

usda forest service • rocky mountain region

PROJECT TITLE:

Thunder Basin Prairie Dog Management

LOCATION:

Thunder Basin Nat'l Grassland
Northeastern Wyoming

RESPONSIBLE AGENCIES:

USDA - Forest Service

LEAD AGENCY:

USDA - Forest Service

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THE ENCLOSED IS THE (FINAL)
~~(DRAFT)~~ ENVIRONMENTAL
ASSESSMENT FOR THE
PROPOSAL.

Date Submitted:

June 30, 1981

ABSTRACT (optional):

This Environmental Assessment documents the analysis of prairie dog management alternatives & their effects on Thunder Basin National Grassland. Four alternatives were developed & analyzed: Alternative I - no action, prairie dogs will not be managed on Federal land; II - prairie dogs will be managed at some level on Federal land A - 37,600 acres, B - 2,700 to 6,300 acres, C - 1,000 to 2,700 acres; III - total elimination of prairie dogs on Federal land; and IV - management of prairie dogs on Federal land to reduce possible impact to private & State lands and to provide multiple-use of Federal lands (at least 5400 acres). Alternative IV is the Forest Service's Selected Alternative because it provides the best mix of multiple-use values and best reconciles Public Issues, Management Concerns and Assessment Objectives at a considerably more cost effective level than the other alternatives.

ENVIRONMENTAL

medicine bow national forest

ASSESSMENT

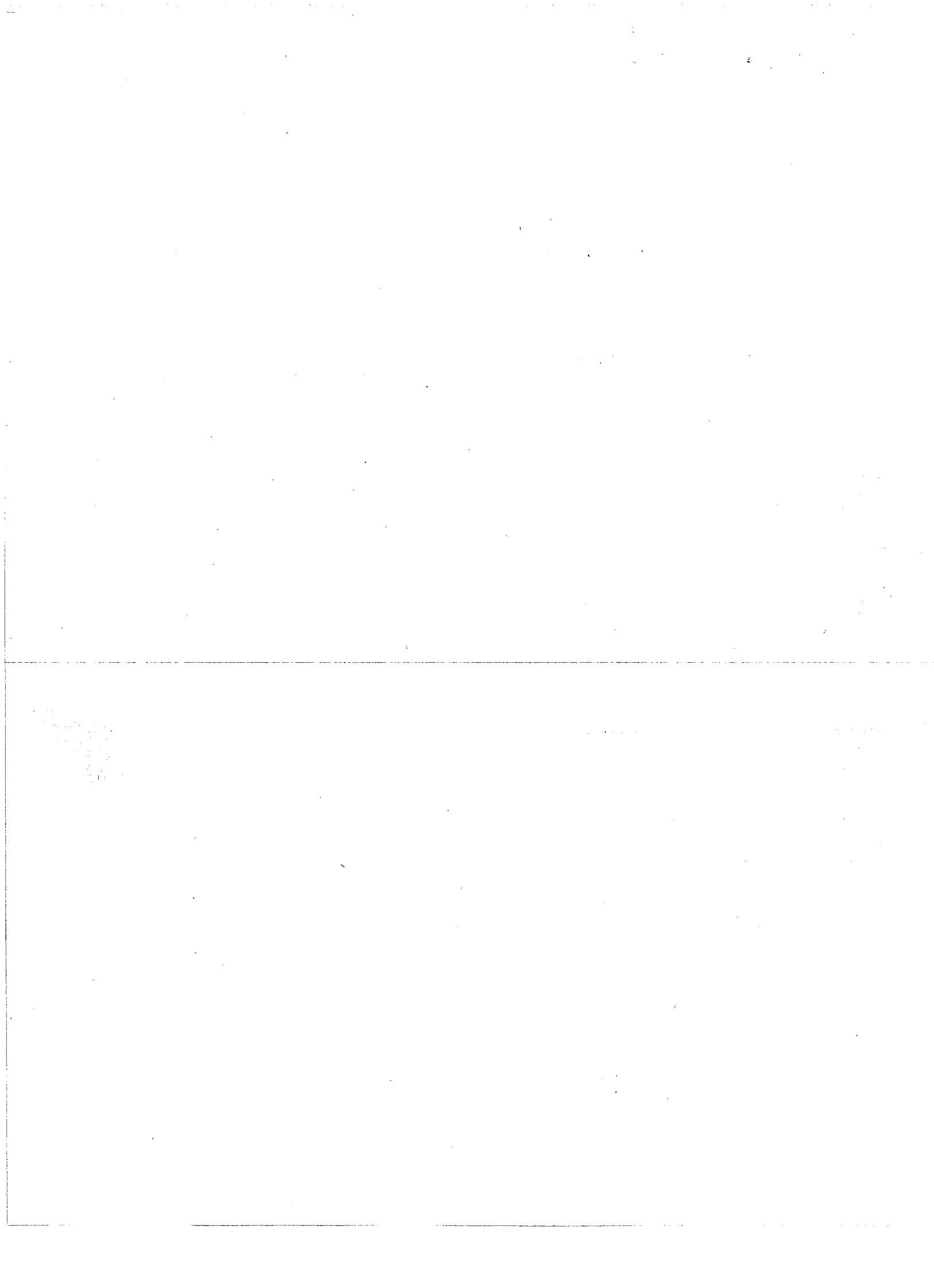
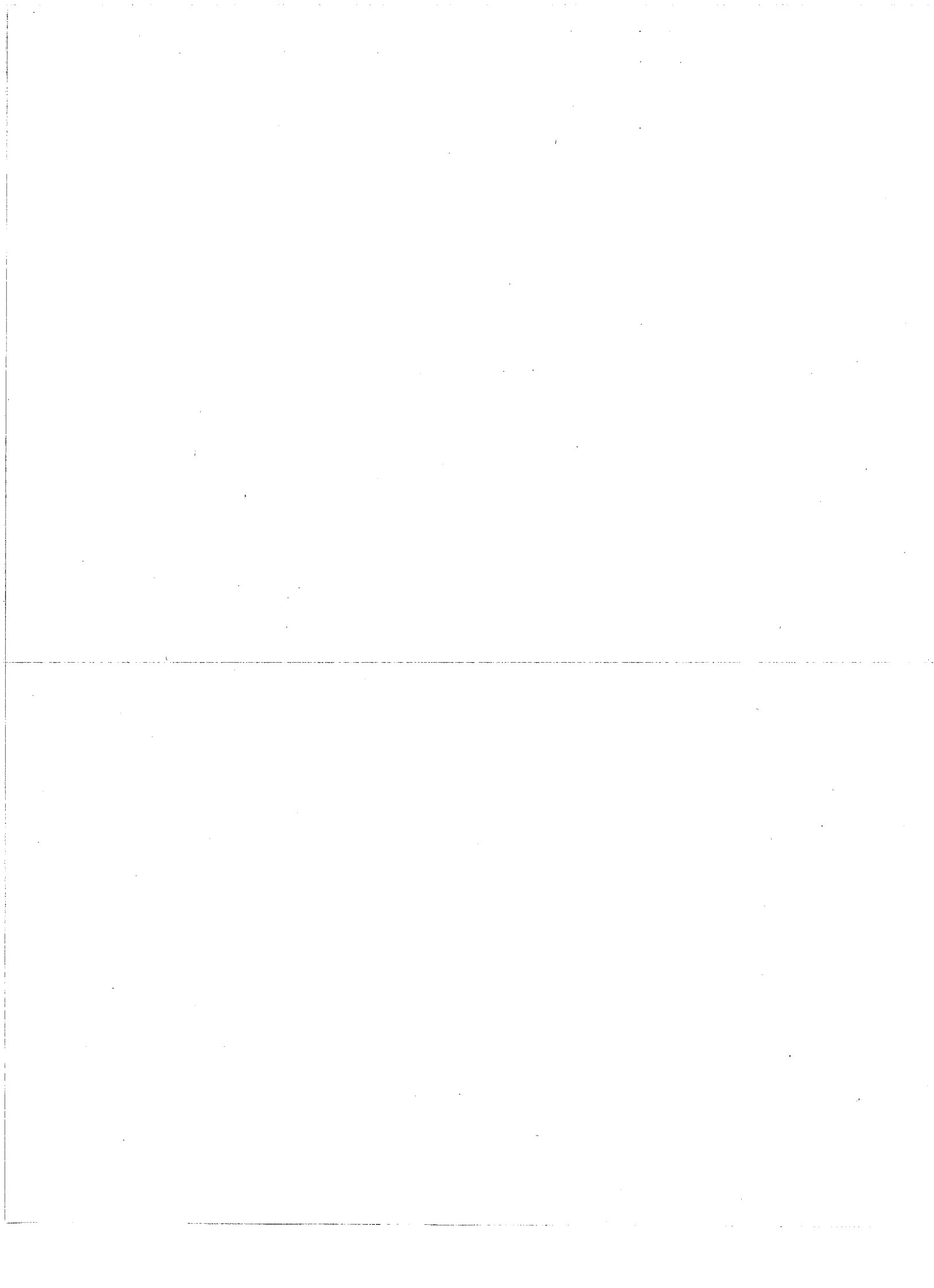


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MANAGEMENT OF BLACK-TAILED PRAIRIE DOGS
ON THUNDER BASIN NATIONAL GRASSLAND
ENVIRONMENTAL ASSESSMENT

I. INTRODUCTION

The purpose of this document is to assess the reasons for and methods of prairie dog management on the Thunder Basin National Grassland.

Black-tailed prairie dogs and their relationships with other range resources (threatened or endangered species habitat, wildlife habitat, recreation, and livestock grazing) are a matter of major concern to users of the Grassland, the Forest Service, and other groups and agencies.

The Medicine Bow National Forest has determined that the prairie dog situation on the Thunder Basin National Grassland must be addressed and a decision made concerning prairie dog management direction.

The primary objectives of the assessment and management plan are:

1. To provide direction for maintaining viable populations of prairie dogs for endangered species habitat (black-footed ferrets and bald eagles), habitat for other wildlife species, as well as the prairie dogs themselves as a component of the Grassland ecosystem.
2. To evaluate possible infestation of private lands from federal lands and, vice versa.
3. To recognize possible favorable and/or unfavorable impacts of prairie dog towns on other range uses.
4. To determine the degree of management which would be compatible with multiple-use of federal land.

The Thunder Basin National Grassland and associated state and private lands cover 1,799,918 acres (572,319 federal, 1,222,599 state and private) in the northeastern Wyoming Counties of Converse, Campbell, Weston, Niobrara, and Crook. (See map on back cover).

Since 1976, letters and comments from permittees, legislators, conservation groups, wildlife biologists, and state and other federal agencies have expressed concern over the direction of Forest Service prairie dog management. Public Issues were determined from these letters and comments. Forest Service Management Concerns were developed by an Interdisciplinary Team. The Interdisciplinary Team determined the resource management opportunities that this environmental assessment could provide by considering both public Issues and Management Concerns.

Public Issues

Public issues can be summarized into several general statements:

- A. Thousands of acres of rangeland (federal and private) are being devastated by prairie dogs. This will cause reduction of livestock grazing and extreme economic hardship. (Identified by permittees).
- B. Private lands are infested from towns on federal land; therefore, it is the Federal Government's responsibility to do something about it. (Identified by permittees).
- C. Prairie dogs are an important natural component of the rangeland ecosystem. They provide habitat for many other wildlife species, including the endangered black-footed ferret. (Identified by the Wyoming Game and Fish, USDI Fish and Wildlife Service, and environmental groups).
- D. Prairie dogs provide a recreation source for varmint hunters, wildlife photographers, and sightseers. (Identified by the Wyoming Game and Fish, USDI Fish and Wildlife Service, hunters, and other recreationists).

- E. Prairie dog infestations are a symptom of overgrazing or other land abuse and will not be a major problem if the land is properly managed. (Identified by environmental groups, Wyoming Game and Fish, USDI Fish and Wildlife Service, USDA Forest Service Research Branch, university researchers).

Forest Service Management Concerns

- A. The Forest Service is required by law (Appendix A) and directed by policy to provide for wildlife habitat and to maintain viable populations of all wildlife species in management of National Forest System lands. Prairie dog towns provide habitat for many other animals. Therefore, prairie dog populations must be maintained to provide habitat for other wildlife species. Species of major concern include the black-footed ferret, bald eagle, burrowing owl, golden eagle, ferruginous hawk, and mountain plover.
- B. The Endangered Species Act of 1973 prohibits the Forest Service from actions and/or projects which affect habitat for endangered species. Under the auspices of this law, the Black-footed Ferret Recovery Plan directs the Forest Service to participate in the establishment of at least one viable black-footed ferret population in Wyoming. Prairie dog towns are essential to the meeting of these obligations by the Forest Service.
- C. Dual use of a prairie dog town by prairie dogs and livestock may decrease range condition and cause accelerated soil loss with long-term loss of range productivity (Appendices C and D).
- D. Seventy-three percent of prairie dog town acreage is located on private or state lands. Forest Service records indicate that in the 1950's the ratio was about the same. It seems reasonable to expect that private landowners will control prairie dogs on their lands. Multiple-use benefits of dog towns will, therefore, have to be provided from federal land.

- E. Continued complaints from permittees and grazing associations require positive action by the Forest Service to develop a management plan for prairie dogs.
- F. Prairie dog management or control may not be cost-effective when livestock grazing alone is considered. Control will require a continuing program and annual funding to be effective in limiting prairie dog expansion.
- G. As the human population increases in eastern Wyoming, wildlife, including prairie dogs, will become an increasingly important recreation resource.
- H. The Forest Service considers it desirable to maintain livestock grazing on Thunder Basin National Grassland in accordance with law, regulation, and policy.
- I. By 1989, livestock grazing may not be permitted on federal grazing lands which do not have management plans that would put the lands in high-fair or better condition.

Opportunities

- A. The Forest Service could meet its obligation under the Black-footed Ferret Recovery Plan for Wyoming.
- B. Habitat for the endangered bald eagle could be maintained or enhanced by retaining prairie dog towns on federal land near the major eagle wintering areas on the Grassland.
- C. Habitat for several species of wildlife could be maintained by retaining prairie dog towns on federal land, especially if towns on private land will be controlled extensively.
- D. Management of prairie dog towns and livestock grazing management could be better coordinated through planning direction.
- E. Recreation possibilities could be enhanced by maintaining prairie dog towns on federal land.

- F. Relations between the Forest Service and permittees should improve because the Forest Service would have a Management Plan for prairie dogs and could act when conflicts arise.
- G. Range condition could be improved in some areas by managing prairie dogs and livestock numbers.
- H. Viable prairie dog populations could be maintained in accordance with law, regulation, and policy.

A new alternative (Alternative IV) has been written and evaluated because of comments by the public from their review of the Thunder Basin National Grassland Draft Prairie Dog Environmental Assessment. The dominant theme of the public comments was the inadequacy of the Forest Service's Preferred Alternative IIC in providing for threatened or endangered wildlife species habitat, other wildlife habitat, and recreation on federal lands. Another major comment concerned the implication that toxicants were the only viable means of controlling and/or managing prairie dog populations on the Grassland under Alternatives II and III. These comments pointed out that the Forest Service, as a public agency, has the responsibility to manage the Grassland for the benefit of all the citizens of the United States, and that some land uses such as livestock grazing should be managed more closely.

II. AFFECTED ENVIRONMENT

Physical

Thunder Basin National Grassland boundaries enclose 1,799,918 acres (572,319 federal, 1,222,599 state and private) in northeastern Wyoming. The climate is continental and semi-arid with cold winters and hot summers. The terrain is rolling and hilly with dissected uplands, escarpments, and buttes providing relief to the landscape. Precipitation averages 12 inches per year and comes mainly as spring and early summer rainfall. The vegetation is classified as the Black Hills pine forest (Pinus), Sagebrush steppe (Artemisia-Agropyron), Grama-needlegrass-wheatgrass (Bouteloua-Stipa-Agropyron), and Wheatgrass-needlegrass (Agropyron-Stipa) Potential Natural Vegetation Types (Kuchler, 1966). The surface of the Grassland is drained by tributaries of the Little Powder, Little Missouri, Belle Fourche, and Cheyenne Rivers of the Missouri River system.

Economic

The long-term major values of the Grassland are range and wildlife. Other multiple-uses are managed with these values in mind. Ranching has been the major economic activity on the Grassland even before the establishment in 1934 of the Northeastern Wyoming Land Utilization Project, the predecessor of Thunder Basin National Grassland. In the past few years, the mineral industry and its supporting industries have become a greater economic force than agriculture. However, ranching remains the major land use. Because mineral extracting activities are generally concentrated, the area retains much of its rural character even though human activity has increased several-fold the past few years.

According to the FY1980 Grazing Statistical Report for the Thunder Basin Ranger District there are 186 permittees with 203 allotments, utilizing 143,000 AUM's of forage for cattle, sheep, and horses. Over \$478,000 in grazing fees were paid. Some allotments have been considered overstocked, according to the 1980 Thunder Basin National Grassland Management Assessment.

Since 1972, no chemical control of prairie dogs has been permitted on federal land, nor have federal funds been used for control. However, many private landowners have used toxicants on their own land and leased state land.

A large variety of wildlife use the Grassland at least part of the year (251 species - 43 mammals, 192 birds, 10 reptiles, and 6 amphibians). All of these animals contribute to the economics of the Grassland through effects on agriculture and recreation. Antelope and mule deer are the major big game species and have attracted considerable numbers of hunters in previous years. Many non-resident hunters come to the Grassland, because of the blocks of public land. Hunting (big game, small game, and varmint) is the predominant recreational activity. In 1978, big game and small game hunting provided nearly 29,000 recreation days (Wyoming Game and Fish Department 1979 Annual Reports of Harvest). Fishing opportunities are limited due to the lack of permanent streams and large recreational reservoirs. Other recreation is generally dispersed.

