released only in interior areas of national grasslands away from private and tribal lands. The amount of live-trapping and re-location is anticipated to be minimal.

COMMENT 54: Why is there less live-trapping of prairie dogs under Alternative 2 than 3?

RESPONSE: Rodenticide use is expanded under Alternative 2 and the need or opportunity for the more expensive live-trapping is reduced.

COMMENT 55: Costs for live-trapping prairie dogs should include costs for evaluating the suitability of the release sight.

RESPONSE: Costs are not presented in Appendix D for live-trapping because its use will likely be minimal and difficult to quantify at this time.

COMMENT 56: Site specific plans, outlining how lethal and non-lethal management tools will be applied, should be prepared for each complaint area within boundary management zones. Rodenticide should not be considered or applied until site specific plans are completed.

RESPONSE: This EIS contains site-specific analyses of the expected effects under each alternative. Under Alternatives 2 and 3, each complaint will also receive an on-site evaluation to determine the validity on the complaint and to identify the appropriate management tools and strategy for the site.

COMMENT 57: Reference is made in the EIS to "rapid assessments" for landownership adjustment opportunities. A definition for "rapid assessment" would be helpful and should be included in the glossary.

RESPONSE: In this EIS, it simply means that a quick feasibility analysis would be done by looking at the intermingled distribution of national grassland parcels and properties owned by the respective landowner. The extent of intermingling may suggest the possibility of a landownership adjustment, if the landowner is willing to consider an exchange.

COMMENTS RELATED PRIMARILY TO FERRETS AND BIODIVERSITY

COMMENT 58: The LRMP establishes black-footed ferret recovery as the top priority in Conata Basin, and management should be designed to exceed, not just meet, minimum habitat thresholds. This area is extremely important to the national ferret recovery program because of the absence of plague.

RESPONSE: The minimum habitat threshold is set at the level believed necessary to support a self-sustaining ferret population. It does not represent a marginal level of habitat suitability for black-footed ferrets.

COMMENT 59: Black-footed ferrets should not be removed and relocated from Conata Basin to other reintroduction areas if it causes minimum thresholds not to be met and results in subsequent reductions in rodenticide use.

RESPONSE: The minimum thresholds described under Alternatives 2 and 3 are habitat thresholds, not population thresholds. Decisions to remove kits from the Conata Basin experimental ferret population for relocation to other reintroduction sites are made by the U.S. Fish and Wildlife Service, not the Forest Service, and do not affect habitat thresholds.

COMMENT 60: More information is needed on why the 5,130 acres of the Conata Basin black-footed ferret reintroduction habitat is being reallocated to Management Area 6.1. For example, what are the current and potential prairie dog colony acreages in this area? Why was M.A. 6.1 chosen over other management prescriptions?

RESPONSE: The reason for the change in management area prescription for this area is explained in Section 2.2.3 of the EIS. There was approximately 308 acres of prairie dog colonies in the affected area in 2004. The potential prairie dog acreage is approximately 2,500. M.A. 6.1 was chosen as the alternative prescription because this area is similar to the adjoining areas and allocating the entire area to MA 6.1 will provide for more effective management of this portion of the national grassland.

COMMENT 61: Too much emphasis is being placed on the Liveri and Perry 2005 report. This report is not based on years of research and more information is needed. It's possible that a smaller more dispersed prairie dog population would be better for ferrets, wildlife and cattle grazing.

RESPONSE: It is the best information currently available, and in our opinion, we are fortunate to have this level of information to help guide the ferret recovery program in Conata Basin.

We are unaware of any scientific evidence supporting smaller and more dispersed prairie dog populations benefiting ferrets and wildlife. A top ferret expert suggests that ferrets may suffer the following consequences as prairie dog colonies become smaller and their spacing more distant: (1) a reduction in gene flow, (2) a decreased ability to recolonize prairie dog colonies vacated due to stochastic events, (3) a decrease in their ability to disperse to new colonies following initial reintroduction or to colonize newly established colonies, and (4) a lowered mating success.

The management direction applicable to MA 3.63 that was established in the 2002 LRMP is not within the scope of this decision.

COMMENT 62: The unique value of the Conata Basin area for black-footed ferret recovery and the considerable public and private funds that have supported the reintroduction program should not be compromised.

RESPONSE: The Forest Service recognizes the substantial contributions to the ferret recovery effort from multiple conservation agencies, private organizations and individuals. As the land and resource management agency for this area, the Forest Service also has a substantial investment in the recovery program and remains fully committed to see this program succeed. A major factor in determining the long-term success of this program will be the acceptance by the landowners who have lands intermingled with the public lands in Conata Basin. This proposed action is our response to the landowners concerns about prairie dog encroachment on their lands in this area, which may be in the best long-term interest of the ferret recovery program.

COMMENT 63: Before going any further, the Forest Service should contact the adjoining landowners to see if the Smithwick area of the Buffalo Gap National Grassland is a viable black-footed ferret reintroduction site.

RESPONSE: The Smithwick area has already been allocated as black-footed ferret reintroduction habitat in the recently revised LRMP. Revision of the LRMP involved a major public involvement effort. Any additional actions related to prairie dog shooting or black-footed ferret reintroduction in this area will be deferred until progress is made initiating a cooperative ferret reintroduction plan for the area, and this will give the adjoining private landowners an opportunity for involvement and participation.

COMMENT 64: Ferrets do better in smaller and scattered prairie dog colonies.

RESPONSE: See response to comment #61.

COMMENT 65: Monitoring of black-footed ferrets and prairie dogs needs to be a high priority.

RESPONSE: We agree and a conservation measure common to all alternatives that further addresses the inventory and monitoring protocols for black-footed ferrets and black-tailed prairie dogs in Chapter 4 of the LRMP has been added to Section 2.2.5 in the FEIS.

COMMENT 66: The numbers of black-footed ferrets in Conata Basin reported by the Forest Service have not been consistent and cannot be trusted or relied upon without verification by outside parties.

RESPONSE: Ferret populations are monitored annually. Monitoring information is summarized in reports that are available for public review at the Wall Ranger District Office. Monitoring protocols include the use of current technology and individually marked black-footed ferrets, resulting in fairly accurate population estimates. We acknowledge that some ferrets may go undetected, but this is common to most surveys of wildlife populations.

COMMENT 67: Given the poor vegetation conditions in prairie dog colonies in Conata Basin, it is obvious that black-footed ferrets alone cannot keep the prairie dog populations in balance with the available forage. Other management practices need to be implemented within these colonies.

RESPONSE: The Forest Service has not suggested that black-footed ferrets can prevent prairie dog populations from expanding, and use of other management tools to prevent unwanted colonization onto private land are clearly prescribed in the proposed action.

COMMENT 68: Why should the "non-essential," experimental population of black-footed ferrets in Conata Basin be expanded?

RESPONSE: We're unsure about this comment. If it is referring to the size of the non-essential experimental population area for the Conata Basin/Badlands ferret population, there is no proposal to increase it. If the comment is referring to increases in the ferret population itself, this proposed action does not call for an increase in the ferret population. This proposed action is limited to addressing the issue of encroachment. We acknowledge that direction in the revised LRMP increased the amount of reintroduction habitat available on the national grassland for the non-essential experimental ferret population.

COMMENT 69: Black-footed ferrets should not be reintroduced into areas outside Conata Basin.

RESPONSE: The Smithwick black-footed ferret reintroduction habitat has already been allocated in the revised LRMP. The U.S. Fish and Wildlife Service would have to approve the actual ferret reintroduction into this habitat area.

COMMENT 70: Are there currently black-footed ferrets on the Fort Pierre National Grassland? Map 10 in the EIS suggests that they do.

RESPONSE: The ferret observations depicted on the map for the Fort Pierre National Grassland are past observations, and no known ferrets or ferret populations are known to currently occur on or near the grassland Also, the U.S. Fish and Wildlife Service has block-cleared the counties in this area for black-footed ferret surveys, indicating that the agency is reasonably confident that there are no wild extant ferret populations in the area.

COMMENT 71: There's no data presented that indicates prairie dogs on the Oglala and Ft. Pierre National Grasslands are not needed for ferret recovery.

RESPONSE: Neither the Fort Pierre or Oglala National Grassland was identified as black-footed ferret reintroduction habitat in the revised LRMP. However, each national grassland was identified for development of a prairie dog colony complex. The primary purpose of this direction was to provide for sustainable prairie dog populations and other associated wildlife species over the long-term. Although there is no intent or plans at this time, it is possible that these areas could be allocated as ferret reintroduction habitat in the future.

COMMENT 72: In consideration of the enormous wildlife resource values represented by large prairie dog colony complexes, the percentage of the Nebraska National Forest predicted to be occupied by prairie dogs in 2012 is reasonable.

RESPONSE: Thank you for your comment.

COMMENTS RELATED PRIMARILY TO DAMAGE

COMMENT 73: Prairie dogs decrease range condition and damage vegetation to the extent that it will not be able to recover. They also encourage noxious weed invasion.

RESPONSE: Section 3.6 of the EIS includes a summary of the effects of prairie dog foraging and clipping on rangeland vegetation, and a more detailed discussion is in the Rangeland Management Specialist Report that is maintained as part of the project record. A discussion on noxious weeds has also been added to the EIS. It is possible that re-establishment of native perennial vegetation on some sites may be slow and re-seeding (range renovation) could help accelerate re-vegetation.

COMMENT 74: The FEIS needs to include a detailed analysis of agricultural and forage production with and without prairie dogs.

RESPONSE: This is fully disclosed in the Rangeland Management Specialist Report in the project record and summarized in Section 3.6 of the EIS.

COMMENT 75: Long-term drought, not prairie dogs, is responsible for the decline in available grass. Killing prairie dogs will not reverse the effects of drought.

RESPONSE: A combination of factors including drought, prairie dog foraging and clipping, and livestock grazing are undoubtedly contributing factors to the substantial reduction in grassland vegetation observed in some areas during the recent drought. The primary purpose of this proposed action is to reduce prairie dog colony encroachment on adjoining lands, and both prairie dog population and livestock reductions along boundaries are proposed to help reduce encroachment, both on a short and long-term basis.

COMMENT 76: Prairie dogs increase bare soil, resulting in an increase in both wind and water erosion. This erosion could result in prairie dog manure, silt, and mud contaminating domestic wells. The Forest Service needs to do air and water quality studies to determine if the Clean Water Act is being violated by allowing uncontrolled growth of prairie dog colonies. The Forest Service should also issue a supplementary EIS to address cumulative effects on water quality, especially for the Cheyenne River watershed.

RESPONSE: The Forest Service recognizes that prairie dog foraging, clipping and burrowing influences soil erosion rates and has addressed the air and water issues in Chapter 3 of the EIS. Although soil erosion is an important consideration, we do not share the concern over a possible violation of the Clean Water Act (CWA). CWA addresses erosion that is caused from human-related activities, and black-tailed prairie dogs are a native wildlife species and part of the natural environment.