Prairie dogs provide some recreational opportunities for varmint hunters. The recreation days provided by prairie dog hunting is not known. Both varmint hunters and recreation days can be expected to increase as the local human population increases due to mineral development.

Biological

In 1976, 91 prairie dog towns covering 12,768 acres (3,371 federal, 9,397 state and private) were mapped on the Grassland. This was an increase from about 3,000 acres in 1971, when poisoning was halted, for an average annual expansion rate of 32%. Mapping of prairie dog towns on federal, state, and private lands within the boundaries of the Grassland during 1979 and 1980 indicated a total of 23,123 acres were occupied by 161 prairie dog colonies, for an average annual rate of increase of 30% since 1976. This 23,123 acres is divided into 6,309 acres federal and 16,814 acres private and state ownership, and comprises only 1.3% of the total land area within the Grassland boundary. These acreage figures are

considered accurate within plus or minus 10%, for a range of 20,811 to 25,435 total acres of prairie dog towns.

On the Grassland, prairie dog towns are concentrated along the Cheyenne River and Antelope Creek drainages. These same areas have a long history of use by large herbivores dating from the buffalo days through the large ranching and trailherd days to the present. Development of stock ponds and windmills has enabled livestock to graze further from streams for a more even use of pastures. However, subsequent disturbance of the vegetation around the new water sources by livestock provided habitat for prairie dogs to colonize, allowing them to spread from historical habitats to suitable upland sites.

Some form of vegetative disturbance; such as overgrazing, drought, fire, or agriculture, which removes the perennial grasses and allows weedy plants to thrive, is necessary for the establishment of prairie dogs. Once they are established, prairie dogs are quite capable of maintaining a low vegetation aspect over their colony area. In many cases, total vegetative cover and plant production increases on prairie dog towns as compared to adjacent range. The increases in total vegetative cover and plant production are attributable primarily to annual forbs and short-grasses. The nutritional value of plants growing on prairie dog towns has been found to be quite high; therefore, the plants are more attractive to livestock during the growing season. This increases the potential for over-use. Prairie dogs and other burrowing animals have been shown to improve soil aeration, mixing, and formation as well as moisture infiltration rates. The relationship of prairie dogs to other range resources is discussed more fully in Appendix C.

Many other species of wildlife benefit from prairie dogs and prairie dog activities. Prairie dog towns provide high quality habitat for raptors, predators, other rodents, rabbits, song birds, shore birds, upland game birds, antelope, mule deer, reptiles, and amphibians (Appendix C).

The animal considered most closely associated with prairie dogs is the endangered black-footed ferret. This close relationship has existed for centuries; prairie dog remains have been found associated with ferret fossils at six Pleistocene sites in the West. In black-tailed prairie dog towns, the ferrets are quite dependent on prairie dogs for food and for cover provided by the burrows (Appendix C).

Since 1971 there have been five sightings of black-footed ferrets within Grassland boundaries. Clark and Stromberg (1977) list these sightings as three positive, one probable, and one possible (Appendix B). The most recent positive sighting was in the summer of 1976 near the ARCO Black Thunder Mine. Two possible ferret sightings were reported to the Forest Service prairie dog mapping crew in July, 1980, and these sightings have been reported to the U. S. Fish and Wildlife Service. Other ferrets may have been seen by ranchers, oil field workers, etc., but were not reported to the Forest Service or other agencies. However, in South Dakota even when ferrets were known to inhabit a prairie dog town, many man hours of intensive observation were spent for each ferret observed. Therefore, the existence of black-footed ferrets on the Grassland at present must be considered a strong possibility, and all prairie dog towns will need further investigation.

A fairly large population (50 - 100) of bald eagles (an endangered species) winters on the National Grassland. Bald eagles normally feed on fish and waterfowl when these are available. On the upland wintering areas, such as Thunder Basin National Grassland, fish and waterfowl are not available during winter. Research in other areas has shown that bald eagles feed on carrion, lagomorphs, and rodents when fish and waterfowl are not available. Forest Service personnel have observed bald eagles feeding on domestic livestock carcasses and road killed jackrabbits on the Grassland. Also, Wyoming Game and Fish Department analysis of eagle casts from roosts in Campbell County indicates that bald eagles are feeding largely on carrion (domestic sheep, antelope, deer, and jackrabbits). Because black-tailed prairie dogs are active all winter and have been eaten by bald eagles in other areas (Steenhof, 1978) they may be an important food source for eagles on Thunder Basin National Grassland. This matter needs further study.

USDI Fish and Wildlife Service researchers working in northcentral Wyoming have found that golden eagles, with prairie dog towns in their nesting territories, appear to have greater reproductive success than those eagles without access to prairie dog towns. Prairie dogs are a more stable food source for golden eagles than are jackrabbits (another major food item) which have cyclic population fluctuations. At least 80 pairs of golden eagles nest on the Grassland and data collected by the District Wildlife Biologist shows that several of these nesting pairs feed on prairie dogs. These findings have important implications for prairie dog management on the Grassland as it relates to endangered species management and overall wildlife habitat management.

Prairie dogs are susceptible to sylvatic (bubonic) plague, a virulent communicable disease carried by fleas. Spectacular die-offs have occurred historically in Kansas and Colorado as a result of plague, often reducing prairie dog populations by 95% or more. Sylvatic plague is known to exist in all the Rocky Mountain States and into the Great Plains. It has been detected among 57 wild rodent species, or their ectoparasites, in at least 140 counties of 15 western states as far east as the western portions of Kansas, Oklahoma, and Texas (Olsen, 1970). There are no records of sylvatic plague in prairie dogs in northern Wyoming and South Dakota; however, it is suspected to occur in western South Dakota (USDA 1976, 1978). As prairie dog populations continue to expand and fill the suitable habitat, the colonies will become more densely occupied. Such density can lead to physiological stress and could result in outbreaks of sylvatic plague (if the disease vectors and organisms are present) and thus to large die-offs of prairie dogs. Such die-offs would reduce black-footed ferret and other wildlife habitat and could endanger human health.

Literature Cited For The Affected Environment

Clark, T.W., and M. R. Stromberg, 1977. Black-footed ferrets and prairie dogs in Wyoming, 5 year (1973-1977) summary of research. Mimeo. 98pp.

Küchler, A.W. 1966. Potential natural vegetation (rev. map). USDI Geol. Surv., 1967, 1970.

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Steenhof, K. 1978. Management of wintering bald eagles. USDI Fish and Wildl. Serv., 59pp.

USDA Forest Service. 1976. An assessment of prairie dogs on National Forest System Lands in the Rocky Mountain region. Mimeo. 31pp.

_____. 1978. Prairie dog management - final environmental statement. Nebraska National Forest. 188pp.

III. EVALUATION CRITERIA

The preferred alternative will be chosen on the basis of the following criteria developed from Issues and Concerns:

- A. Maintain livestock grazing on the Grassland.
- B. Maintain or enhance habitat for threatened or endangered species.
- C. Maintain or improve range condition on grazed lands to high-fair or better.
- D. Maintain or improve recreation opportunities.
- E. Maintain or improve habitat for wildlife species benefiting from prairie dogs.
- F. Minimize soil erosion and maintain or improve water quality.

IV. ALTERNATIVES CONSIDERED

This section consists of two parts: (1) the alternative formulation criteria which describe the basis for each criterion used, and (2) a description of each alternative which meets these criteria, including mitigation measures, management constraints, and monitoring requirements.

The alternatives discussed here were considered by the Interdisciplinary Team to cover all viable options for prairie dog management.

Possible control methods considered applicable to all alternatives were:

1. Introduction of sylvatic plague.
2. Introduction of domestic European ferrets. (Mustela putorius).
3. Introduction of Siberian polecats. (Mustela eversmanni).

All three methods were rejected:

1. Introduction of sylvatic plague was rejected because of possible transmission to humans.
2. Introduction of domestic ferrets was rejected because it has been tried by some permittees without apparent success and because predators do not control prey populations.
3. Introduction of Siberian polecats, which are very similar to black-footed ferrets in appearance and ecology, was rejected because of the possibility of hybridization with black-footed ferrets and because Siberian polecats would not be able to control prairie dogs any more effectively than native predators.
4. Introduction of an exotic species is a violation of Wyoming State Law.

A. Alternative Formulation Criteria

1. All alternatives must comply with existing laws and regulations (State, Federal, and local), as well as with Executive Orders and Departmental Policy.
2. Alternatives must be technically and economically feasible.
3. Alternatives will be formulated to resolve issues and concerns.
4. Alternatives must be capable of being incorporated into the action section of an applicable Allotment Management Plan.

B. Alternatives

Description of Alternatives

<u>Alternative</u>	<u>Description</u>
I.	No action - prairie dogs will not be managed on federal land.
II.	Prairie dogs will be managed at some level on federal land.
A.	37,600 acres of prairie dog towns.
B.	2,700 to 6,300 acres of prairie dog towns.
C.	1,000 to 2,700 acres of prairie dog towns.
III.	Total control of prairie dogs on federal land.
IV.	Prairie dogs on federal land will be managed to reduce possible impact to private and state lands, and to provide multiple-use benefits from federal land. At least 5400 acres of prairie dog towns would be retained on federal land.

Alternative I

Prairie dog populations on federal land would not be managed differently than at present by the Forest Service. This is the "no action" alternative as required by the Council on Environmental Quality (under the National Environmental Policy Act of 1969). Prairie dogs would be allowed to reach a dynamic equilibrium with the range ecosystem, and would be controlled only by predation, intraspecific competition, disease, varmint hunters, and illegal poisoning.

As prairie dog populations expand to fit the available habitat, there would be increased pressure from private landowners for control by the Forest Service. Some of them may be tempted to practice control on federal land themselves. Such activities would require more enforcement by the Forest Service to end such illegal activity. Action against the ranchers grazing permit would have to be taken if illegal poisoning was proved. Livestock numbers would be reduced in allotments with expanding prairie dog populations to ease the impact on soils and watershed quality from dual use if found to be necessary.

Alternative II

Viable prairie dog populations would be maintained at a level consistent with producing a variety of outputs and minimizing adverse impacts to other resources on federal land.

There are three levels to be evaluated in this alternative; derivation of each level is explained in the discussion of the alternatives:

- IIA - 37,600 acres of prairie dog towns on federal land.
- IIB - 2,700 to 6,300 acres of prairie dog towns on federal land.
- IIC - 1,000 to 2,700 acres of prairie dog towns on federal land.

Control of prairie dog populations by use of zinc phosphide (see Appendix G), shooting, and natural factors is implicit in this alternative. The basic decision is the level of control rather than the fact of control. Prairie dog towns occurring on both federal and private or state land would be eliminated from the federal land portion, in most cases, to avoid conflict with private land-owners who control their portion of a town. Some towns would be reduced, but not eliminated, on federal land adjacent to private land. Control must be concurrent on adjacent private and public lands to be effective.

Where land ownership patterns permit, prairie dog towns would be managed to meet the minimum habitat requirements of black-footed ferrets as presented in the Black-footed Ferret Recovery Plan:

1. Provide at least eight towns per township.
2. Maintain each town at a minimum of 30 acres in size.
3. Maintain two or more towns exceeding 100 acres per township.

The 1980 prairie dog town acreage on federal land is estimated to be 6,300 acres, and analysis will be based on this figure. Approximately one-third of federal land is unsuitable for establishment of prairie dogs due to the topographic features and soil types occurring on escarpments and ridges and badlands. Presently about 73% of all prairie dog town acreage within Grassland boundaries is on private and state land. Of 80 towns incorporating federal land, only 30 (38%) are entirely on federal surface. Based on 1979-80 data, the area of prairie dog towns on federal land which can reasonably be retained without relocation of towns and which won't unduly impact private lands is 2,400 - 3,000 acres (average 2,700).

When prairie dogs are controlled on federal land the former town area would be protected from grazing by livestock for at least two years. To reach maximum recovery of forage vegetation, at least five years of rest from grazing would be necessary. Rest from grazing could involve fence construction, pasture boundary changes, reduction of livestock numbers on the remaining portions of an allotment to avoid overgrazing, development of new water sources, and initiation of deferred grazing systems. These measures would be very expensive but necessary if range condition is to be improved. Core areas of prairie dog towns should be fertilized and reseeded for quicker rehabilitation.

Where prairie dog towns on federal land are not completely eliminated, measures to limit reoccupation of controlled areas on private land would be necessary. Buffer zones created by fenced lanes with brush piles and raptor perches inside could be useful. However, there is very little information available on the effectiveness of buffer zones in limiting the movement of prairie dogs. The Forest Service could do some administrative studies on selected towns to determine the usefulness of buffer zones. Periodic control with toxicants would probably be necessary to contain the prairie dog population behind the buffer zone. On towns without buffer zones, periodic toxicant control would be absolutely necessary to maintain prairie dog towns at the size desired. Several levels of prairie dog town acreages will be considered under Alternative II. The Interdisciplinary Team chose this method of analysis because the effect on the human environment will be similar for each level, differing only in magnitude, not in kind.

Alternative IIA

Prairie dog towns on federal land would be maintained at 37,600 acres. The present federal prairie dog town acreage would be increased

so that ten percent of suitable federal land would be occupied by prairie dogs. Ten percent (37,600 acres) is a somewhat arbitrary upper limit to the amount of prairie dog town acreage that could be compatible with multiple-use sustained-yield management of all Grassland resources.

The goal of this alternative would be to deliberately increase managed prairie dog towns to 37,600 acres on federal land. This is the prairie dog emphasis alternative. Only 2,700 acres (average of 2,400 to 3,000 acres) of prairie dog towns can be reasonably retained without relocation from the present 6,300 acres on federal surface. To obtain 37,600 acres, 34,900 acres (37,600 minus 2,700) of new towns would need to be established on federal land throughout the Grassland. About 350 towns of 20 acres each would be established and allowed to grow to 100 acres each. Based on an average annual expansion rate of 30%, six years would be required for the 37,600 acre goal to be reached. To alleviate potential impacts to adjacent private land, 3,600 acres (6,300 minus 2,700) of existing prairie dog towns would be eliminated.

Achieving 37,600 acres of prairie dog towns would require extensive and careful planning by the Forest Service to balance the location of new towns against impacts to adjacent private land and livestock grazing resources on federal land.

At the 37,600 acre level, illegal poisoning by some permittees would be a problem and would be handled as discussed in Alternative I.

Alternative IIB

Prairie dog towns on federal land would be maintained at 2,700 to 6,300 acres. This alternative ranges from that acreage which could be reasonably retained without massive redistribution of prairie

dog towns (2,700 acres) to the present prairie dog town acreage on federal land (6,300 acres). Any acreage of prairie dog towns could be selected within the range of 2,700 to 6,300 acres.

To retain 6,300 acres of prairie dog towns on federal land would require considerable redistribution, involving elimination of some present towns and establishment of new towns in order to minimize movement of prairie dogs to adjacent private lands. All of the management techniques previously discussed could be applied at this level. These include exclusion of livestock grazing, buffer zones, reseeding of core areas, and periodic toxicant control after initial control. If town acreage decreased below 2,700 acres, steps would be taken to increase the acreage above 2,700 acres. Conversely, prairie dog town acreage would not be allowed to exceed 6,300 acres.

Illegal poisoning could be of concern, but should be much less a problem than under Alternative I.

Alternative IIC

Prairie dog towns on federal land would be maintained at 1,000 to 2,700 acres. This level ranges from the minimum prairie dog town acreage that can meet multiple-use requirements for endangered species and other wildlife habitat to the reasonable retention acreage. Any acreage of prairie dog towns could be selected within the range of 1,000 to 2,700 acres.

One thousand acres will meet the minimum recommendations of the Black-footed Ferret Recovery Plan which would require 380 acres of prairie dog towns distributed in one township. This would leave 620 acres of prairie dog towns on other federal lands for wildlife habitat and viable prairie dog populations. It should be emphasized that 1,000 acres of prairie dog towns is the absolute minimum that the Forest Service thinks will provide multiple-use benefits from prairie dogs.

It would not be necessary to redistribute prairie dog towns in order to avoid impact to adjacent private lands. Prairie dog control would only be done to alleviate impacts to private lands or other resources. The amount of initial control would be greater than in Alternatives I, IIA, and IIB. The Black-footed Ferret Recovery Plan could still be met, but there would be less prairie dog town acreage to choose from. All management techniques including removal of livestock for several years, buffer zones, reseeding of core areas, and periodic toxicant control after initial control would need to be applied at this level.

Illegal poisoning would likely be less of a problem, especially if prairie dog towns are located on large blocks of federal land, well away from private land.

Alternative III

Maximum control of prairie dogs on federal land would be undertaken by the Forest Service using toxicants and all other available methods. The toxicant used would be zinc phosphide, because it is the only registered compound for use in rodent control on federal land. Shooting of prairie dogs by the public would be encouraged.

Alternative III would violate the National Forest Management Act of 1976 which provides that viable populations of all wildlife species must be maintained on National Forest System lands. Therefore, this alternative does not meet Alternative Formulation Criterion 1. Alternative III - total eradication of prairie dog populations on federal lands - will be included and evaluated in this environmental assessment to answer Public Issues and Forest Service Management Concerns.