COMMENT 77: The Forest Service acknowledges that soil and prairie dog relationships and interactions are poorly studied and understood. Why insist on forging ahead with so many acres of prairie dog colonies before the consequences can be thoroughly studied and evaluated.

RESPONSE: This proposed action is limited to reducing prairie dog populations along boundaries in selected areas that are encroaching on adjoining lands. Other prairie dog management direction is in the revised LRMP.

COMMENT 78: It is critical to understand prairie dogs' impact on soils and water, not just to assume their impact is negligible compared to croplands. Just because they may not contribute as much to sedimentation and particulate matter in the air as cultivated farmland, the impact of prairie dogs should not be discounted.

RESPONSE: We have not discounted the impact of prairie dogs and clearly acknowledge in the EIS that prairie dogs can contribute to soil erosion problems at localized sites, especially during drought.

COMMENT 79: There should be reclamation plans.

RESPONSE: A reclamation strategy could be part of the site-specific evaluation of an encroachment area if the on-site conditions warrant those types of measures. Nothing in this proposed action precludes reclamation strategies, if necessary. Thank you for your comment.

COMMENT 80: The EIS does not explain the reduction in number or complete disappearance of species like long-billed curlew, sharp-tailed grouse, pronghorn, deer and grasshoppers from Conata Basin. Also, the burrowing owl was sighted more times outside of the prairie dog colonies.

RESPONSE: Effects of each alternative on long-bill curlews and burrowing owls are described in Appendix E of the DEIS, and effects on sharp-tailed grouse, a management indicator species, are discussed in Section 3.8 of the EIS. Effects on pronghorn are summarized at the end of Section 3.8.2 in the EIS. It is highly unlikely that deer populations are or will be significantly affected by the current or projected prairie dog populations because deer mostly utilize woody and/or steep to rolling habitats, not prairie dog colonies. We have insufficient information to assess effects on grasshoppers and invertebrate populations.

COMMENT 81: Prairie dogs dig large holes which can be dangerous for livestock and humans using the area.

RESPONSE: We are unaware of any human injuries being attributed to prairie dog holes, and although it doesn't appear to be very common, potential injuries to livestock cannot be ruled out.

COMMENTS 82: Prairie dogs reduce the forage available to livestock and other large grazers.

RESPONSE: The effects of prairie dogs on rangeland vegetation and forage are summarized in Section 3.6 in the EIS and in the Rangeland Management Specialist Report that is maintained in the project record.

COMMENTS RELATED PRIMARILY TO LAW, REGULATION AND POLICY

COMMENT 83: If the Forest Service follows the South Dakota prairie dog plan, it will be unable to meet its responsibilities under the Endangered Species Act.

RESPONSE: Alternative 2 in the EIS most closely follows the South Dakota prairie dog plan. However, provisions were made in the alternative that prevents prairie dog populations and colonies being reduced below what are believed to be the minimum habitat threshold needed to sustain a ferret population over the long-term. Therefore, the Forest Service would continue to meet its responsibilities under ESA under all Alternatives.

COMMENT 84: The Forest Service is violating the Endangered Species Act and SDCL 41-11-15, as it applies to the black-footed ferret.

RESPONSE: The U.S. Fish and Wildlife Service has concurred with the Forest Service's Biological Assessment for threatened and endangered species. This concurrence documents compliance with the Endangered Species Act. SDCL 41-11-15 is binding to the South Dakota Departments of Agriculture and Game, Fish and Parks, not the U.S. Forest Service. However, the Forest Service is certainly supportive of several of the provisions in the law.

COMMENT 85: The national grasslands should be managed as intended by the Act that created them. They are to be managed in a manner that maintains and improves soil and vegetative cover and demonstrates sound principles of land use.

RESPONSE: Title III of the Bankhead Jones Farm Tenant Act has been amended several times by Congress since 1937. In 1962, Congress added "protecting fish and wildlife" to the Act, and since prairie dogs are part of the native fauna on the national grasslands, their conservation on these lands is certainly appropriate. Also, the original Act references the need to "preserve natural resources", and there again, there's no reason to suspect that this excludes prairie dogs and other associated native wildlife. The complex challenge before us is how to conserve and manage prairie dogs and associated species, while still meeting the intent of other provisions in the Act, as well as those in many of other laws and regulations that now apply to the national grasslands and their management.

COMMENT 86: The Fall River County Prairie Dog Conservation Act should be included as an alternative or mentioned as an alternative considered, but eliminated

from detailed study. It is our belief that all three alternatives should be discarded and the Fall River Plan adopted. Ignoring the Fall River Act violates federal law.

RESPONSE: The Fall River Act is now listed as an alternative considered but eliminated from detailed study in the EIS.

COMMENT 87: The Fall River County Threatened and Endangered Species Process needs to be addressed in the EIS.

RESPONSE: The scope of this EIS and decision is limited to reducing encroachment on adjoining lands, and the issue of allocating black-footed ferret habitat on the national grasslands near Smithwick has already been addressed through the recent LRMP revision process. The appropriate time to present the Fall River process is when and if the U.S. Fish and Wildlife Service eventually initiates a process to develop a cooperative black-footed ferret reintroduction plan for the Smithwick area.

COMMENT 88: Failure to consider minimum range condition as addressed in the Fall River County Prairie Dog Conservation Act is a violation of NEPA and NFMA.

RESPONSE: Criteria are prescribed in the EIS that identify those conditions where rodenticide and other management tools can be applied to reduce colony encroachment on adjoining lands. Minimum range condition in national grassland colonies is not one of the rodenticide criteria for boundary management zones.