This alternative can be considered a possible action because no critical habitat for black-footed ferrets or bald eagles has been designated on the Grassland. However, five documented sightings of ferrets since 1971 are known for

the Grassland (Appendix B). Also, bald eagles are commonly observed during the winter and two roost sites have been documented on the Grassland. Maximum control of prairie dogs would destroy black-footed ferret habitat completely and could be detrimental to wintering bald eagles. No opportunity to meet the Forest Service's obligations under the Black-footed Ferret Recovery Plan would remain.

An important food source for nesting golden eagles would be eliminated, which would severely affect the reproductive efforts of 50% to 66% of nesting golden eagle pairs on the Grassland. Habitat for the many other wildlife species which use prairie dog towns would be eliminated a few years after the tunnels collapse, with impacts on population levels of many of these species (see Appendix C for more discussion).

After all existing prairie dog towns on federal land are eliminated, livestock grazing would be excluded on 6,000 to 7,000 acres for two to five years. Barren core areas of prairie dog towns, 2,000 to 3,000 acres, would need to be revegetated to achieve full recovery of forage species. Periodic toxicant control will be needed to prevent the re-establishment on federal lands of prairie dogs moving from untreated private lands. In order for this alternative to be successful, there must be total control on private and state lands as well.

Alternative IV

Prairie dog populations on federal land would be managed to reduce possible impact to private and state lands, and to provide multiple-use benefits from federal land. At least 5400 acres of prairie dog towns would be retained on federal land. Alternative IV resulted from public review comments concerning the Draft Prairie Dog Environmental Assessment which were received by the Forest Service.

The Forest Service considers prairie dog towns on federal land to be impacting private and state lands if: (1) the prairie dog towns are contiguous with private or state land, or (2) they are within one-quarter mile of private land on federal land tracts of less than 640 acres. Prairie dog towns on federal land will be treated with zinc phosphide to eliminate them or reduce their size, if the towns fall within the above guidelines. Prairie dog towns not considered to be impacting private land will usually be retained at 80-100 acres. However, some towns may be retained at 30-40 acres and some may be retained at sizes up to 640 acres. No one prairie dog town would be larger than 640 acres. New prairie dog towns would be evaluated for possible impact to private and state lands and then managed according to the above guidelines and procedures.

Toxicant control of any prairie dog town must be concurrent on adjacent private and federal lands to be effective.

Where land ownership patterns permit, prairie dog towns would be managed to meet the minimum habitat requirements of black-footed ferrets as presented in the Black-footed Ferret Recovery Plan:

1. Provide at least eight towns per township.
2. Maintain each town at a minimum of 30 acres in size.
3. Maintain two or more towns exceeding 100 acres per township.

Prairie dog towns that are eliminated to reduce impact to private lands would be protected from livestock grazing for two to five years to allow perennial grasses to fully recover. Rest from grazing would involve fencing the controlled areas, reduction of livestock numbers on the remaining portion of an allotment to prevent overgrazing, development of new water sources for better

distribution of livestock, and initiation of grazing systems through allotment management plans. Some portions of former prairie dog towns would need to be reseeded and fertilized for faster rehabilitation.

Measures to limit the expansion of retained prairie dog towns over their designated size would be necessary. Because of the well documented relationship between livestock grazing and the presence of prairie dogs, livestock grazing management could be the primary means of limiting prairie dog expansion. Such management would be long term in nature and would not produce immediate results. Buffer zones of fenced lanes, brush piles, raptor perches, and tall dense vegetation could be useful. There is very little information available on the effectiveness of buffer zones in limiting prairie dog expansion. The Forest Service would initiate administrative studies to determine the effectiveness of buffer zones before making general use of them. The introduction of swift foxes, a native species, could provide an additional predation impact on prairie dogs which may limit the expansion rate of prairie dogs. Even though livestock grazing management, buffer zones, and increased predation would limit prairie dog expansion they will not stop such expansion. Therefore, in some cases periodic toxicant treatment will be necessary but areas of treatment should not be as large as they would be if only toxicants were used.

While Alternative IV would reduce possible impact of prairie dogs from federal land to private and state lands, the concern of grazing permittees about too many prairie dogs on the Grassland would not be totally satisfied. Some permittees may be tempted to poison prairie dogs on federal lands. Such actions would require more intensive law

enforcement by the Forest Service. Livestock numbers could be reduced as the prairie dog acreage increases in a given allotment to reduce possible impact to soils and water quality from dual use by livestock and prairie dogs. Other methods such as new water developments, fencing, and different grazing systems and seasons may be needed to reduce livestock use of prairie dog towns.

There would be no definite upper limit to prairie dog acreage on federal land because prairie dogs would be able to expand to all suitable habitat as long as they are not impacting private and state lands and individual towns are not over 100 acres in size (640 acres maximum size for towns in the Rosecrans Black-footed Ferret Potential Habitat Area).

V. EFFECTS OF IMPLEMENTATION

This section provides the scientific and analytic basis for the comparison of the alternatives as required by CEQ. The consequences of implementing each alternative in terms of outputs, costs, and environmental changes are described. The effects of each alternative are considered for federal land only. The Forest Service assumes that prairie dog towns on private land will be eradicated; thus eliminating 73% of the existing prairie dog town acreage within the Grassland boundaries.

Alternative I - Prairie dog populations on federal land would not be managed differently than at present by the Forest Service.

A. Outputs

- (1) Acres of prairie dog towns - 6,300 acres plus and would increase at about 30% per year until suitable habitat was filled.
- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 6,300 acres plus and would increase as the acreage of prairie dog towns increases.
- (3) Potential of meeting the Black-footed Ferret Recovery Plan - Good and would increase as town acreage increased.
- (4) Potential recreation visitor days - High and would increase as town acreage increased and as regional human population grew. There could be a saturation point for varmint hunters and photographers/sight-seers where a given acreage of prairie dog towns would meet all demand, but it is an unknown quantity at this time.

B. Costs - cost derivations are discussed for Alternative I, and apply to the other alternatives as well. Also see Appendix F.

- (1) Potential AUM's (Animal Unit Months) of livestock forage foregone per year - 1,400 AUM's plus. This is based on an average stocking rate of 4.5 acres per AUM. To date the Forest Service has not reduced livestock numbers and/or AM's permitted on allotments with prairie dog towns. While realizing that prairie dog towns are not totally unuseable by livestock, and that livestock do indeed frequent such areas, we will assume that these areas are unsuitable only for the purpose of cost analysis. Therefore, the figures given here and in (2) below (also for each other alternative) only represent a potential loss of AUM's and grazing fees. It should be noted that elimination of prairie dogs will not result in new livestock AUM's over those already permitted.
- (2) Potential grazing fee receipts foregone per year - \$4,914.00 plus. This is based on \$3.51 per Animal Month (AM) and would increase as grazing fees are raised.
- (3) Initial zinc phosphide treatment - \$0. The basis for cost is \$7.00 per acre. Since there would be no control, there would be no cost.
- (4) Maintenance control per year - \$0. The basis for cost is \$7.00 per acre and a 30% increase in town acreage per year which is the acreage being controlled.
- (5) Establishment of new towns - \$0. The estimated cost of establishing new prairie dog towns is \$20.00 per acre. Since under this alternative, prairie dogs will not be managed, there would be no cost for establishment of new towns.
- (6) Acres of wildlife habitat lost - 0 acres. Wildlife habitat could be expected to increase.

- (7) Reseeding of controlled towns - \$0. Costs are figured at \$50.00 per acre. Since no towns will be controlled, no reseeded will be done.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 0 acres.
- (9) AUM's of livestock forage foregone on controlled towns per year for two to five years - 0 AUM's. These figures are based on the current average stocking rate of 4.5 acres per AUM. It may be necessary to reduce stocking rates, livestock numbers, or the grazing season on some allotments where prairie dog towns cover a large part of the allotment. However, the figures for such a reduction are unknown at this time. Improved range management could alleviate the amount of grazing reduction necessary.
- (10) Grazing fees foregone until the range recovers on controlled towns - \$0. This is figured at \$3.51 per AM over a two to five year period.

Total Annual Cost \$4,914 and increasing. Total Initial Cost \$0 (Table 3).

C. Environmental Changes

Potential habitat for endangered species (black-footed ferret and bald eagle) would continue to increase until prairie dog populations reach a balance with the available habitat. Habitat for other wildlife would also increase, subject to similar environmental restraints.

This alternative would not allow relief to other landowners who control prairie dog towns on their private and leased state land only to have reinvasions of prairie dogs from adjacent federal land. Some permittees would probably suffer financial losses from reductions of livestock numbers on allotments with large prairie dog towns. Range conditions would not be maintained or improved since the rating of range condition is based on the percentage of climax vegetation present on a site, and prairie dog towns generally have less climax vegetation.

It would be difficult to minimize soil erosion and maintain water quality on federal lands occupied by prairie dog towns (see Appendix D for further discussion). The effect of prairie dogs on soil erosion cannot be easily separated from other erosion stimulating agents such as drought, fire, overgrazing, or agriculture. Therefore, it is not clear that controlling prairie dogs alone would minimize soil erosion.

Recreation opportunities in the form of prairie dog hunting, wildlife photography, and sightseeing would be enhanced as prairie dog towns expanded in area and numbers. However, the visual desirability of the rangeland may decrease as prairie dog towns replace the "less disturbed" environment.

Alternative II - Prairie dog populations would be maintained at a level consistent with producing a variety of outputs and minimizing adverse impacts to other resources on federal land.

Explanations and the derivation of output and cost values are given in the appropriate headings under Alternative I and Appendix F.

Alternative IIA - 37,600 acres of prairie dog towns.

A. Outputs

- (1) Acres of Prairie dog towns - 37,600 acres. This acreage would not be allowed to increase once reached. Therefore, it would be the maximum acreage on federal land.
- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 37,600 acres.
- (3) Potential of meeting the Black-footed Ferret Recovery Plan - Excellent because distribution of towns on federal land would be better than that existing presently, black-footed ferret habitat would be enhanced.

- (4) Potential recreation visitor days -
Very High.

B. Costs

- (1) Potential AUM's of livestock forage foregone per year - 8,356 AUM's. This is the maximum number of AUM's which would be lost if prairie dog towns provided no livestock forage.
- (2) Potential grazing fee receipts foregone per year - \$29,326.00.
- (3) Initial zinc phosphide treatment - \$25,200.00 for 3,600 acres. This 3,600 acres would be the towns which are controlled to eliminate impacts on private lands, leaving 2,700 acres of the present 6,300 acres of towns on federal lands.
- (4) Maintenance control per year - \$78,960.00 for 11,280 acres of yearly increase at 30% rate of increase. This cost would not apply for the first six years (see #5 below).
- (5) Establishment of new towns - \$140,000.00. This is for establishment of 7,000 acres (350 - 20 acre towns) which would increase to 34,900 acres in six years. These plus 2,700 acres would provide the 37,600 acres of towns needed for this alternative.
- (7) Reseeding of controlled towns - \$180,000.00 for 3,600 acres.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 3,600 acres.
- (9) AUM's of livestock forage foregone on controlled towns per year for two to five years - 800 AUM's (1,600 AUM's for a 2 year deferment and 4,000 AUM's for a 5 year deferment).

- (10) Grazing fees foregone until the range recovers on controlled towns - \$2,808.00 per year (\$5,616.00 for 2 years, and \$14,040.00 for 5 years).

Total Annual Cost \$111,094. Total Initial Cost \$345,200 (Table 3).

C. Environmental Changes

Potential habitat for the black-footed ferret and bald eagle (both endangered species) as well as other wildlife benefiting from prairie dog towns would increase. The opportunity to re-establish populations of black-footed ferrets or to maintain surviving populations would be greatly improved.

Due to the interspersed landownership patterns, it will be difficult to establish and maintain 37,600 acres of prairie dog towns without some impact to private land. There could be continued effects on private lands which could result in financial loss to permittees.

Grazing will be deferred on 3,600 acres for two to five years representing a loss of 800 AUM's per year of grazing to affected permittees. Depending on economic conditions and the livestock market, this reduction could be a financial hardship to small ranch operators.

Range conditions on 37,600 acres would not be maintained or improved because range condition ratings are based on percentage of climax vegetation and prairie dog towns are generally in a seral vegetation stage.

Soil and water quality could decrease on 37,600 acres. However, the actual soil loss or degree of water quality degradation that can be attributed to prairie dog activities alone is not known at this time. The effect of prairie dogs cannot be easily separated from other soil disturbing agents at work on the Grassland.

Opportunities for prairie dog hunting, wildlife photography, and sightseeing would increase with more prairie dog town acreage, especially if these towns were located nearer to population

centers. As the population of Wyoming increases, due to energy mineral development, recreation will become more important on the Grassland and many recreation days can be provided by prairie dog towns.

Alternative IIB. - 2,700 to 6,300 acres of prairie dog towns.

A. Outputs

- (1) Acres of prairie dog towns - 2,700 to 6,300 acres.
- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 2,700 to 6,300 acres.
- (3) Potential for meeting the Black-footed Ferret Recovery Plan - Fair to Good.
- (4) Potential recreation visitor days - High.

B. Costs

- (1) Potential AUM's of livestock forage foregone per year - 600 to 1,400 AUM's. Again, this assumes total loss of prairie dog towns as livestock forage producing areas. At least 600 AUM's could be lost per year but not more than 1,400 AUM's per year.
- (2) Potential grazing fee receipts foregone per year - \$2,106.00 to \$4,914.00.
- (3) Initial zinc phosphide treatment - \$25,200.00. This cost will be the same for any acreage within the range of 2,700 to 6,300 acres, because 3,600 acres would have to be controlled regardless of the final acreage decided upon.
- (4) Maintenance control per year - \$5,670.00 to \$13,230.00. This is the cost of controlling the 30% annual rate of increase (810 acres to 1,890 acres per year).

- (5) Establishment of new towns - \$0 to \$14,400.00.
If this level was kept at 2,700 acres, no new towns would need to be established. If town acreage was allowed to increase to 6,300 acres, 36 twenty acre (720 acres) towns would be established and allowed to increase to the desired level.
- (6) Acres of wildlife habitat lost - 3,600 to 0 acres. At either end of the acreage range, 3,600 acres of wildlife habitat would be lost initially. As the level was allowed to increase from 2,700 acres to 6,300 acres, the lost habitat would be regained.
- (7) Reseeding of controlled towns - \$180,000.00 for 3,600 acres. Regardless of the level chosen, 3,600 acres will need to be controlled and revegetated.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 3,600 acres.
- (9) AUM's of livestock forage foregone on controlled towns per year for two to five years - 800 AUM's (1,600 AUM's for a two year deferment, 4,000 AUM's for five years). This applies regardless of the acreage level chosen.
- (10) Grazing fees foregone until the range recovers on controlled towns - \$2,808.00 per year (\$5,616.00 for two years, \$14,040.00 for five years).

Total Annual Cost \$20,952. Total Initial Cost \$219,600 (Table 3).

C. Environmental Changes

At this level, habitat for threatened or endangered species would remain the same as that existing presently or would be reduced by 43% to 2,700 acres depending on the acreage level chosen. Initially 3,600 acres of towns will be controlled and at least six years will be required before the 6,300 acre level is reached. As the acreage drops to 2,700 acres, the difficulty of maintaining habitat for black-

footed ferrets and bald eagles will increase. Enhancement of such habitat will require redistribution of prairie dog towns on federal land to meet the minimum recommendations of the Black-footed Ferret Recovery Plan at this level. Habitat for other wildlife species, which benefit from prairie dogs, will decrease by 43% as the 2,700 acre value is approached.

The economic impacts to livestock operators would be no worse than those existing now and would possibly decrease at 2,700 acres. The initial period of two to five years of deferment on 3,600 acres would represent a loss of 800 AUM's per year for that period. This could cause hardship to some permittees.

Range condition will improve on 3,600 acres of towns that will be controlled, but will remain the same on 2,700 acres and will probably decrease on 3,600 acres as new towns are established to reach the 6,300 acre upper limit. As discussed previously, control of prairie dogs alone will not insure improvement in range condition.

The amount of soil erosion and water quality degradation attributable to prairie dogs will be eliminated on 3,600 acres of controlled towns, will remain the same or increase on 2,700 acres, and will increase on 3,600 acres of new towns.

Recreation opportunities for prairie dog hunting, wildlife photography, and sightseeing will decline from the present amount as prairie dog town acreage is controlled to 2,700 acres. Visual values may be enhanced as controlled towns regain a near climax vegetation. Attainment of such vegetative condition implies intensive livestock and range management, not just control of prairie dogs.

Alternative IIC - 1,000 to 2,700 acres of prairie dog towns.

A. Outputs

- (1) Acres of prairie dog towns - 1,000 to 2,700 acres.

- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 1,000 to 2,700 acres.
- (3) Potential of meeting the Black-footed Ferret Recovery Plan - Poor to Fair.
- (4) Potential recreation visitor days - Low.

B. Costs

- (1) Potential AUM's of livestock forage foregone per year - 222 to 600 AUM's.
- (2) Potential grazing fee receipts foregone per year - \$799.00 to \$2,106.00.
- (3) Initial zinc phosphide treatment - \$37,100.00 to \$25,700.00. If only 1,000 acres of towns are retained, then 5,300 acres will be controlled. If the upper limit of 2,700 acres is retained, then 3,600 acres will need to be controlled.
- (4) Maintenance control per year - \$2,100.00 to \$5,670.00. This is the cost of controlling 300 to 810 acres of increase at the 30% annual rate of increase.
- (6) Acres of wildlife habitat lost - 5,300 to 3,600 acres.
- (7) Reseeding of controlled towns - \$265,000.00 to \$180,000.00. 5,300 acres to 3,600 acres of controlled prairie dog towns will need to be rehabilitated.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 5,300 to 3,600 acres.
- (9) AUM's of livestock forage foregone on controlled towns for a two to five year period - 1,178 to 800 AUM's (2,356 AUM's for two years, 5,890 for five years at 1,000 acres; 1,600 AUM's for two years, 4,000 for five years at 2,700 acres).

- (10) Grazing fees foregone until the range recovers on controlled towns - \$4,135.00 to \$2,808.00 per year (\$8,270.00 for two years, \$20,675.00 for five years at 1,000 acres; \$5,616.00 for two years, \$14,040.00 for five years at 2,700 acres).

Total Annual Cost \$10,584 (2,700 acre level), \$7,014 (1,000 acre level). Total Initial Cost \$205,200 (2,700 acre level), \$302,100 (1,000 acre level) (Table 3).

C. Environmental Changes

Potential threatened or endangered species habitat would be much reduced, therefore, black-footed ferrets and bald eagles will be impacted to a greater degree, especially as the 1,000 acre limit is approached. It will be much more difficult to meet the requirements of the Black-footed Ferret Recovery Plan. Also, habitat for other wildlife species will be adversely impacted. Up to 5,300 acres of wildlife habitat could be lost.

Permittees would lose 800 to 1,178 AUM's of grazing per year for a two to five year period on controlled towns which would be deferred from grazing for rehabilitation. This could impose financial burdens on some permittees. However, after the two to five year deferral period the 3,600 to 5,300 acres should support the same number of AUM's of livestock grazing and maybe more. Livestock stocking rates will be determined from range analysis and forage production studies and considered in the Allotment Management Plan for each allotment. There would perhaps be an increase in financial benefits to the permittees.

Range condition would increase to at least high-fair on 3,600 to 5,300 acres after prairie dog control, revegetation, and deferral from livestock grazing for two to five years.

The amount of soil erosion and water quality degradation attributable to prairie dogs will be eliminated on 3,600 to 5,300 acres of controlled towns.

Recreational opportunities related to prairie dog hunting, wildlife photography, and sight-seeing will be diminished. This level (1,000 acres) may not be capable of supporting the increased demand for recreation as the human population increases.

Alternative III. - Maximum control of prairie dogs on federal land using all available methods.

A. Outputs

- (1) Acres of prairie dog towns - 0.
- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 0.
- (3) Potential of meeting the Black-footed Ferret Recovery Plan - None.
- (4) Potential recreation visitor days - None.

B. Costs

- (1) Potential AUM's of livestock forage foregone per year - 0 acres. This would be true after the two to five year deferment of 6,300 acres from livestock grazing to allow revegetation.
- (3) Initial zinc phosphide treatment - \$44,100.00 for 6,300 acres.
- (4) Maintenance control per year - \$0. Theoretically, this is correct; however, there would probably be continuing reinfestation of federal land from uncontrolled private and state lands that would require some periodic control. This cost cannot be estimated at this time.
- (6) Acres of wildlife habitat lost - 6,300 acres. This represents a total loss of that habitat provided by prairie dogs for those wildlife species benefiting from prairie dog towns on federal land.

- (7) Reseeding of controlled towns - \$315,000.00 for 6,300 acres.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 6,300 acres.
- (9) AUM's of livestock forage foregone on controlled towns per year for two to five years - 1,400 AUM's (2,800 AUM's for two years, 7,000 AUM's for five years).
- (10) Grazing fees foregone until the range recovers on controlled towns - \$4,914.00 per year (\$9,828.00 for two years, \$24,570.00 for five years).

Total Annual Cost \$4,914 for five years. Total Initial Cost \$359,100 (Table 3).

C. Environmental Changes

All potential habitat for black-footed ferrets and some important habitat for wintering bald eagles would be totally eliminated. Habitat for many other wildlife species would be eliminated or impacted. No opportunity would remain for the Grassland to comply with the Black-footed Ferret Recovery Plan. At least 50% of the known 80 nesting pairs of golden eagles could experience lowered reproductive success, which could affect the golden eagle population of eastern Wyoming.

There should be no movement of prairie dogs from federal land to private and state lands, which would eliminate any hardship to permittees. However, prairie dogs would probably migrate from uncontrolled private towns to suitable areas of federal land, thus requiring periodic control on federal land. Permittees would lose 1,400 AUM's per year of livestock grazing for two to five years. After the deferment period, the 6,300 acres of former prairie dog towns should support at least 1,400 AUM's. The long-term effect on permittees and the livestock industry should be beneficial.

Range condition should increase to high-fair on 6,300 acres after prairie dog control, revegetation, and livestock grazing deferral for two to five years.

Any soil erosion or water quality degradation attributable to prairie dogs will be eliminated on 6,300 acres of controlled towns.

Recreation opportunities associated with prairie dog populations for prairie dog hunters, photographers, and sightseers would be eliminated or reduced. The visual aspect of prairie dog towns would probably improve as climax vegetation returned.

Alternative IV - Prairie dogs on federal land will be managed to reduce possible impact to private and state lands, and to provide multiple-use benefits from federal land. At least 5,400 acres of prairie dog towns would be retained on federal land.

A. Outputs

- (1) Acres of prairie dog towns - 5400 acres plus. This acreage would increase at about 30% per year until the suitable habitat that is available within the guidelines for impact to private land and town size limitations is filled.
- (2) Acres of wildlife habitat for species benefiting from prairie dog towns - 5400 acres plus. Wildlife habitat would increase as prairie dog acreage increases.
- (3) Potential of meeting the Black-footed Ferret Recovery Plan - Good to Excellent.
- (4) Potential recreation visitor days - High.

B. Costs

- (1) Potential AUM's of livestock forage foregone per year - 1200 AUM's plus.
- (2) Potential grazing fee receipts forgone per year - \$4212.00 plus.
- (3) Initial zinc phosphide treatment - \$6,300.00. For 900 acres of prairie dog towns that would be controlled.

- (4) Maintenance control per year - \$11,340. For 1,620 acres of yearly increase from 5400 acres of towns. However, not all of the 1620 acre yearly increase would be controlled, so this is a maximum cost for maintenance control.
- (5) Establishment of new towns - \$0. No new prairie dog towns would be established.
- (6) Acres of wildlife habitat lost - 900 acres. After initial toxicant treatment wildlife habitat would increase as prairie dog acreage increases .
- (7) Reseeding of controlled towns - \$45,000. For 900 acres.
- (8) Acres of range closed to grazing for recovery of controlled towns for a two to five year period - 900 acres.
- (9) AUM's of livestock forage foregone on controlled towns per year for two to five years - 200 AUM's (400 AUM's for a two year deferment and 1000 AUM's for a five year deferment).....
- (10) Grazing fees foregone until the range recovers on controlled towns - \$702.00 per year (\$1404.00 for two years, and \$3510.00 for five years).

Total Annual Cost \$16,254. Total Initial Cost \$51,300 (Table 3).

C. Environmental Changes

Potential habitat for endangered species (black-footed ferret and bald eagle) would decrease by 900 acres from the present (1980) prairie dog town acreage of 6300 acres initially. As prairie dog populations increase and expand on federal land this lost 900 acres would be regained and increased in the future. Habitat for threatened or endangered species would be enhanced over the long-term. Habitat for other wildlife benefiting from prairie dog towns would also be enhanced.

Because prairie dogs on federal land will be managed to reduce possible impacts to private lands most permittees should have less economic impact from prairie dogs moving from federal land to private land. However, since prairie dog acreages on federal land would be reduced only 900 acres initially and then allowed to increase within the guidelines given for Alternative IV, there would be an economic effect on some permittees, if livestock numbers were reduced. Overall viability of the livestock industry should not be affected substantially.

Range conditions will improve on 900 acres of toxicant treated prairie dog towns after two to five years of rest from livestock. As prairie dog town acreages increased within the guidelines of Alternative IV more federal land would be in lower range condition. Proper livestock grazing management would prevent range condition deterioration on much federal land, including prairie dog towns.

Whatever soil erosion and water quality degradation that are attributable to prairie dogs would be eliminated on 900 acres after initial treatment, and would increase as prairie dog acreage expands in the future.

Recreation opportunities for prairie dog hunting, wildlife photography, and other outdoor activities connected with prairie dog towns would increase over the long term. Prairie dog towns should be distributed better on federal land for more equal recreation use.

VI. EVALUATION OF ALTERNATIVES

Alternatives are evaluated based upon their effects of implementation and are weighed against the evaluation criteria to determine the preferred alternative (Tables 1 and 2). The information necessary to conduct a detailed analysis of the benefit/cost ratio for each alternative was not available. Therefore, only costs to the Forest Service are analyzed (see Table 3).

The evaluation criteria are weighted on a scale of 1 to 5 with 1 being least important and 5 being most important.

Evaluation Criterion A: Maintain livestock grazing on the Grassland - weight 2. At the maximum, prairie dogs would occupy only 6.6% of federal land. The major effect of prairie dogs on livestock grazing would be from those on private land (73% of the total prairie dog town acreage is on private and state land). Some individual permittees may suffer financial loss, but the overall economic viability of the livestock industry would not be affected by prairie dog towns on federal land.

Evaluation Criterion B: Maintain or enhance habitat for threatened or endangered species - weight 5. Two endangered wildlife species have been documented on Thunder Basin National Grassland, and both benefit from prairie dogs. In black-tailed prairie dog towns the black-footed ferret is extremely dependent on prairie dogs for food and cover. Bald eagles, which winter here, feed on prairie dogs but are not entirely dependent on them. The alternatives under consideration will have a direct and permanent effect on threatened or endangered species habitat.

Evaluation Criterion C: Maintain or improve range condition on grazed lands to high-fair or better - weight 3. In only one alternative could range condition deterioration due to prairie dogs affect more than 6.6% of federal land. Therefore, the alternatives under consideration will not affect range condition improvement on a very large percentage of federal land.

Evaluation Criterion D: Maintain or improve recreation opportunities - weight 1. Dispersed recreational activities associated with prairie dogs, especially varmint hunting, will be affected by the alternatives under consideration. However, the amount of recreation provided by prairie dogs is unknown and probably is utilized in association with other recreational activities such as big game hunting. So only one alternative would have significant impact on recreation opportunities provided by prairie dogs.

Evaluation Criterion E: Maintain or improve habitat for all wildlife species benefiting from prairie dogs - weight 3. Prairie dog towns provide important habitat for many species of wildlife, and all of the alternatives under consideration will affect wildlife benefiting from prairie dogs. However, the percentage of federal land occupied by prairie dogs is small, and the impact on overall wildlife habitat would be small. An exception is nesting golden eagles; those eagles which have prairie dog towns in their territories, are apparently more successful at raising their young (J. M. Lockhart, USDI Fish and Wildlife Service, Sheridan, Wyoming). This could apply to other raptors as well.

Evaluation Criterion F: Minimize soil erosion and maintain or improve water quality - weight 2. It is difficult to separate the amount of soil erosion and water quality degradation attributable to prairie dogs from that caused by other agents. Because of the small percentage of federal land occupied by prairie dogs, this criterion would not be significantly affected by any of the alternatives under consideration.

Alternative I

Under this alternative, 1,400 AUM's of livestock forage per year could be lost if the Forest Service was to find all prairie dog town acreage to be unsuitable for grazing and reduce permits accordingly. To date no reductions in livestock numbers or AM's on allotments with prairie dog towns have been made. If such reductions were made, they would be on a per allotment basis and only after

range analysis and production studies were finished. Such reductions would be covered in the allotment management plans for those allotments with prairie dog towns. This situation is applicable regardless of the alternative discussed. The potential loss of grazing fee receipts to the Forest Service for 1,400 AM's would be \$4,914.00 per year. Because prairie dogs would not be managed, they would continue to expand at about 30% annually. Therefore, the lost grazing values could be expected to increase over time. Theoretically, prairie dogs could expand to all suitable federal land. The figures presented are the worst possible case that could occur. Prairie dog towns are not totally unsuitable for livestock grazing; therefore, permits would not have to be cut the full estimated amount. Over the long term, this alternative could have significant impact on livestock grazing on federal land.

The present 6,300 acres of prairie dog towns would expand at about 30% annually until most suitable habitat was full. Habitat for endangered species would also expand. There is now a good potential for meeting the Forest Service's responsibilities under the Black-footed Ferret Recovery Plan. Expanding populations of prairie dogs raise the possibility of sylvatic plague die-offs of prairie dogs which would affect black-footed ferret habitat. Wintering habitat for about 95 bald eagles could possibly increase.

Range condition would remain at less than high-fair on at least 6,300 acres and could decrease on more federal land as prairie dog populations increase.

Recreation opportunities for varmint hunting, wildlife photography, and sightseeing would be good.

At least 6,300 acres of wildlife habitat would be available for those species benefiting from prairie dogs. This habitat would increase at about 30% annually. However, it could be expected to fluctuate.

tuate as prairie dog populations are subjected to natural perturbations. It would be difficult to plan properly for wildlife habitat management on federal land.

Soil erosion and water quality degradation attributable to prairie dogs would impact 6,300 acres and would increase each year. Eventually the effect of prairie dogs on soil erosion and water quality might surpass the effects of other causal agents.

Alternative IIA

If 37,600 acres of prairie dog towns were determined to be unsuitable for livestock grazing, 8,356 AUM's per year of livestock forage could be lost. On towns that would be controlled and rehabilitated, 800 AUM's per year for two to five years would be lost by permittees as the range was rested. The Forest Service could lose \$29,326.00 per year on 37,600 acres and \$2,808.00 per year for two to five years until range conditions improve on 3,600 acres of controlled towns.

Prairie dogs would be limited to a maximum of 37,600 acres of federal land and not allowed to expand at the 30% annual rate as in Alternative I.

Again, estimates of livestock forage AUM's lost are the "worst case". The impact on ranchers would be stretched over several years, as it would take at least six years to attain 37,600 acres of prairie dog towns. Certainly some permittees would be affected to a greater degree than others. However, overall livestock grazing on Thunder Basin National Grassland would be maintained. More permittees would be affected by prairie dogs on their allotments because prairie dogs would be introduced into new areas. The 37,600 acres of prairie dog towns on federal land is 1.6 times more acreage than presently exists on all lands within Grassland boundaries.

This alternative would provide more habitat for black-footed ferrets and bald eagles than any other alternative except Alternative I. There would be an excellent opportunity for meeting the Black-footed Ferret Recovery Plan. Since new towns are to be established, they could be planned

to conform to the best known information about black-footed ferret habitat requirements, thereby creating the best ferret habitat possible.

Sylvatic plague could be a problem as the prairie dog population increased; however, by managing the towns for size, distribution, and population levels the severity of plague would be minimized.

Range condition would be less than high-fair on up to 37,600 acres due to prairie dogs.

Recreation opportunities for varmint hunting, wildlife photography, and sightseeing would be very high.

There would be 37,600 acres of habitat for those wildlife species benefiting from prairie dogs. Also, a known quantity of wildlife habitat would be available on which to base management decisions affecting wildlife habitat.

Soil erosion and water quality degradation caused by prairie dogs would affect 37,600 acres of federal land, and would not be improved on this land.

Alternative IIB

Prairie dog town acreage would range from 2,700 to 6,300 acres. If all towns were unsuitable for grazing, 600 to 1,400 AUM's would potentially be lost to livestock grazing each year. Eight hundred AUM's per year for two to five years would be lost as controlled towns were rested for range condition improvement. The Forest Service could lose \$2,106.00 to \$4,914.00 per year of grazing fees if prairie dog towns were unsuitable for grazing. On controlled towns which are rested, the grazing fee loss would be \$2,808.00 per year for two to five years. Prairie dogs would be maintained at 2,700 to 6,300 acres on federal land, thus limiting the impact on private land. Some permittees would continue to have prairie dogs on their allotments and some other areas currently without prairie dogs may have them introduced. Individual permittees would probably be affected financially, but overall livestock grazing would be maintained.

Habitat for endangered species, especially the black-footed ferret would range from 2,700 to 6,300 acres. The Forest Service would have a fair to good chance of meeting its responsibilities under the Black-footed Ferret Recovery Plan.

Sylvatic plague would be of little consequence at this level of prairie dog acreage.

Range condition would be less than high-fair on 2,700 to 6,300 acres. On the 3,600 acres of towns controlled, range condition would improve after rehabilitation and deferment from grazing for two to five years. However, range condition could decrease on up to 3,600 acres as new towns were established to obtain 6,300 acres of prairie dog towns.

Recreational opportunities for varmint hunting, wildlife photography, and sightseeing would be fair to high.

Habitat for wildlife benefiting from prairie dog towns would range from 2,700 to 6,300 acres, but would never be less than 2,700 or more than 6,300 acres. Up to 3,600 acres of habitat could be lost if controlled towns were not replaced. There would be a known amount of habitat on which habitat management decisions could be based.

Soil erosion and water quality degradation caused by prairie dogs would affect 2,700 to 6,300 acres. The effect of prairie dogs would be eliminated on up to 3,600 acres, but would affect another 3,600 acres as new towns were established.