COMMENT 89: The narrow purpose and need of the EIS violates the settlement agreement and court order that dismissed the case last fall. It is so narrowly drawn as to limit the range of alternatives to those complying with the State Prairie dog Plan and does not meet the requirement for a reasonable range of alternatives.

RESPONSE: We disagree. A broad range of alternatives are presented and evaluated, and they range from use of mostly non-lethal tools (Alternative 1) to a heavy reliance on rodenticide (Alternative 2). Alternative 3 is an intermediate option that prescribes the use of both lethal and non-lethal management tools in boundary management zones.

COMMENT 90: The EIS should disclose how the proposed reduction of prairie dogs on private and federal lands will shift responsibility for the prairie dog ecosystem to Native Americans. If the FS accepts that prairie dogs harm livestock forage production, then this shift is a financial hardship for Native Americans and must be disclosed pursuant to Environmental Justice directives.

RESPONSE: The South Dakota prairie dog plan has separate goals for tribal and non-tribal lands, so we do not see a relationship between the two. Also, the South Dakota tribes were on our mailing list and none of the South Dakota tribes commented on the DEIS or on this matter.

OTHER COMMENTS

COMMENT 91: The FS trivializes the economic benefits that the county (Fall River) derives from ranching. Twenty percent of all cattle run on the federal lands. Approximately $13,700,000 is generated from federal land grazing. Also, there will be so many prairie dogs that some ranching operations in the county will be forced out of business.

RESPONSE: The effects on permitted livestock grazing from the proposed action were determined at the scale of the individual national grassland, not county. However, if you assume all livestock grazing reductions due to vegetation management fencing on the entire Buffalo Gap National Grassland (Table 3-6 in the FEIS) under the preferred alternative were to occur in Fall River County, there would be a loss of approximately $60,800, or 0.4% of the $13,700,000 value. Obviously, the actual reduction in Fall River County would be much less than 0.4%. This is figured on a maximum potential reduction of 3,900 AUMs and the RPA market value of $15.59 per AUM.

COMMENT 92: Federal grazing permittees are concerned that livestock grazing will be reduced as a result of prairie dog colonization on National Grasslands. Permittees in Conata Basin will be most affected. Because they have a right to graze on the national grasslands, they should be compensated for reductions.

RESPONSE: A reduction of AUMs will occur on a temporary basis under all alternatives as vegetative management fencing is constructed. The effects of the management fencing on annual livestock grazing levels are summarized in the FEIS Tables 2-2, 2-3, and 2-4. The Forest Service acknowledges that large prairie colonies complexes are and will be located in Conata Basin and adjustments in livestock grazing will be more extensive in the Basin.

Livestock grazing permits are a privilege, and should not be construed to be a property right. According to a Memorandum Opinion from United States District Court, District of South Dakota, Western Division, regarding Civil Case 80-5070 (American Farm Bureau Federation, et al. vs. John R. Block et al), the Forest Service is not liable for money damages associated with prairie dog colonies on federal or private lands.

COMMENT 93: Studies have consistently failed to demonstrate that prairie dogs have an adverse effect on cattle production. In fact, cattle often prefer grazing in prairie dog colonies. This is likely due to the higher protein content and greater digestibility of forage in colonies.

RESPONSE: Research on this subject is complex, seemingly contradictory and often confusing. This is discussed further in Section 3.6.2 in the EIS.

COMMENT 94: Local, not national, livestock numbers should be used in the EIS analyses.

RESPONSE: Local numbers were used in Section 3.10.2 of the EIS to determine the percent of total employment dependent on livestock production.

COMMENT 95: Movement of prairie dogs from federal lands onto adjoining lands imposes a hardship on private landowners, and it is not fair that private landowners should have to spend time and money to get rid of prairie dogs.

RESPONSE: Prairie dogs are native wildlife that are very mobile and move to and from adjoining lands and to and from federal lands. This purpose of this proposed action is to reduce encroachment from the national grassland onto adjoining lands. We recognize the contentious nature of this issue and the conflicting public opinions about how the Forest Service should respond to this issue.

COMMENT 96: "Encroachment" needs to be better defined and the same definition should be used throughout the EIS.

RESPONSE: As indicated in Chapter 2 of the EIS, encroachment in Alternative 2 will be interpreted as defined in the South Dakota prairie dog plan. Under Alternative 3, encroachment is clearly defined as "a national grassland colony that extends across a private or tribal property boundary or would likely cross a property boundary within 1 to 2 years".

COMMENT 97: What prairie dog colony acreage is being used for "baseline"? The 1996-97 acreages are out dated and more current information should be used.

RESPONSE: Prairie dog management direction in the revised LRMP and 2002 Record of Decision was based on the 1996-97 colony acreages. Because this proposed action involves an amendment to the revised LRMP and 2002 Record of Decision, the 1996-97 acreage remains the baseline for the analyses in this EIS. However, for purposes of describing the affected environment, the current (2004) colony acreages are used.

COMMENT 98: Without a state prairie dog plan to consult, how will you approach prairie dog management along NFS boundaries in Nebraska? Since Nebraska does not have a plan, the national grasslands and forests in Nebraska should not be included in this EIS and decision, and current direction should be retained.

RESPONSE: The State of Nebraska could develop a prairie dog management plan at a later date, and we will certainly consult such a plan at that time to determine if some modifications in management direction are warranted. Also, as we begin to conduct site-specific management plans for encroachment areas, state personnel can certainly provide input at that time.

COMMENT 99: Rodenticide has not been used on the Fort Pierre National Grassland for over 15 years. Since there is not a prairie dog problem on the national grassland, it should be removed from the EIS and decision.