Alternative IIC

If all prairie dog town acreage (1,000 to 2,700 acres) were unsuitable for grazing, 222 to 600 AUM's of livestock forage would potentially be lost to livestock grazing each year. On towns that are controlled (3,600 to 5,300 acres) 800 to 1,178 AUM's of livestock grazing would be lost for two to five years as these lands are rehabilitated

and rested for recovery of range condition. The Forest Service would lose \$779.00 to \$2,106.00 per year if the 1,000 to 2,700 acres were totally unsuitable for grazing and livestock AUM's were reduced. The grazing fee loss to the Forest Service from controlled towns which are rehabilitated and rested would range from \$2,808.00 to \$4,135.00 per year for two to five years. Prairie dogs would be maintained at 1,000 to 2,700 acres on federal land. This would limit the impact of prairie dogs on private lands. Some permittees would continue to have prairie dog colonies on their allotments. Livestock grazing on Thunder Basin National Grassland would be affected very little by this alternative.

Endangered species habitat would be limited to 2,700 acres and could be as low as 1,000 acres. This means a poor (1000 acres) to fair (2700 acres) potential for meeting the requirements of the Black-footed Ferret Recovery Plan.

There would be very little danger of sylvatic plague at this level.

Only 1,000 to 2,700 acres of federal land would be in less than high-fair range condition due to prairie dogs. Rehabilitation and deferred grazing for two to five years would allow 3,600 to 5,300 acres to return to high-fair or better condition. No new acreage would be reduced to less than high-fair condition by prairie dogs.

The opportunity for maintaining dispersed recreational activities associated with prairie dog towns would be low to fair.

Only 1,000 to 2,700 acres of wildlife habitat for those species benefiting from prairie dog towns would remain on federal land. A loss of 3,600 to 5,300 acres of wildlife habitat would have a serious effect on habitat management by the Forest Service. A known amount of habitat would exist for management planning, but would be minimal for effective habitat management.

The effects of prairie dogs on soil erosion and water quality would be felt on 1,000 to 2,700 acres. Soil erosion should be reduced and water

quality should be improved on 3,600 to 5,300 acres of former prairie dog towns after two to five years of rehabilitation and grazing deferment.

Alternative III

If this alternative was chosen and implemented, no AUM's would be lost due to unsuitability of prairie dog towns for livestock grazing. However, 1,400 AUM's would be lost for two to five years as 6,300 acres of controlled towns are rehabilitated and deferred from livestock grazing until range condition improves. After the range condition of former town sites improved the Forest Service would lose no grazing fees. For a two to five year period the grazing fee loss would be \$4,914.00 per year. There would be no impact on private lands from prairie dogs on federal lands. However, there may be impact on federal lands from prairie dogs originating on private lands. Any affect of prairie dogs on livestock grazing would be eliminated on federal land.

Habitat for the black-footed ferret on federal land would be totally eliminated. The Forest Service would have no opportunity of meeting its responsibilities under the Black-footed Ferret Recovery Plan. A food source for wintering bald eagles would be eliminated.

Range condition would improve on 6,300 acres of federal land after two to five years of rehabilitation and grazing deferment.

There would be a 100% loss of dispersed recreational opportunities and value from prairie dog towns.

All wildlife habitat associated with prairie dog towns on federal land would be lost. The impact on nesting golden eagles and other raptors would be extremely severe. The 6,300 acres of wildlife habitat lost would have to be mitigated by other habitat improvement projects. It would be difficult to mitigate the loss of food to eagles, other raptors, and mammalian predators.

Soil erosion and water quality degradation due to prairie dogs would be eliminated on federal land, and 6,300 acres would improve in this regard after two to five years of rehabilitation and grazing deferment.

Alternative IV

The potential loss of livestock forage on federal land could be at least 1200 AUM's per year. This loss would result if the Forest Service found 5400 acres of prairie dog towns to be totally unsuitable for livestock grazing and reduced livestock numbers accordingly (see discussion in Alternative I, this section). The potential loss of grazing fee receipts to the Forest Service for 1200 AUM's would be \$4212.00 per year. Prairie dog acreage would expand in the future at something less than the current 30% average annual rate because of management procedures. Because of future increases in prairie dog town acreage on federal land, the potential loss of livestock AUM's and Forest Service grazing fee receipts could be larger than 1200 AUM's and \$4212.00 per year. Also, livestock numbers reductions through allotment management plans as a means of limiting prairie dog expansion are possible. Over the long term, this alternative could have an impact on livestock grazing on federal land.

The present 6300 acres of prairie dogs would decrease to 5400 acres after initial toxicant treatment. However, within a year the lost 900 acres could be regained and redistributed some under the guidelines for Alternative IV. The potential of meeting the Forest Service's responsibilities under the Black-footed Ferret Recovery Plan would be good to excellent. As managed populations of prairie dogs increase, habitat for other wildlife, including threatened or endangered species, would also increase. Expanding prairie dog populations could be susceptible to sylvatic plague die-offs, which would affect potential habitat for black-footed ferrets and other wildlife. By managing prairie dog populations for size and distribution the danger of plague outbreaks should be minimized. The Wyoming Game and Fish Department, in comments to the Draft Prairie Dog Environmental Assessment, mention records of plague during the late 1940's on the Powder River.

Range condition would remain at less than high-fair on at least 5400 acres, would improve on 900 acres (after rest from livestock and revegetation) and would possibly decrease on more federal land as prairie dog populations increase under the guidelines of Alternative IV.

Recreation opportunities for varmint hunting, wildlife photography, and sightseeing would be good. Potential recreation visitor days would be high.

A minimum of 5400 acres of wildlife habitat would be available for those species benefiting from prairie dogs. This habitat would increase over the long term as federal land prairie dog towns are managed under Alternative IV guidelines.

Soil erosion and water quality degradation attributable to prairie dogs would impact at least 5400 acres and would probably increase in the future. As discussed previously, the effect of prairie dogs on soil erosion and water quality is very difficult to differentiate from other degrading factors.

TABLE 1 - EVALUATION OF ALTERNATIVES

Evaluation Criteria/ Alternatives	I	IIA	IIB	IIC	III	IV
A. Maintain live-stock grazing on the Grass-land. Weight 2	1,400 AUM's potentially lost on 0 AUM's lost on controlled towns. Prairie dogs could theoretically expand to all suitable F.S. land.	8,356 AUM's potentially lost on 800 AUM's lost on controlled towns for 2-5 yrs. Prairie dogs would be limited to a maximum of 37,600 acres of F.S. land.	600-1,400 AUM's potentially lost on dog towns. 800 AUM's lost on controlled towns for 2-5 yrs. Towns would be maintained at 2,700-6,300 acres on F.S. land.	222-600 AUM's potentially lost on prairie dog towns. 800-1,178 AUM's lost on controlled towns for 2-5 yrs. Towns would be maintained at 1,000-2,700 acres	0 AUM's potentially lost on prairie dog towns for 2-5 yrs. Towns would be maintained at a minimum of 5,400 acres on F.S. land.	1200 AUM's potentially lost on prairie dog towns. 200 AUM's lost on controlled towns for 2-5 yrs. Towns would be maintained at a minimum of 5,400 acres on F.S. land.
B. Maintain or enhance habitat for threatened or endangered species. Weight 5	6,300 acres of towns. Good potential for meeting BFF Recovery Plan. Could provide an increasing food source for wintering bald eagles.	37,600 acres of towns. Excellent potential for meeting BFF Recovery Plan. Would provide more bald eagle habitat than all other Alternatives except I.	2,700-6,300 acres of towns. Fair to good potential for meeting BFF Recovery Plan. Would provide less habitat for bald eagles than Alternatives I or IIA.	1,000-2,700 acres of towns. Poor to fair potential for meeting BFF Recovery Plan. 100% less habitat for bald eagles than I and much less than II A, B, C.	No potential for meeting BFF Recovery Plan. 100% less habitat for bald eagles than I and much less than II A, B, C.	5,400 acres of towns. Good to excellent potential for meeting BFF Recovery Plan. Would provide as much bald eagle habitat as Alternatives I or IIA over the long term.
C. Maintain at or improve range condition on grazed lands to high-fair or better. Weight 3	Less than high-fair condition on 6,300 acres. Condition would decrease on more F.S. land as towns expand.**	Less than high-fair range condition on 37,600 acres.	Less than high-fair on 2,700-6,300 ac. would provide increased range condition (****) on more ac. than I or IIA.	Less than high-fair on 1,000-2,700 ac. Would provide increased range condition on more acres than I, IIA, IIB.	All prairie dog towns would improve to high-fair or better condition.* Best of all alternatives.	Less than high-fair on at least 5,400 ac. increase of range condition on 900 ac. Would provide less range condition increase than Alternatives IIB, IIC, & III.
D. Maintain or improve recreation opportunities. Weight 1	High potential for maintaining wildlife hunting, wild-life photography, and sightseeing.	Very high potential for maintaining dispersed recreation activities.	Fair to high potential.	Low to fair potential.	100% less on federal lands of recreation activities associated with prairie dog towns.	High potential for maintaining dispersed recreation opportunities.
E. Maintain or improve habitat for all wildlife species benefiting from prairie dogs. Weight 3	6,300 acres of habitat for wildlife benefiting from prairie dogs.	37,600 acres of habitat for wildlife.	2,700-6,300 acres of wildlife habitat. Could be a loss of 3,600 acres (at 2,700 acre level).	1,000-2,700 acres of wildlife habitat. Would be a loss of 3,600-5,300 acres.	0 acres of habitat for wildlife benefiting from prairie dogs. Loss of at least 6,300 ac. of habitat. Lost habitat would have to be mitigated by other measures.	At least 5,400 acres of wildlife habitat, and would increase in the future.
F. Minimize soil erosion and maintain or improve water quality. Weight 2	Soil erosion and water quality degradation attributable to prairie dogs would impact 6,300 acres.***	Would impact 37,600 ac. Less than I, after 7 yrs. of unrestricted growth the present (1980) acreage would increase to over 39,500 acres.	Would impact 2,700-6,300 acres. Less than I or IIA, more than IIC or III.	Would impact 1,000-2,700. Less than I, IIA, or IIB.	No impact on soil erosion and water quality by prairie dogs. Less than I, IIA, B, or C.	Would impact at least 5,400 ac. Less than I or IIA, more than IIB, IIC, or III.

* Assumes that prairie dog towns are totally unsuitable for livestock grazing and that AUM's will have to be reduced to that amount.
 ** Assumes that range condition deterioration is totally due to prairie dog activities.
 *** It is very difficult to separate the effect of prairie dogs on soil erosion and water quality from other causes, particularly livestock grazing.
 **** Assumes that prairie dog towns which are controlled will be rehabilitated and deferred from livestock grazing until range condition improves.

TABLE 2.

EVALUATION OF ALTERNATIVES

Evaluation Criteria	ALTERNATIVES												
	I WT	I SC	I WTSC	IIA SC	IIA WTSC	IIB SC	IIB WTSC	IIC SC	IIC WTSC	III SC	III WTSC	IV SC	IV WTSC
A. Maintain livestock grazing on the Grassland.	2	2	4	1	2	2	2	2	4	3	6	2	4
B. Maintain or enhance habitat for threatened or endangered species.	5	3	15	3	15	2	10	1	5	1	5	3	15
C. Maintain at or improve range condition on grazed lands to high-fair or better.	3	1	3	1	3	2	6	2	6	3	9	1	3
D. Maintain or improve recreation opportunities.	1	3	3	3	3	2	2	2	2	1	1	3	3
E. Maintain or improve habitat for all wildlife species benefiting from prairie dogs.	3	3	9	3	9	2	6	1	3	1	3	3	9
F. Minimize soil erosion & maintain or improve water quality.	2	2	4	1	2	2	4	3	6	3	6	2	4
TOTAL	14	38	12	34	12	32	11	26	12	30	14	38	

Each alternative will be scored for its effect on each evaluation criterion based on changes from the present condition.

WT = Weight, SC = Score, WTSC = Weighted Score

Values: 1 = negative, 2 = neutral, 3 = positive effects.

TABLE 3.

ANNUAL COSTS, INITIAL COSTS, AND PERCENT FEDERAL LAND IN
PRAIRIE DOG TOWNS FOR EACH ALTERNATIVE

Alternatives	Annual Costs*	Initial Costs**	Percent Federal Land in Prairie Dog Towns
I	\$4,914 and increasing	\$0	1.1% and increasing
IIA	\$111,094 (37,600 acres)	\$345,200	6.6%
IIB	\$20,952 (6,300 acres)	\$219,600	1.1%
IIC	\$10,584 (2,700 ac.) \$7,014 (1,000 ac.)	\$205,200 \$302,100	0.4% 0.17%
III	\$4,914 for 5 years***	\$359,100	0%
IV	\$16,254	\$51,300	0.9% & increasing

* Annual costs include grazing fees potentially foregone by the Forest Service on prairie dog towns (Alternatives I, IIA, IIB, IIC, IV), maintenance control of a 30% per year increase in prairie dog town acreage (Alternatives IIA, IIB, IIC, IV), and grazing fees foregone by the Forest Service on controlled towns which are rested from grazing (cost on controlled towns would last for only 5 years).

** Initial costs include initial toxicant control of prairie dogs, establishment of new prairie dog towns (Alternatives IIA and IIB), and revegetating of controlled prairie dog towns.

*** There will be an additional cost for controlling reinfestations of federal land by prairie dogs moving from uncontrolled private and state lands. This cost is unknown but could be as much as the annual maintenance control cost for Alternative IIA.

VII. IDENTIFICATION OF THE FOREST SERVICE PREFERRED ALTERNATIVE

In this section, the Forest Service preferred alternative will be identified and the reasons for its selection given.

The Forest Service preferred alternative is Alternative IV. Prairie dog populations on federal land would be managed to reduce possible impact to private and state lands, and to provide multiple-use benefits from federal land. At least 5,400 acres of prairie dog towns would be retained on federal land.

This alternative ranked highest overall during the Evaluation of Alternatives (Table 2); showing that Alternative IV will provide the best mix of multiple-use values as determined from the evaluation criteria and weighted scores. Alternative I ranked equally, but would not allow for management of prairie dogs on federal land, therefore, was not selected.

None of the alternatives completely satisfies the individual objectives of this Assessment (page 1). However, the Forest Service Preferred Alternative best reconciles Public Issues, Management Concerns, and the Assessment Objectives.

Threatened or endangered species (black-footed ferret and bald eagle) habitat will initially decrease from that presently existing by 900 acres. Such habitat will increase as prairie dog acreage on federal land increases subject to the guidelines of Alternative IV. The location and management of a Potential Black-footed Ferret Habitat Area will be included in the Forest Service's Prairie Dog Management Plan that will result from this Assessment.

The preferred alternative will reduce the possible movement of prairie dogs from federal land to private and state lands. However, the movement of prairie dogs from uncontrolled private and state lands to controlled federal lands will not be solved by any of the alternatives considered. The Forest Service will monitor prairie dog movements onto federal lands through comprehensive allotment inspections. There could be more potential competition for forage between prairie dogs and live-

stock on federal land with the preferred alternative than with the other alternatives (except Alternative I). Range condition will improve on 900 acres of toxicant treated federal prairie dog towns, after rest from livestock grazing and revegetation. This is fewer acres of range condition improvement than would be provided by all other alternatives except Alternative I.

The soil erosion and water quality degradation attributable to prairie dog towns will be eliminated on less federal land by the preferred alternative than by any other alternative except Alternative I. However, the amount of soil erosion or water quality degradation caused by prairie dogs would be negligible under any of the alternatives considered.

Recreational opportunities will be maintained at an equal level to those presently existing, and will be greater than those that would be available under Alternatives IIB, IIC and III. The actual recreational use of prairie dog towns is not known, and is thought to be fully satisfied by the preferred alternative for the foreseeable future.

Economically, Alternatives I and III are more attractive (less direct financial cost to the Forest Service) than the preferred alternative (Table 3). Alternative I is unacceptable because it would do nothing to alleviate the perceived conflict of prairie dogs with other uses of the Grassland. The elimination of threatened or endangered species habitat by Alternative III makes it equally unacceptable. The other alternatives would cost the Forest Service more to implement and maintain than the preferred alternative (Table 3).

Prairie dogs should not be controlled if range analysis and allotment management plans do not indicate the need for such control. Basically the only reason for control of prairie dogs on federal land is to alleviate the impact of prairie dogs from federal land to private land. While recognizing that prairie dogs can travel several miles during seasonal dispersal, the Forest Service will consider

prairie dog towns on federal land to be impacting private land if: (1) the prairie dog towns are contiguous with private or state land, or (2) they are within one-quarter mile of private land on federal land tracts of less than 640 acres.

The Prairie Dog Management Plan resulting from this Environmental Assessment will be implemented immediately for selected towns deemed to be impacting private lands; other prairie dog towns will be managed in conjunction with approved allotment management plans.

Prairie dog towns which are impacting private land will be eliminated with toxicants. Towns that are more than one-quarter mile from private land and are on federal land tracts of more than 640 acres will be retained and probably reduced to 80-100 acres in size if larger than 100 acres. Towns smaller than 100 acres will be allowed to expand. Periodic toxicant control will be used to maintain the retained prairie dog towns at the designated size. Because of the dynamic nature of prairie dog populations, new towns can be expected to arise. The new towns (post 1979-80 mapping) will be assessed for their possible impact to private lands and for their potential as habitat for threatened or endangered species or certain species of special concern. If the Forest Service determines that the new prairie dog town will not impact private lands, but will provide wildlife habitat, the new town will be retained and allowed to expand to not more than 640 acres.