RESPONSE: There are some areas on the Fort Pierre National Grassland where encroachment is occurring, and encroachment issues could increase if extended drought conditions occur in the future.

COMMENT 100: The goal should be maintaining current prairie dog colony acreages in Conata Basin.

RESPONSE: When considering current colony acreages in the Basin, Alternative 1 essentially meets the recommended goal. When considering the projected acreage in 2012, Alternative 2 comes the closest to meeting the goal suggested in the comment.

COMMENT 101: Reducing prairie dog populations on federal lands will make it more difficult to meet the acreage goals in the South Dakota prairie dog plan.

RESPONSE: It could result in a need for additional acreage on other public or private lands but that would dependent on the extent of departure between the existing acreage and the State's goal. For example, if the existing acreage at any point in time far exceeded the state goal, loss of colony acreage on the national grasslands might have no effect on meeting the goal acreage.

COMMENT 102: The Forest Service should manage prairie dogs independent of the South Dakota prairie dog plan, which is grossly inadequate from a conservation perspective.

RESPONSE: Alternatives 1 and 3 are different from the South Dakota plan, which is mostly incorporated in Alternative 2.

COMMENT 103: The Forest Service is managing for a disproportionate share of prairie dog colonies on the national grasslands.

RESPONSE: The Record of Decision will identify a desired range of colony acreages for the national grasslands in South Dakota and Nebraska. Those ranges are 18,000 to 26,900 acres for South Dakota and 1,000 to 1,800 acres for Nebraska. Federal lands contribute to and are part of South Dakota's desired acreage goal, but a specific acreage goal for federal lands was not included in their prairie dog plan. A statewide acreage goal has not been established for Nebraska. Also, it is not uncommon across the nation for public lands to provide a disproportionate share of habitat for threatened and endangered species and other at risk species.

COMMENT 104: It's especially important to maintain prairie dogs as a management indicator species on the Fort Pierre and Oglala National Grasslands because they are considered plague free and important for conservation of prairie dogs and other associated wildlife. What species would replace prairie dogs as a MIS?

RESPONSE: Alternatives 1 and 3 would maintain the prairie dog as a MIS on Fort Pierre and Oglala National Grasslands. Under Alternative 2, prairie dog would be removed as a MIS for those units without replacement.

COMMENT 105: There is a need for more public involvement at the local level.

RESPONSE: There have been multiple opportunities and a considerable amount of public involvement at the local level on the prairie dog issue. These opportunities have included the recent revision process for the LRMP, the Notice and Intent and DEIS for this proposed action, and the recent public involvement efforts for the Nebraska and South Dakota prairie dog management plans. There will also be additional involvement opportunities as site-

specific evaluations are completed by the Forest Service for individual encroachment complaint areas.

COMMENT 106: Management of interior colonies on national grasslands needs to be addressed.

RESPONSE: This was addressed in the revised LRMP and is outside the scope of this EIS.

COMMENT 107: Private in-holdings have no protection and must be addressed. Failure to effectively manage prairie dogs will eventually lead to unconstitutional takings of private property, and landowners should be compensated by the government.

RESPONSE: None of the alternatives suggest any management actions preclude access, uses, or options of uses of private lands. (Also see response to Comment 17)

COMMENT 108: Time frames for responding to encroachment complaints from landowners should be established.

RESPONSE: The Forest Service recognizes the importance of timeliness in responding to encroachment complaints. However, there's a variety of factors beyond our control that affect the availability of our staff. For example, staff may be called to assist in wildfire suppression or other priorities away from their local duty stations. For this reason, we are not going to commit to a designated time frame for responding to encroachment complaints. However, we will do our best to complete our annual on-site evaluations in sufficient time to plan for rodenticide applications that will likely commence in October of each year.

COMMENT 109: There is no reason to spend public money fixing a problem on private land. The landowners can undertake their own measures if they cannot live with the prairie dogs on their land.

RESPONSE: To clarify, the Forest Service is not spending public money managing prairie dogs on adjoining private or tribal lands. It is spending federal funds to manage prairie dogs on national grasslands that border private or tribal lands, and where encroachment complaints from the neighboring landowners have been received. Individual State laws may provide for expenditure of their funds for animal damage on private lands.

COMMENT 110: The national grasslands are public lands, not private property, and the priority for managing them should be to protect wildlife for future generation and not privately owned livestock.

RESPONSE: Federal laws, regulations and policies mandate that the Forest Service manage national grasslands for multiple uses and values, including wildlife and livestock grazing. This does not imply that every acre of national grassland has to accommodate each multiple use or value. However, the Endangered Species Act prioritizes conservation and protection of threatened or endangered species where conflicts arise. Also, direction in the LRMP identifies the mix and priorities for the individual national grasslands and forests determined to be most appropriate under the various laws, regulations and policies.

COMMENT 111: We do not support any of the alternatives because they fail to address many of the important issues, including water and air quality, range condition, watershed protection, and wildlife habitat.

RESPONSE: We disagree. All of these issues are addressed for the boundary management zones in Chapter 3 of the EIS.

COMMENT 112: There should be a section in the EIS discussing water resources and water quality impacts (or their absence) to water bodies and subsurface aquifers.

RESPONSE: Discussions on water quality impacts have been expanded in Section 3.3 of the EIS. We do not anticipate any impacts on subsurface aquifers from this proposed action.

COMMENT 113: From a fiscal and ethical viewpoint, it's hard to rationalize anything but a minimal effort towards managing prairie dogs.

RESPONSE: There are multiple considerations regarding the appropriate extent of prairie dog management, and these include but are not limited to: management costs to federal government, management costs to private and tribal landowners/managers, costs to maintain environmental values (land productivity, black-footed ferret recovery), and the ethical and humane treatment of animals. Short-term and long-term costs also have to be considered.

COMMENT 114: Some of the economic analysis information presented in the EIS is inappropriate, misleading and does not accurately reflect the significant economic impacts to ranches and local communities.

RESPONSE: A new economic analysis was completed between the DEIS and FEIS and is summarized in Section 3.10 of the FEIS. It includes some different economic analyses. However, this analysis also demonstrated that economic impacts to local communities from the possible reductions in permitted livestock grazing would be minor, but none-the-less, could be significant to individual ranches.

COMMENT 115: There should be a special fund for prairie dog control (management) and noxious weed control.

RESPONSE: The Forest Service has a specific fund for noxious weed control but does not have a similar fund specifically for management and control of prairie dogs or other wildlife to reduce damage.

COMMENT 116: Conservation practice (CP) funds should not be used to pay for prairie dog control (management).

RESPONSE: The Forest Service's Grazing Permit Administration Handbook (FSM 2209.13 – Chapter 20, Section 24.3) authorizes use of CP funds for practices needed to achieve desired resource conditions as described in land and resource management plans, project decisions, and rules of management. Nothing in the handbook precludes the use of CP funds for prairie dog management, including rodenticide applications or vegetation management fencing.

COMMENT 117: The Forest Service is making no attempt to protect rangeland health.

RESPONSE: We acknowledge in the FEIS that long-term prairie dog colonization and grazing by other herbivores can have significant effects on plant species composition, production and ground cover. The time it takes for perennial grassland vegetation to return following removal or reductions of prairie dogs and other herbivores probably varies based on a variety of factors such as precipitation, soil fertility, and concurrent livestock grazing practices.

COMMENT 118: The EIS fails to address the effects of prairie dogs on the prairie ecosystem and its components, including vegetation, soils, water, air, and other wildlife. National grasslands should be managed to ensure the prairie ecosystem and aquatic habitats are protected.

RESPONSE: Chapter 3 of the FEIS includes discussions on the ecological and environmental effects of implementing each of the alternatives. This includes resource effects on soil, water, air and wildlife.

COMMENT 119: Prairie dogs can carry plague and other diseases that could affect people.

RESPONSE: Prairie dogs can carry disease that may affect people, and public health and safety issues are addressed by each of the alternatives evaluated in the EIS.

COMMENT 120: Prairie dogs on non federal lands can be controlled at any time. This makes the colonies on federal land even more important.

RESPONSE: The Forest Service has not discounted the importance of maintaining prairie dogs on national grasslands.

COMMENT 121: How frequent will prairie dog population reduction monitoring occur?

RESPONSE: Some monitoring occurs annually, and it usually takes several years to inventory the status of all colonies on the national grasslands and forests in the project area.

COMMENT 122: The Forest Service should disclose what the target population number is and how it was determined. How will the public be notified when the target population is met?

RESPONSE: This proposed action addresses management of prairie dog colonies located in boundary management zones. Management of colonies located outside these zones in the interior of national grasslands and forests is not addressed, so it would be inappropriate and outside the scope of this proposed action to establish specific target acreage for prairie dog colonies at this time.

COMMENT 123: Some of the prairie dog colony acreages in the EIS tables don't add up. Why?

RESPONSE: Several people were confused about apparent discrepancies in the current (2004) colony acreages reported in Tables 1-1, 3-1 and 3-2. We apologize about the confusion, but in order to understand the acreages reported in the tables, it is necessary to review and understand the footnotes to each table. This will reduce some of the confusion. The other factor adding to the confusion is the fact that Tables 1-1 and 3-1 report current (2004) on-the-ground colony acreages, while Table 3-2 includes active colony acreages (rodenticide unlikely) after applying the rodenticide criteria prescribed under each alternative.

COMMENT 124: How was the 2012 prairie dog colony acreages predicted? Do those predictions take into account the effects of prairie dog shooting?

RESPONSE: This is described in Section 3.1 of the EIS**.**

COMMENT 125: The current acres under each alternative aren't the same. Why?

RESPONSE: The current acres (rodenticide unlikely) column in Table 3-2 includes the current colony acreages that would not be subject to rodenticide application. Since the rodenticide criteria vary by alternative, the reported current colony acreages that would not be subject to rodenticide applications also vary.

COMMENT 126: Anecdotal evidence suggests that much of the recent colony expansion was accomplished by prairie dogs scattering out (reduced density) in search of food, rather than an actual increase in prairie dog numbers. Adopting draconian measures primarily in response to the effects of drought, rather than changes in prairie dog or ferret management, is excessive. This needs to be clarified to avoid misleading the public and to help them more accurately evaluate the alternatives.

RESPONSE: As suggested in the comment, there is no empirical data to support these claims. Even if the recent increase in colony acreage during the drought was not the result of an actual increase in prairie dog populations, it is highly likely that the prairie dog densities in both the old and new colony areas will increase rapidly in the future when drought conditions end and forage levels recover. Thus, a prairie dog population increase will likely and eventually result from the expanded colony acreage.

COMMENT 127: None of the alternatives address research to systematically assess the effectiveness of the management tools to resolve conflicts. Alternative 3 is referred to as an adaptive management approach, but there is no indication that information will be systematically collected, analyzed, and applied.

RESPONSE: Research is suggested in the Record of Decision for this proposed action, however, decisions to conduct research commonly lie with other entities both within and outside the Forest Service.