Some prairie dog towns to be retained fall within the high-moderate coal production area. The possibility of coal mining in this area is very high. When retained prairie dog towns are to be mined, other existing towns will be allowed to increase in size to compensate for the lost acreage of the mined town. New prairie dog towns could be retained as mitigation for the mined town. Such compensatory measures will have to be evaluated and implemented on an individual basis.

The preferred alternative (as well as any of the alternatives involving control of prairie dogs) will commit the Forest Service to long term in-

vestment of manpower, funds, and time. To accomplish prairie dog management in an acceptable manner will require funding and personnel above that allocated to normal range management and wildlife habitat management activities.

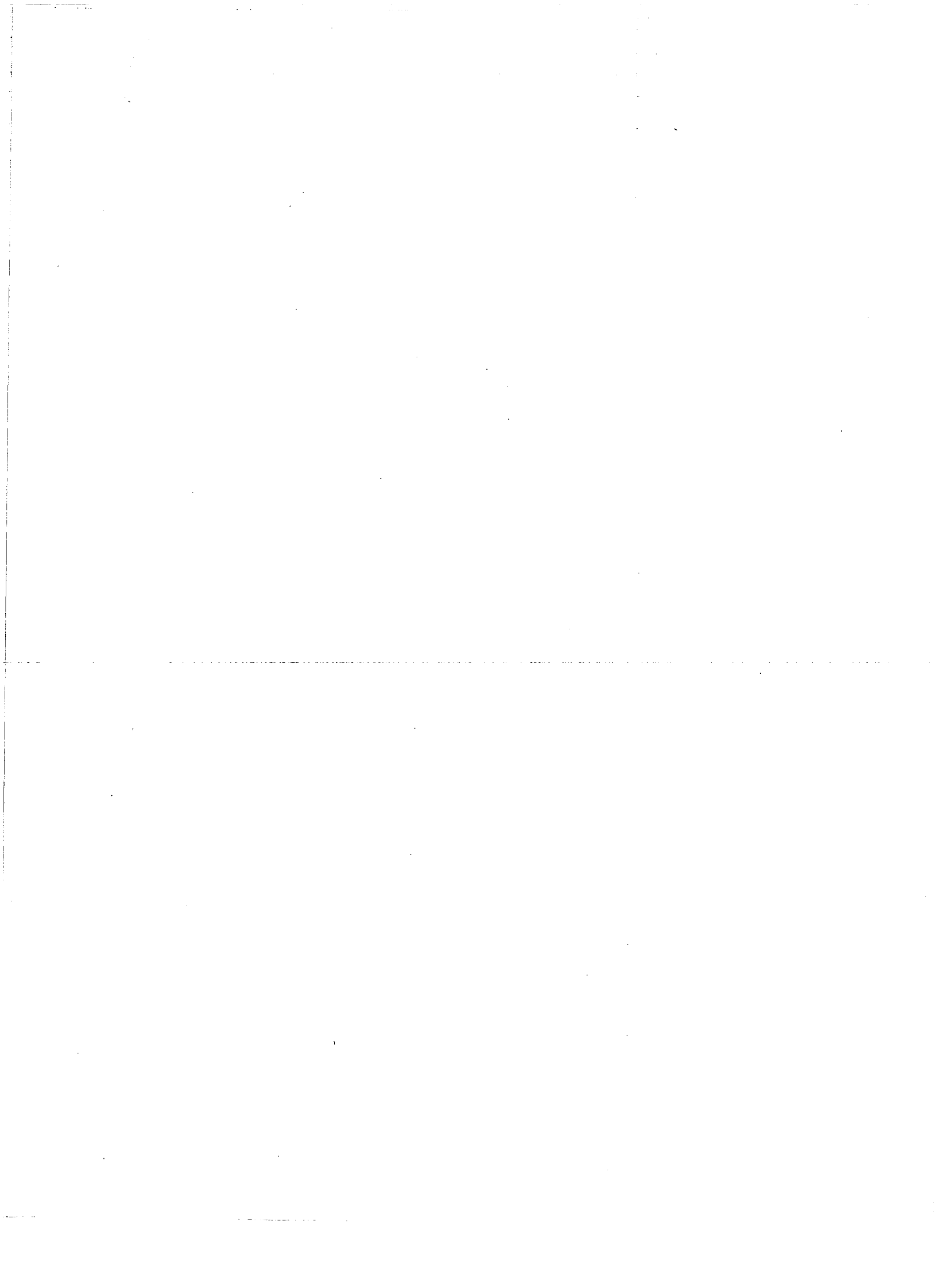
Information necessary to conduct a detailed analysis of the benefit/cost ratio for each alternative was not available. However, it seems intuitively obvious that the monetary returns to the taxpayer from any level of prairie dog control will not meet the costs of such control. The only tangible benefit appears to be an improvement in relationships with some users of federal lands by relieving the perceived impacts of prairie dogs from federal lands to private lands.

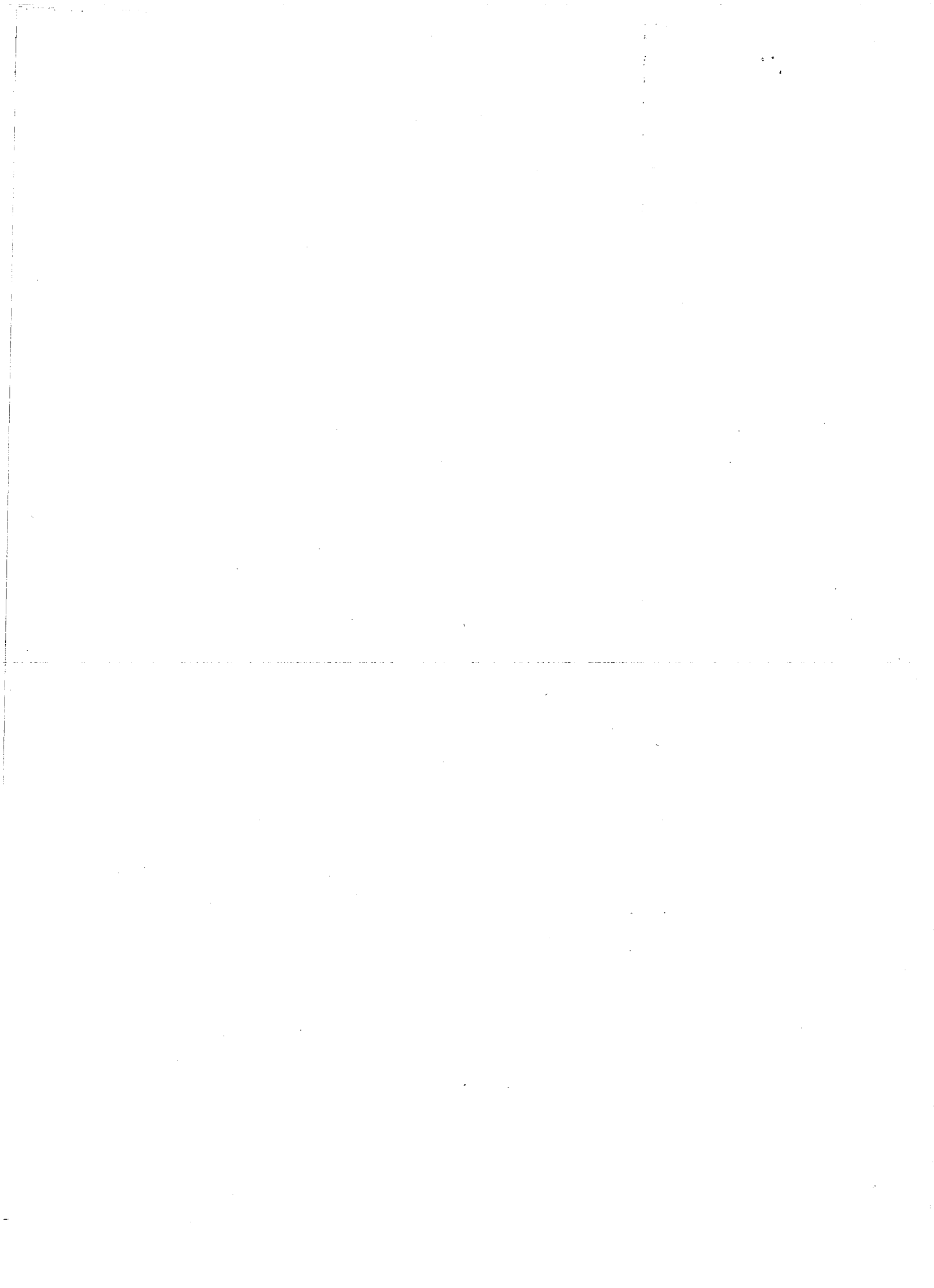
VIII. CONSULTATION WITH OTHERS

Comments concerning prairie dog management on Thunder Basin National Grassland have been received by the Forest Service since 1976 from the Thunder Basin Grazing Association, the Inyan Kara Grazing Association, the Spring Creek Grazing Association, individual permittees from each Grazing Association, Wyoming Game and Fish Department biologists, the Wyoming Department of Agriculture, the Defender's of Wildlife, Tim Clark, Ph.D., and the Wyoming Congressional Delegation.

Two public meetings concerning land use planning were held in August, 1976 (8/18/76 Douglas and 8/19/76 Gillette, Wyoming) at which prairie dog management was discussed.

Public Issues were obtained from comments received by the Forest Service from the above groups and individuals.





PRAIRIE DOG MANAGEMENT PLAN
FOR
THUNDER BASIN NATIONAL GRASSLAND

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PRAIRIE DOG MANAGEMENT PLAN
FOR
THUNDER BASIN NATIONAL GRASSLAND

INTRODUCTION

This plan will implement the Forest Service Preferred Alternative IV as determined by the Forest Supervisor on JUN 30 1981 in the Thunder Basin National Grassland Prairie Dog Environmental Assessment. Alternative IV provides that the prairie dog population on federal land will be managed to reduce possible impact to private and state lands and to provide multiple-use benefits from federal land. At least 5,400 acres of prairie dog towns would be retained on federal land.

The management of prairie dog towns on federal land will be described in this management plan.

Outside of the Rosecrans Black-footed Ferret Potential Habitat Area prairie dog populations will be managed to minimize conflicts with private land owners and to meet multiple-use needs of federal lands (wildlife habitat, recreation, watershed, and livestock grazing). If private landowners do not control their part of mixed prairie dog towns, the Forest Service will not then control the federal land part of those towns. When the private landowner agrees to concurrent control these prairie dog towns will be controlled.

Prairie dog management in the Rosecrans Black-footed Ferret Potential Habitat Area will emphasize prairie dog populations for threatened or endangered species habitat and for general wildlife habitat. Other legitimate public land uses will continue within the Black-footed Ferret Potential Habitat Area, even though prairie dogs and black-footed ferret habitat will be emphasized.

A contingency plan in the event a black-footed ferret is documented in prairie dog towns that are to be controlled, is included in this document. This management plan will be subject to review and modification as necessitated by changing conditions and management emphasis or by acquisitions of new information.

I. PRAIRIE DOG MANAGEMENT OUTSIDE THE ROSECRANS
BLACK-FOOTED FERRET POTENTIAL HABITAT AREA.

Goal

To reduce the impact of prairie dog populations from federal lands to private lands, and to provide for multiple-use of federal lands to meet legitimate public needs.

Objective

To maintain sufficient prairie dog towns for prairie dog populations, wildlife habitat, and recreation, and to reduce the perceived impact to private lands.

Present Situation

Based on 1979-80 mapping there are 6,300 acres of prairie dog towns on federal land. The Forest Service Preferred Alternative provides for a minimum of 5,400 acres of prairie dog towns to be maintained on federal land. Of this 5,400 acres 2,200 acres will be within the Rosecrans Black-footed Ferret Potential Habitat Area, leaving 2,300 acres to be distributed on other federal lands in Thunder Basin National Grassland.

Guidelines for Prairie Dog Control

1. Prairie dog towns that will impact private or state land will be controlled using zinc phosphide. The Forest Service considers those prairie dog towns that are contiguous with private or state lands or those within one-quarter mile of private land on federal land tracts of less than 640 acres to be impacting private land.
2. Prairie dog towns that are more than one-quarter mile from private land and are on federal land tracts of more than 640 acres will be retained and usually reduced in size to 80-100 acres if larger than 100 acres. Retained towns

will be marked to delineate the maximum acreage allowed in Table 1. The marked area will not be controlled during periodic maintenance toxicant control (see Guideline #3).

3. Periodic toxicant control (with zinc phosphide) may be needed to maintain the retained prairie dog towns at the designated size. Administrative studies will be made to determine the usefulness of buffer zones around selected towns. The introduction of swift foxes and the enhancement of other predator activity will be studied and implemented for long term management of prairie dogs. Livestock grazing management through allotment management plans will also be used for long term prairie dog town management.
4. Prairie dog towns which are eliminated will be surveyed for immigrants from uncontrolled private lands and these immigrant prairie dogs will be controlled as soon as possible.
5. New prairie dog towns (post 1979-80 mapping) will be assessed for possible impact to private lands and for potential as habitat for threatened or endangered species or as habitat for other wildlife species. If the Forest Service determines that the new town will not impact private land (see Guideline #1) but will provide wildlife habitat the new town will be retained and allowed to expand to no more than 640 acres.
6. When retained prairie dog towns which are within the high-to-moderate coal production area are to be mined, other existing towns may be allowed to increase in size to compensate for the lost acreage, or new towns may be retained as mitigation for the lost town. These compensatory measures will be evaluated and implemented on an individual basis.
7. Before any prairie dog towns are controlled or reduced the towns will be surveyed for black-footed ferrets by a qualified wildlife biologist. If no ferret sign is observed and documented the control work may proceed.

8. Prairie dog towns on federal land contiguous with private land will not be controlled unless there is simultaneous control on the private land.
9. Retained prairie dog towns will be inspected yearly for increases in size. New towns will be surveyed and evaluated as they are discovered. The guidelines will be applied to each town and appropriate measures taken.

Table 1 lists the prairie dog towns on federal land by number and recommends the management of each town after the guidelines are applied.

Table 1

Management of Prairie Dog Towns on Federal Land by Grazing Association and Town Number.

Thunder Basin Grazing Association

Town No.	1979-80 Acreage		Federal Acres Retained	Remarks
	Federal	Private		
231-1&2	559	471	300-320	Rosecrans BFF Hab. A.
231-5	26	176	0	
231-6	49	70	0	
231-7&8	315	2076	80-100	
231-9	58	41	0	
231-10	70	370	0	
231-11	199	211	80-100	
231-12	132	444	0	
231-13	7	101	0	
231-14	60	---	80-100	
231-16	14	---	80-100	
231-17	30	151	0	
231-18	10	---	0	
231-24	1	---	0	
212-1	37	4	0	
212-2	28	47	0	
212-4	31	55	0	
212-5	109	64	80-100	
212-6	8	---	80-100	
212-7	20	1	80-100	

Table 1 cont.

Town No.	1979-80 Federal Acreage	Private Acreage	Federal Acres Retained	Remarks
271-1	159	234	0	
271-5	58	---	80-100	
205-1	159	41	80-100	
205-2	23	73	0	
205-3	12	102	0	
205-8	11	---	80-100	
213-2	180	144	80-100	
213-3	106	24	80-100	
213-4	19	8	0	
299-1	30	---	80-100	Rosecrans BFF Hab. A.
299-2&3	633	---	640	" " " "
299-4	141	---	640	" " " "
299-5	45	12	30-40	" " " "
299-6	23	---	80-100	" " " "
240-1	196	93	0	
240-4	126	16	80-100	
240-5	13	---	80-100	
249-1	45	220	0	
249-3	100	---	80-100	Rosecrans BFF Hab. A.
249-4	86	479	0	
249-5&6	191	2	80-100	Rosecrans BFF Hab. A.
249-7	47	38	0	
249-8	1	---	80-100	Rosecrans BFF Hab. A.

Table 1 cont.

Town No.	1979-80 Acreage		Federal Acres Retained	Remarks
	Federal	Private		
201-2	7	215	0	
232-1	43	---	0	
214-1	47	---	80-100	
228A-1	102	---	80-100	
M-1	65	---	80-100	
M-2	51	166	0	
220-1	120	60	0	
298B-1	13	10	0	
239A-1	76	64	0	
239B-1	68	---	80-100	
222-3	12	---	80-100	Rosecrans BFF Hab. A.
208-1	43	208	0	
208-5	79	9	80-100	
208-6	10	34	0	
208-7	30	3	0	
207-2	1	---	80-100	
250-2	15	---	0	
Total Acres	4969	6537	3690-4240	

Table 1 cont.

Inyan Kara Grazing Association

Town No.	1979-80 Federal Acreage	Private Acreage	Federal Acres Retained	Remarks
353-1	23	---	80-100	
498M-1	100	222	30-40	BFF reported 1971
498M-2	26	---	30-40	
497F-1	40	---	80-100	
497F-2	5	---	0	
395-1	45	---	80-100	
395-2	134	---	30-40	
395-3	2	19	0	
305-1&2	46	531	0	
367-1	153	31	80-100	
411-3	216	706	0	
411-10	1	20	0	
301-1&2	242	10	80-100	
301-3	6	18	0	
307-1	30	332	0	
413-1&2	47	195	80-100	
364-1	38	9	80-100	
394-1	172	67	80-100	
499W-3	10	---	80-100	
Total Acres	1336	2160	810-1020	

Table 1 cont.

Spring Creek Grazing Association

Town No.	1979-80 Acreage		Federal Acres Retained	Remarks
	Federal	Private		
102-1	30	25	80-100	
112-1	3	---	80-100	
Total Acres	33	25	160-200	

Thunder Basin National Grassland Total Acres:

6338	8722	4660-5460
------	------	-----------

Management of prairie dogs on federal land will be a progressive long term program which will require a high initial investment and fairly high annual maintenance costs. Livestock grazing management will be an integral part of prairie dog management and will be accomplished through allotment management plans. The present schedule for completion of AMP's for all 203 allotments is 1989 which means that any needed adjustments in livestock stocking rates and/or distribution for most allotments will not occur for several years.

After prairie dog towns designated for elimination are treated with zinc phosphide they will be fenced, at least temporarily, to exclude livestock. The need for reseeding of treated towns will be analyzed on a case by case basis. If reseeding is needed, the normal Forest Service recommended seed mixture based on range sites will be used.

Prairie dog towns that are reduced in size will need periodic toxicant treatment to limit their expansion until long term range management practices become effective at limiting such expansion. The perimeter of towns to be retained will be delineated with fairly permanent markers, i.e. steel fence posts.

Forest Service experience with prairie dog management in South Dakota has demonstrated the dynamic nature of prairie dog towns and the consequent difficulty of maintaining them in a particular geographical location. The older portions of a town tend to depopulate as the periphery of the town moves into unoccupied land. This means that continual toxicant treatment of the periphery will eventually cause the town to disappear. To prevent the total loss of a town, an area of expansion approximately equal to the dying core area will be allowed to persist as long as the Guidelines are satisfied.

Priorities for Control of Prairie Dog Towns on Federal Land

1. Towns designated for elimination.
 - a. Towns that are contiguous with private or state land. There must be concurrent control of the non-federal part before the federal part is treated.
 - b. Towns on federal land tracts of less than 640 acres.
2. Towns designated for retention at some given acreage.
 - a. Towns outside the Black-footed Ferret Potential Habitat Area (BFPHA) that currently exceed their designated size (see Table 1).
 - b. Towns inside the BFPHA that could impact private land.
 - c. Other towns in the BFPHA.

II. ROSECRANS BLACK-FOOTED FERRET POTENTIAL
HABITAT AREA

Goal

To meet the Forest Service's obligations under the Black-footed Ferret Recovery Plan and to provide habitat for wildlife (including threatened or endangered species) which is not adversely altered by prairie dog control.

Objective

To provide a block of mostly continuous federal land at least one township in size where prairie dog towns will be managed to meet or exceed the minimum recommendations of the Black-footed Ferret Recovery Plan for ferret habitat needs.

Minimum Black-footed Ferret Habitat Recommendations

1. At least eight prairie dog towns per township should be maintained.
2. Each prairie dog town should be at least 30 acres in size.
3. At least two prairie dog towns should exceed 100 acres in size.

Present Situation

This area was selected as potential black-footed ferret habitat because it is the only large block of federal land which presently has enough prairie dog towns to meet the minimum recommendations for black-footed ferret habitat, and that can be managed as such without major impact on private lands.

The area is described as follows: T.41N., R.68W., all sections; T.41N., R.67W., sections 6, 7, 18, 19, 30 and 31; T.40N., R.68W., sections 1, 2, 3, 4, 5 and 6; and T.42N., R.68W., sections 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35. Within this 58 section area there are 10 prairie dog towns on federal surface ranging in size from 1 acre to 633 acres as mapped in 1979-80 (Table 2). The recommendations of the Black-footed Ferret Recovery Plan for minimum ferret habitat are met by this

potential habitat area. Five towns are presently well over 100 acres and at the present rate of expansion the other towns will undoubtedly grow larger. Also new towns will undoubtedly be formed in a few years.

Table 2

Prairie Dog Towns in the Black-footed Ferret
Potential Habitat Area

Town Number	1979-80 Federal Acreage	Retained Federal Acreage
231-1&2	559*	320
299-1	30	100
299-2&3	633	640
299-4	141	640
299-5	45*	40
299-6	73	100
249-3	100	100
249-5&6	191*	100
249-8	1	100
222-3	12	100
Minimum BFF Habitat	1785 acres	2240 acres

*Because of impact to private land these towns will be reduced.

Managing this area for black-footed ferret habitat will not preclude other legitimate land uses such as recreation, livestock grazing, and oil and gas exploration and development. However, some restrictions on these land uses may be necessary to allow black-footed ferret habitat to be maintained as a major use.

Black-footed Ferret Habitat Area Guidelines

1. Prairie dog towns within the habitat area will be maintained at a maximum of 2240 acres. As new towns are formed they will be evaluated for ferret habitat and for possible impact to private lands. When new towns are retained they will be allowed to grow to no more than 640 acres. Existing towns will be reduced in size to compensate for the new towns.
2. In case of possible prairie dog control the number of towns will not be reduced to less than eight. Of those, six will be retained at no less than 30 acres each and two will be retained at more than 100 acres each.
3. Where prairie dog towns extend onto private land they can be controlled at the option of the private landowner; however, the portion of the town on federal land will not be reduced below 30 acres. The Forest Service will not control on federal land if the private land is not controlled concurrently.
4. The large prairie dog town in section 1, T.40N., R.68W. and adjacent sections (number 231-1&2) will be reduced to 320 acres in the N $\frac{1}{2}$ of section 1 to avoid conflict with adjacent private land.
5. The prairie dog town in sections 29 and 30, T.41N., R.67W. (number 249-5&6) will be reduced to 100 acres in the NE $\frac{1}{4}$ section 30 to minimize impact to adjacent private land.
6. When this Management Plan is approved all prairie dog towns within the Potential Habitat Area will be searched intensively for black-footed ferrets to determine if they are present. Periodic ferret surveys should be made during the life of the Management Plan.
7. If no black-footed ferrets are present naturally, they could be introduced when they become available for transplanting as recommended by the Black-footed Ferret Recovery Plan.

8. Range analysis will be done to determine the necessity of adjustments to stocking rates for cattle in order to avoid deterioration of the range resource caused by dual use of livestock and prairie dogs.
9. Protective restrictions on shooting of prairie dogs, on seismograph operations, and on other land uses may be necessary if a population of black-footed ferrets exists or is established in the Potential Habitat Area.
10. Three sections (1920 acres) of private land and two sections (1280 acres) of state land are located within the Rosecrans Black-footed Ferret Potential Habitat Area, but will not be managed as part of the Potential Habitat land base (see Guideline #2).
11. Periodic toxicant control may be necessary to maintain prairie dog towns at the sizes listed in Table 2. The Forest Service will do administrative studies of the effectiveness of buffer zones around prairie dog towns. The introduction of swift foxes to provide additional predation on prairie dogs could be most useful in this area. Livestock grazing management will be utilized to limit prairie dog town expansion over designated sizes.

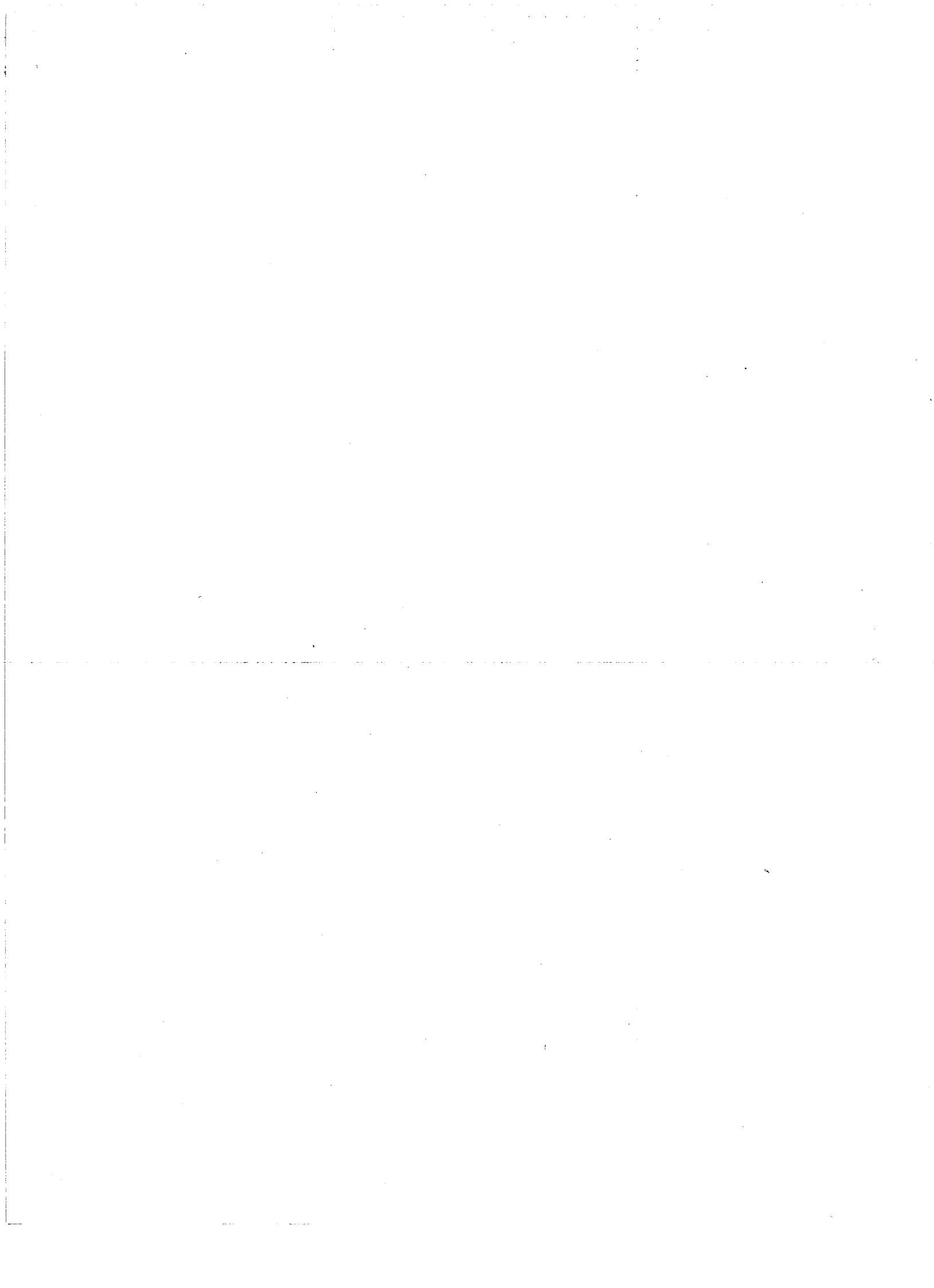
III. BLACK-FOOTED FERRET CONTINGENCY PLAN

All prairie dog towns that are to be controlled will be surveyed for the presence of black-footed ferrets. As addressed in the Guidelines above, if no ferret sign is found and documented then toxicant control of that town may proceed according to the Management Plan. If a black-footed ferret sighting is reported from either federal, state, or private land within three miles of any prairie dog town on federal land, the following steps will be taken:

1. Control work will immediately stop on federal land within the three mile radius.
2. The reported sighting will be investigated and confirmed by a Forest Service Wildlife Biologist or other competent personnel. For a reported sighting to be considered confirmed it must have either been made by a competent observer, or a photograph exists of the ferret or of sign (trenching, plugged holes, etc.), or the Forest Service investigator observes the ferret or its sign.
3. When the reported sighting is confirmed the Forest Service will:
 - a. Determine the number of black-footed ferrets present, and the area of main use by the ferret(s).
 - b. All prairie dog control on federal land within three miles of the ferret location will be stopped. The then uncontrolled towns will not count as part of the 5400 acres of prairie dogs to be retained.
 - c. Recreational shooting of prairie dogs within the three mile radius will be assessed and if determined to be a threat to ferrets will be stopped by closure of federal land within the three mile radius to the discharge of firearms.

4. After confirmation of black-footed ferret presence an interagency group (Forest Service, U.S. Fish and Wildlife Service, Wyoming Game and Fish Department, and other qualified persons) will be assembled to evaluate the presence of the ferret(s) and to make recommendations for management actions to be taken by the Forest Service to protect the ferret(s) and its (their) habitat.

This contingency plan is applicable to all federal lands within Thunder Basin National Grassland. The purpose of a contingency plan is to provide for special management considerations if a black-footed ferret is discovered after the guidelines of the Prairie Dog Management Plan are applied and prairie dog control has started. Because 73% of prairie dog town acreage is on private or state lands, there will be no black-footed ferret surveys by the Forest Service on most of the prairie dog towns within Grassland boundaries. This means that only 37% of the prairie dog acreage will be searched for black-footed ferrets before prairie dog control occurs. Also the majority of ferret reports from the Grassland have been from prairie dog towns that are largely on private land. Therefore, the possibility that a black-footed ferret will be sighted after the guidelines are applied and control begins is fairly high.





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APPENDIX A

LAWS, REGULATIONS AND EXECUTIVE ORDERS PERTINENT TO
MANAGEMENT OF PRAIRIE DOGS ON NATIONAL FOREST SYSTEM
LANDS

- Organic Act of June 5, 1897
- Transfer Act of February 1, 1905
- Bankhead-Jones Farm Tenant Act (Title III) of July 22, 1937
- Multiple Use Sustained Yield Act of June 12, 1960
- Endangered Species Act of December 28, 1973
- Executive Order 11643 - Environmental Safeguards on Activities for Animal Damage Control on Federal Lands
- Sikes Act (PL 93-452) of October 18, 1974
- Federal Insecticide, Fungicide, and Rodenticide Act of 1972
- National Environmental Policy Act of 1969
- Forest and Rangeland Renewable Resources Planning Act of 1974
- National Forest Management Act of 1976

APPENDIX B

BLACK-FOOTED FERRET SIGHTINGS

ON

Thunder Basin National Grassland

Sighting Number	Date	Location	Number and Classification	Type of Sighting
159	1976	43N. 70W. S30	1 adult?	Positive
	15 May	Campbell Co.		
155	1975	Irwin Ranch, N.	1 adult?	Possible
	Aug.	Converse Co.		
138	1974	10 Mi. W. Reno Jct.	1 adult	Positive
	29 July	43N. 73W. S5		
106	1972	41N. 69W. S21	1 adult?	Probable
	Winter	Converse Co.		
89	1971	Middle Upton- Osage Comm. Pasture, Weston County	1 adult	Positive

From: A listing of black-footed ferret reports in Wyoming (1851-1977). In Clark, T. W., and M. R. Stromberg. 1977. Black-footed ferrets and prairie dogs in Wyoming, 5 year (1973-1977) summary of research, Mimeo. 98pp.

APPENDIX C

The Relationship of Black-Tailed Prairie Dogs (*Cynomys ludovicianus*) to Wildlife, Vegetation, Soils, and Livestock

INTRODUCTION

The subject of prairie dog effects on other range resources was reviewed to gain information from the scientific literature on which to base much of the affected environment section. This appendix will provide the reviewer of the Thunder Basin National Grassland Prairie Dog Management Environmental Assessment with background information pertinent to understanding the document.

HISTORY

The fossorial mammal niche is of great antiquity on the Great Plains. Fossils of burrowing rodents have been found in abundance in the Lower Miocene beds of northwestern Nebraska and eastern Wyoming (O'Harra, 1920). Prairie dogs (*Cynomys sp.*) have occupied that niche since the Pleistocene when they are thought to have migrated from Asia via the Bering land bridge (Clark et al 1971). Prairie dog remains have been found at several Pleistocene and Recent sites on the Great Plains (Wood 1933, Hibbard 1937, Green 1960, 1963, Dalquest 1967, Anderson 1968, Shultz 1969).

Early explorers from the time of Coronado observed and recorded the presence of prairie dogs from the plains of Texas to Canada. Lewis and Clark observed large prairie dog towns as they ascended the Missouri River on their epic journey (DeVoto 1953). Merriam (1902) described one town in Texas that covered 25,000 square miles and was inhabited by an estimated 400 million prairie dogs.

Since the early 1900's extensive poisoning has reduced prairie dog populations to a very small fraction of their former numbers. Clark (1976) gives prairie dog population reductions of 97.4% for South Dakota, 98.6% for Kansas, and 99.6% for Texas as a few examples.

WILDLIFE

Over the tens of thousands of years that prairie dogs have lived on the Great Plains, many other animals have become adapted to and dependent on prairie dogs and their colonies for food and cover. The many wildlife species benefiting from the presence of prairie dogs and their burrow systems include predators, raptors, other rodents, lagomorphs, passerine birds, upland game birds, big game, reptiles, and amphibians (Table I).

Some animals are closely associated with or dependent on prairie dogs, for example, the black-footed ferret (*Mustela nigripes*). Apparently, this close association has existed a long time since prairie dog remains have been found in association with ferret fossils at six Pleistocene sites (Clark 1975). The association was recognized by the Sioux Indians in their name of "black-faced prairie dogs" for the ferret (Clark 1976). Ferrets in black-tailed prairie dog towns appear to depend on prairie dogs for food and use the burrow system for cover (Henderson et al 1969, Fortenberry 1972, Clark 1978).