COMMENT 128: Alternative 2 would amend the LRMP by deleting the objective and guidelines prescribing establishment of a new prairie dog colony complex on the Oglala National Grassland and the northeast portion of the Fort Pierre National Grassland. There is no scientific evidence presented to support this change in direction. This is

also outside the context of boundary management to reduce encroachment and therefore, is outside the scope of this EIS and decision.

RESPONSE: Boundary management as described under Alternative 2 essentially extirpates prairie dogs from the two national grasslands, assuming all colonies within the boundary management zones are eventually treated with rodenticide. For this reason, the management objectives specified in the LRMP for black-tailed prairie dogs as a management indicator species (MIS) cannot be met, and therefore, the species is dropped as a MIS for the two national grasslands under Alternative 2 only.

COMMENT 129: Definitions should be provided for "prairie dog colony" and "prairie dog colony boundary".

RESPONSE: A definition of a prairie dog colony has been added to the glossary. It includes a description of how the boundary of a colony is determined or mapped.

COMMENT 130: Conservation measure 3 on page 20 of the DEIS indicates that prairie dog management will be revisited if the predicted 2012 colony acreage is exceeded in the future. If the predicted acreage is exceeded, and there is no adverse impact on the resources, why "revisit" prairie dog management?

RESPONSE: Re-visiting prairie dog management does not mean that changes in management direction would automatically occur. If there are no measurable impacts to adjoining landowners, there would be no need to change direction.

COMMENT 131: The proposal to remove 5,130 acres of land from the Conata Basin ferret reintroduction habitat area and to weaken certain enforceable standards to unenforceable guidelines goes beyond boundary management. If these non-boundary issues can be added to the scope of the DEIS, then so can other prairie dog management issues. How is the proposal to reallocate the 5,130 acres consistent with the purpose and need stated in the EIS?

RESPONSE: Actually, it doesn't go beyond boundary management. As described in Sections 2.2.2 and 2.2.3 for Alternatives 2 and 3, respectively, there are additional restrictions (minimum habitat thresholds) on rodenticide use in designated black-footed ferret habitat. By removing this area from the designated ferret habitat, the additional restrictions would no longer apply to this area.

COMMENT 132: Please provide a map that shows all management area prescriptions.

RESPONSE: (See response to Comment 10)

COMMENT 133: Full implementation of the current LRMP, including livestock grazing management and land consolidation, will be more effective than Alternatives 2 and 3 in reducing prairie dog encroachment.

RESPONSE: Alternatives 2 and 3 also incorporate the same level of grazing management coordination and land consolidation as the LRMP. Increased rodenticide use is also a component of both alternatives, and therefore, both of these alternatives are more effective

than the current LRMP in reducing encroachment because they address both short (rodenticide use) and long-term (non-lethal) effectiveness.

COMMENT 134: There should be a contingency plan in place should the selected alternative prove to be ineffective.

RESPONSE: A contingency plan has been added to Section 2.2.5 (item 4) in the EIS.

COMMENT 135: The Forest Service was directed but failed to coordinate with county governments and local landowners.

RESPONSE: We coordinated with most county commissions and with many local landowners as documented below:

> All of the affected county commissions were contacted directly, with the exception of Lyman County, South Dakota.
>
> On January 20, 2005, the Ranger Mike McNeill addressed the annual meeting of the Indian Grazing Association with specific reference to prairie dog management.
>
> On January 18, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Cottonwood Grazing Association, with specific reference to prairie dog management.
>
> On January 18, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Sugarloaf Grazing Association, with specific reference to prairie dog management.
>
> On January 15, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Pioneer Grazing Association with specific reference to prairie dog management.
>
> On October 12, 2004, Ranger Tony DeToy addressed the annual meeting of the Central South Dakota Grazing Association, with specific reference to prairie dog management.
>
> On October 27, 2004, Ranger Bill Perry addressed the annual meeting of the Eastern Pennington Grazing Association, with specific reference to prairie dog management.
>
> On October 20, 2004, Biologist Doug Sargent addressed the annual meeting of the White River Grazing Association, with specific reference to prairie dog management.

A general comment solicitation was also conducted. A thirty day comment period was provided after the Notice of Intent (NOI) to prepare a DEIS. The NOI was published in the Federal Register on November 1, 2004. Local landowners that responded to the NOI included: Pioneer Grazing Association, Cottonwood Grazing Association, Sugar Loaf Grazing Association, White River Grazing Association, Robert Jordan, Martha Raben, Jake and Vickie Wassaburger, and Bernard Huber.

County commissions that responded to the NOI were Fall River County in South Dakota and Dawes County in Nebraska.

The DEIS was filed with the U.S. Environmental Protection Agency on February 22, 2005, and a Notice of Availability that the DEIS was available for review and comment was

published on March 4, 2005. The comment period on the Draft EIS closed on April 18th, 2005. Local landowners that responded to the DEIS were:

> Pioneer Grazing Association, Cottonwood Grazing Association, Sugar Loaf Grazing Association, White River Grazing Association, Lyle Hald, Leonard Forbs, Emiel Raben, Ray Semroska, Eldon Wohlers, and Leonard Wood.

County commissions that responded to the DEIS were: Butte, Corsen, Custer, Fall River Jackson, Meade, and Pennington in South Dakota and Dawes and Sioux in Nebraska.

The States of South Dakota and Nebraska recently completed public involvement programs addressing prairie dog conservation and management across each state. Comments from both efforts have been analyzed and documented. Also, Fall River County adopted the Fall River County Prairie Dog Conservation Act for National Grasslands. This act was reviewed before completion of the FEIS.

In conclusion, county governments and local landowners were given opportunities to provide input and did participate.

COMMENT 136: The cumulative effects section in the EIS is completely inadequate and fails to describe the cumulative impacts to prairie dogs, ferrets, associated wildlife, and the environment. It also fails to evaluate cumulative impacts from the individual alternatives. However, it does provide enough information to strongly challenge the management actions proposed under Alternatives 2 and 3.

RESPONSE: We disagree and believe the information is adequate. In addition to the cumulative effects disclosed in Section 3.14 of the EIS, additional cumulative effects are presented for each alternative in Appendix E of the DEIS and FEIS.

COMMENT 137: The EIS should discuss the proposed Nebraska prairie dog legislation (LB 673).

RESPONSE: This bill did not pass, and it is not discussed in the EIS.

COMMENT 138: The term "associated units" needs to be defined.

RESPONSE: This has been done in Section 1.1 of the EIS.

COMMENT 139: The Forest Service should coordinate its prairie dog and black-footed ferret management programs with the Badlands National Park. For example, the park could provide sites for research on non-lethal prairie dog management tools.

RESPONSE: We do coordinate with the Badlands National Park, and we agree that the Park provides some excellent research opportunities.

COMMENT 140: A map should be included that shows adjoining landowners with federal grazing permits versus those without federal permits.

RESPONSE: We do not see the relevance of this information to the decision at hand.

COMMENT 141: We were unable to access Appendix E and therefore, were not able to get all the information we wanted.

RESPONSE: Version 6.0 of Adobe Reader was needed to access the documents. Adobe Reader is available for a free download. We are sorry for the inconvenience.

COMMENT 142: Some of the effects analyses sections in the EIS do not distinguish between the alternatives. Why?

RESPONSE: When there were no effects identified under any of the alternatives, there was no reason to distinguish between alternatives.

COMMENT 143: Changes in plant nutrient content as a result of prairie dog reduction or removal need to be considered, especially in areas lacking other herbivores.

RESPONSE: This is discussed in Section 3.6.2 of the EIS.

COMMENT 144: More information is needed in the EIS on the protocols and costs (Appendix D) for inventory and monitoring of black-tailed prairie dogs and black-footed ferrets.

RESPONSE: We believe adequate information on the costs for inventory and monitoring is provided in Appendix D. Regarding protocols, prairie dog colonies are periodically mapped using GPS and the outer perimeter of each colony using the outermost burrow openings and, in some cases, vegetation clip lines to delineate the outer perimeter of each colony. Habitat capacity for black-footed ferrets uses a process where prairie dog populations are estimated using data on colony acreages and burrow opening densities. Population estimates of black-footed ferrets are based on intensive searches and marking individual ferrets over the entire reintroduction area.

OUT OF SCOPE (NO RESPONSE PROVIDED)

COMMENT: Agricultural and residential expansion along national grassland boundaries should be restricted to reduce potential conflicts involving prairie dogs.

COMMENT: Livestock should not be allowed to graze public lands.

COMMENT: The Forest Service should extend its NEPA analysis to the South Dakota prairie dog management plan.

COMMENT: One alternative should involve the Forest Service managing prairie dogs on the adjoining lands where colony encroachment from national grasslands has occurred.

COMMENT: The number of adjoining landowners that receive public land grazing subsidies should be disclosed.

COMMENT: All federal grants to the South Dakota Departments of Agriculture and Game, Fish and Parks for animal damage control should be disclosed.

COMMENT: This proposed action is unacceptable if it results in a loss of motorized access to the national grasslands.

COMMENT: Restore bison on the national grasslands.

COMMENT: The EIS should disclose the costs associated with breeding and reintroducing black-footed ferrets.

COMMENT: This proposal rejects several requirements from the Multi-state Prairie Dog Conservation Plan.

COMMENT: This proposal should include management of interior colonies.

COMMENT: This proposal will produce more unwanted cattle.

COMMENT: The taxpayers should not be subsidizing livestock grazers.

COMMENT: We object to the prairie dog poisoning last year. It was a violation of the LRMP.

COMMENT: Prairie dog shooting is another way we can introduce youth to outdoor recreation.

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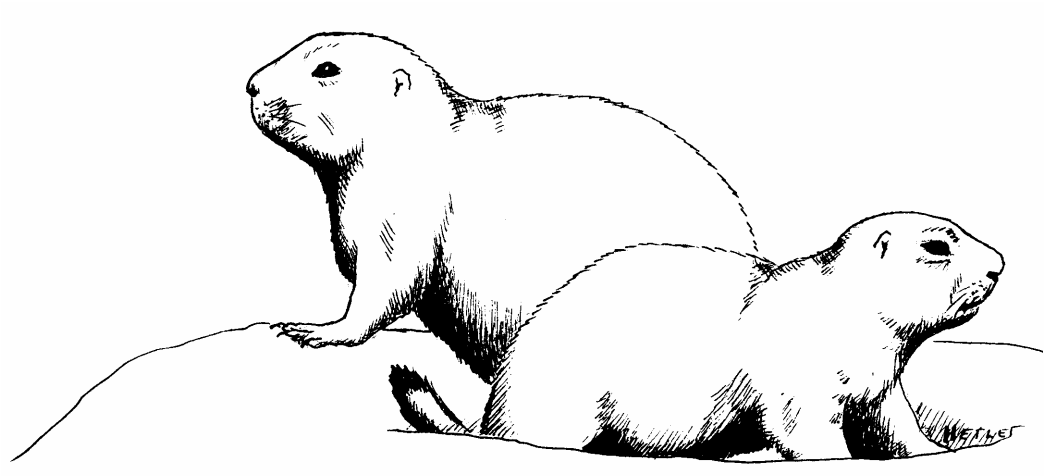
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