It has been a commonplace for people seeking reasons to poison prairie dogs to invoke damage to waterfowl, upland game bird, and other ground nesting bird habitat by prairie dog activities as support. However, there appears to be no basis for this in the scientific literature. On the other hand, the literature showing damage to such habitat from livestock grazing is quite extensive (Bue et al 1952, Capel 1956, Kirsch 1969, Page and Cassel 1971, Gjersing 1975, Mundinger 1976, Evans and Kerbs 1977, Weigand 1977, Yde 1977). The impacts of livestock grazing include increased predation, reduction of nesting and escape cover, and alteration of vegetative composition causing far-reaching effects on habitat availability. In addition, livestock have been shown to have both direct and indirect impacts on big game (mule deer, white-tailed deer, elk, moose, antelope, and big horn sheep). Mackie (1978) gives a comprehensive literature review and discussion of the impacts of livestock on big game.

VEGETATION

Disturbance, such as overgrazing or drought, which causes deterioration of the rangeland from near climax condition is necessary for the establishment of prairie dog towns. Many authors indicate that range deterioration and perpetuation

of conditions favorable to prairie dogs results from over-grazing by large herbivores (Bond 1945, Kalmbach 1948, 1950, Osborn and Allen 1949, Norris 1950, Fichter 1953, Koford 1958, Smith 1967, Clark 1968, DeVos 1969, Costello 1970, Robinson 1973, McEneaney and Jensen 1974). Drought occurs frequently and regularly on the Great Plains (Wedel 1961). The large grazing herbivore niche on the Great Plains was originally filled by bison (Larson 1940; McHugh 1972, Taber 1972). Subsequent to the near extinction of bison on the plains, the large grazing herbivore niche has been filled by livestock, especially cattle and sheep.

Once established, prairie dogs tend to maintain a low vegetation aspect over the colony areas, primarily for protection from predators; however, by their feeding and burrowing activities, prairie dogs increase plant and animal diversity while decreasing primary production. This may conflict with cattle grazing but enhances wildlife habitat for those species associated with prairie dog colonies (Bonham and Lerwick 1976, Hansen and Gold 1977). Other authors have indicated that vegetative cover and productivity increased within prairie dog towns, especially when cattle were excluded (Koford 1958, Himes 1966, Bonham and Lerwick 1976, Uresk and Bjugstad 1980). Klatt and Hein (1978) in Colorado found that percent cover of the total vegetation declined with length of time of abandonment of prairie dog towns compared to an active town. They also suggested that eradication of prairie dogs would not significantly improve short-grass prairie for cattle during the first few years after abandonment of prairie dog towns.

SOILS

Several authors have indicated that small burrowing mammals through their digging activities and addition of their bodies and metabolic waste products can influence the organic content, fertility, and infiltration rate of the soil (Grinnell 1923, Greene and Murphy 1932, Taylor 1930, 1935, Van Dersal 1937, Ellison 1946, Thorp 1949, Ellison and Aldous 1952, Koford 1958, Laycock and Richardson 1975). Hassien (1976) reported that surface soil samples from black-tailed prairie dog towns had significantly greater average concentrations of organic matter, extractable phosphorus, potassium, and calcium than those from adjacent range. The influences of prairie dogs (and other small burrowing mammals) on soil fertility and nutrient availability may be very similar to the positive effects of fertilizer application to native range which is well documented

in the literature (Freeman and Humphery 1956, Kneebone 1957, Honnas et al 1959, Klipple and Retzer 1959, Lodge 1959, Woolfolk and Duncan 1962, Smika et al 1965, Burzlaff et al 1968, Wight and Black 1972, Rogler and Lorenz 1974).

The effect of prairie dog activities as a primary agent causing soil erosion is open to question. Several authors suggest that heavy use by large hoofed animals resulting in soil compaction and overgrazing which destroys vegetation cover are more serious causes of soil erosion (Taylor 1935, VanDersal 1937, Ellison 1946, Fichter 1953, Koford 1958, McEneaney and Jensen 1974). Any agent which reduces plant cover (i.e. drought, fire, overgrazing by wild or domestic herbivores, and agriculture), thus exposing the soil to the effects of wind and water, can cause erosion. Although more research is needed in this area, it appears that prairie dogs should not be considered as the main causal agents of rangeland soil erosion. In fact, the increased vegetation cover reported by some researchers may be helpful in reducing soil erosion.

As Bond and Borell (1939:222) stated: "It is clear enough, however, that the relations of burrowing rodents to soil and moisture conservation constitute a very complex problem."

COMPETITION WITH LIVESTOCK

Some authors have described prairie dogs as competitors with livestock for forage (Merriam 1902, Bailey 1905, 1931, Bell 1921, Taylor and Loftfield 1922, 1924, Kelso 1939). However, other authors indicate that prairie dogs do not significantly conflict with cattle for forage (Clements and Clements 1940, Bond 1945, Morris 1950, King 1955, DeVos 1969). Koford (1958) emphasizes that the foods eaten by prairie dogs vary according to what is available and the season of the year; thus without careful study it is difficult to determine whether prairie dogs conflict with cattle or not. Bond (1945) noted that prairie dogs feed mainly on annual forbs and shortgrasses typical of early stages of succession and thus are attracted to areas of such vegetation after cattle have caused retrogressive succession. He also pointed out that prairie dogs may speed the recovery of deteriorated ranges by eating the forbs and thus favoring the increase of climax plants, principally good forage grasses. O'Meilie (1980), working in Oklahoma, found that prairie dogs decreased forage availability and utilization by cattle over two years. However, steer weight gains were not statistically significantly reduced either year. He further stated that,

"It appears highly probable that the presence of prairie dogs may positively influence soil fertility, nutrient recycling, and subsequent forage quality, thus partially compensating for the reduction in forage availability and utilization by steers in prairie dog pastures."

Other authors have shown that cattle show a consistent preference for fertilized range over non-fertilized range (Smith and Lang 1958, Hooper et al 1969, Allison et al 1977). Therefore, it seems possible that cattle are attracted to the higher quality forage and are causing increased range deterioration. Hassien (1976) reported that in Oklahoma the average number of cattle droppings per hectare was approximately 30 percent greater on prairie dog towns than on adjacent rangeland, implying attraction of cattle to prairie dog towns.

Thus it appears that prairie dogs do not exert a totally negative impact on livestock as is commonly believed.

MANAGEMENT IMPLICATIONS

While prairie dogs are commonly associated with rangelands in deteriorated condition, there is little evidence to show they are solely responsible for the deterioration and that their eradication alone will provide increases in range condition and productivity. Kalmbach (1948) indicates that prairie dog control without concurrent plans to reduce livestock grazing pressure, to reseed, to contour furrow, or to otherwise aid the depleted range may only provide temporary relief. Koford (1958:74) emphasized the need for management other than merely controlling prairie dogs to improve the range: "Killing rodents is like treating a symptom rather than the disease; it is not a cure. Along with direct prairie dog control there should be a change in grazing practice so as to alter range vegetation and minimize the chance of quick recurrence of damage. Complete rest for the range or reseeding might be necessary to establish a different plant community with low environmental capacity for prairie dogs."

It should be apparent from this review that the relationship of prairie dogs to the rest of the Great Plains ecosystem is not simple, and that simple management techniques are not appropriate.

Prepared By: Thomas Komberec
District Wildlife Biologist

TABLE I

ANIMALS KNOWN TO BENEFIT FROM PRAIRIE DOG TOWNS 1/

Birds

Horned lark	<i>Eremophila alpestris</i>
McCowen's longspur	<i>Rhynchophanes mc cownii</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Mourning dove	<i>Zenaidura macroura</i>
Mountain plover	<i>Eupoda montana</i>
Killdeer	<i>Charadrius vociferus</i>
Upland sandpiper	<i>Bartramia longicauda</i>
Long-billed curlew	<i>Numenius americanus</i>
Sharp-tailed grouse	<i>Pedioecetes phasianellus</i>
Sage grouse	<i>Centrocercus urophasianus</i>
Burrowing owl	<i>Speotyto cunicularia</i>
Great horned owl	<i>Bubo virginianus</i>
Prairie falcon	<i>Falco mexicanus</i>
Golden eagle	<i>Aquila chrysaetos</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Ferruginous hawk	<i>Buteo regalis</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Marsh hawk	<i>Circus cyaneus</i>

Table I, cont'd

Mammals

Coyote	<i>Canis latrans</i>
Red fox	<i>Vulpes vulpes</i>
Swift fox	<i>Vulpes velox</i>
Bobcat	<i>Lynx rufus</i>
Badger	<i>Taxidea taxus</i>
Black-footed ferret	<i>Mustela nigripes</i>
Long-tailed weasel	<i>Mustela frenata</i>
Ground squirrels	<i>Spermophilus sp.</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Voles	<i>Microtus sp.</i>
Northern grasshopper mouse	<i>Onychomys leucogaster</i>
Hispid pocket mouse	<i>Perognathus hispidus</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
White-tailed jackrabbit	<i>Lepus townsendii</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>
Pronghorn antelope	<i>Antilocapra americana</i>
Mule deer	<i>Odocoileus hemionus</i>
Bison	<i>Bison bison</i>
Cattle	<i>Bos taurus</i>

Table I, cont'd

Reptiles

Prairie rattlesnake	<i>Crotalus viridis</i>
Hognose snake	<i>Heterodon nasicus</i>
Bullsnake	<i>Pituophis melanoleucus</i>
Lined snake	<i>Tropidoclonion lineatum</i>
Milk snake	<i>Lampropeltis triangulum</i>
Lesser earless lizard	<i>Holbrookia maculata</i>
Texas horned lizard	<i>Phrynosoma cornutum</i>
Eastern fence lizard	<i>Sceloporus undulatus</i>
Ornate box turtle	<i>Terrapene ornata</i>

Amphibians

Tiger salamander	<i>Ambystoma tigrinum</i>
Great plains toad	<i>Bufo cognatus</i>

1/ Smith 1967, Costello 1970, McEneaney and Jensen 1974,
O'Meilia 1980.

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APPENDIX D

EFFECTS OF PRAIRIE DOGS ON THUNDER BASIN SOILS

Burrowing animals are important factors in the rejuvenation of soils in many parts of the world. Their activities are especially noticeable in grassland areas of the Great Plains such as portions of Thunder Basin National Grassland, where prairie dog towns are located. These animals burrow through the entire solum and well into the parent material or substrata beneath the soil, and parts of all horizons and underlying materials are brought to the surface and there thrown out as a heterogenous mixture. In some prairie dog towns, almost the entire soil has been completely churned and rejuvenated by the activities of the animals. Prairie dogs frequently build their towns in places where the substratum is clayey, and in some instances they select areas of above-average sodium content for their homes. Their activities tend to destroy parts of the clayey layers and to heap fresh limey or salty material on the surface.

On virgin grasslands in northeast Colorado, studies have been made on the amount of earth moved by prairie dogs. The number of prairie dog mounds averaged about 17 per acre. The rodents were bringing to the surface, 30 to 40 tons of substratum material from a depth of 8 to 10 feet underground. Heaps of rodent manure were piled around the borders of the mounds; and these, with the urine from the animals, were serving to fertilize the next crop of grass. One of the characteristic phenomena around old mounds is the dark green color of the vegetation - evidence of abundant nitrogen.

Where rodent colonies become too dense, most of the vegetation is destroyed and erosion may be accelerated. Accelerated erosion is most likely to occur where the rodents and domestic livestock compete for the remaining forage. Wind and water erosion can cause excessive soil losses under these circumstances. Prairie dog towns on the Thunder Basin National Grassland with a population density of more than 30 mounds per acre appear to be detrimental to soil stability.

Observations in the Conata Basin of the Buffalo Gap National Grassland in South Dakota show that barren core areas do not begin to develop until prairie dog towns reach about 200

acres in size. These core areas are more subject to wind erosion than the surrounding part of the town. (U.S.D.A. Forest Service, 1978).

In conclusion, one can say that prairie dogs and other burrowing species on Thunder Basin National Grassland are continually cultivating the soil, letting in water and air, carrying down vegetation, bequeathing their waste materials and dead bodies to the soil organic matter, bringing up earth; in general, helping the great soil bio-complex to function. There is little doubt that all these creatures have their place in maintaining the natural equilibrium between soil, climate, plants, and animals. (Thorp, 1949).

The following mapping units are the ones selected the most often by prairie dogs for their burrows on Thunder Basin:

Olney-Bowbac	(380)
Stoneham-Fort Collins	(336)
Ulm-Bidman	(354)
Absted-Arvada-Bone	(340)

Soil loss tolerance values for these soils range from 4 to 5 tons per acre per year with 4T/ac./yr. being an acceptable average soil loss tolerance value for the group.

Detailed information on these mapping units and their taxonomic components (soil series) can be found in the Thunder Basin National Grassland Soil Management Report, November, 1979.

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Table I. Potential Soil Loss From Prairie Dog Towns
By
Percent Slope, Slope Length, and Cover Factor

Soil Type	% Slope	Length (ft.)	Soil Loss in Tons/Acre/Year by Cover Factor					
			.04 <u>l/</u>	.10	.15	.20	.35	.50
380	5	200	.36	.90	1.35	1.80	3.15	4.50
	5	600	1.08	2.70	4.05	5.40	9.45	13.50
	10	200	.54	1.35	2.03	2.7	4.73	6.75
	10	600	2.16	5.40	8.10	10.8	18.90	27.00
	5	200	.043	.11	.16	.22	.38	.54
336	5	600	.13	.32	.49	.65	1.13	1.62
	10	200	1.93	2.17	3.26	4.34	7.60	10.85
	10	600	2.59	6.48	9.72	12.96	22.68	32.40
	5	200	.051	.13	.19	.25	.44	.63
	5	600	.15	.38	.57	.76	1.32	1.90
354	10	200	1.01	2.53	3.80	5.13	8.86	12.66
	10	600	2.96	7.56	11.34	15.12	26.46	37.80
	5	200	.051	.13	.19	.25	.45	.64
	5	600	.15	.38	.58	.77	1.34	1.92
	10	200	1.03	2.57	3.86	5.15	9.00	12.86
340	10	600	3.07	7.68	11.52	15.36	26.88	38.4

l/ Cover factor "C" ranges in value from near zero for excellent sod or a well developed forest to 1.0 for extensively disturbed soils.

Table 2. Soil Series and Soil Erosion

Mapping Unit	Soil Series	T Factor <u>1/</u>	Ground Cover <u>2/</u>	Range Site	Forage Production Range
380	Olney-Bowbac-Decolney	5	50%	Sandy	1000 - 2100 <u>3/</u>
336	Fort Collins-Stoneham loams	5	40%	Loamy	850 - 2000
354	Ulm-Bidman-Briggsdale Complex	5	50%	Loamy	850 - 2000
340	Absted-Arvada-Bone	4	50 - 55%	Saline Lowland	1400 - 2200

1/ T Factor - The "permissible" soil loss on a per acre per year basis that allows a soil to remain in a productive state. Erosion rates above this T factor are unacceptable in terms of good land management.

2/ Minimum ground cover needed for the T Factor.

3/ Forage production in pounds per acre.

Soils Review For Prairie Dog Towns on
Thunder Basin National Grassland

By
John T. Lott
Soil Scientist

After review of soils data from soil survey maps of prairie dog towns on Thunder Basin National Grasslands (TBNG); and review of the "Statistics" collected, certain facts became evident. There were 125 prairie dog towns inventoried for soils with a total of 17,345 acres. All acres of each soil were counted within each prairie dog town. (See Table I) Acres of each soil were totaled with the number of occurrences on prairie dog towns. Soils most dominant on prairie dog towns are generally sodium affected and generally medium to fine textured. Average potential production in lbs/ac./yr. was taken from the SCS range site descriptions for each soil complex and association. Twenty-nine soils were averaged for potential production on prairie dog towns. The average potential production is 1,375 lbs/ac./yr. This would indicate that these soils are capable of producing adequate amounts of forage (in terms of soil cover and stabilization) and vegetation and that their inherent fertility is acceptable. The denuded condition of most prairie dog towns generally does not reflect the condition or capabilities of the soils however, erosion increases above tolerance limits due to decrease in vegetative cover.

These data also indicate that prairie dogs favor fine textured soils. Eighty-two percent of all soils found on prairie dog towns had textures ranging from loam to clay loam, and clay. The remaining 18% had textures ranging from sandy loam to sandy clay loam.

The number of acres occurring in each range site are as follows:

Clayey - 6250 ac.

Loamy - 5591 ac.

Sandy - 2715 ac.

Shallow - 2789 ac.

No analysis of variance have yet been run for these soils on prairie dog towns to determine any significance.

TABLE I

	#	Soil	Texture	R. S.	Potential lbs/Ac/yr Product	N=125* # of Occurance	Total Acres
1.	340	Absted-Arvada-Bone	l(tsl)/c l/cl-c l/sic/c	Loamy/Saline lowland	1700	45	4283
2.	380	Olney-Bowbac-Decolney	sl/scl sl/scl sl/scl	Sandy	1600	23	1949
3.	336	Fort Collins-Stoneham- Cushman	l/cl l/cl	Loamy	1500	29	1426
4.	341	Lohmiller-Haverson	cl/c l/cl	Lowland	2500	14	1210
5.	354	Ulm-Bidman-Briggsdale	l,cl/c l/cl l/cl	Loamy/Clayey	1500	16	1070
6.	344	Briggsdale-Renohill- Ulm	l/cl cl/c l,cl/c	Loamy/Clayey	1500	15	1065
7.	331	Ulm-Fort Collins- Renohill-Wyarno	l,cl/c l/cl cl/c	Loamy/Clayey	1500	5	749
8.	348	Shingle-Thedalund- Stoneham	l,scl l/cl l/cl	Shallow Loamy	1500	5	707
9.	375	Razor-Kim-Limon	cl/c l/cl cl/sicl	Clayey	1300	8	672
10.	493c	Terry-Nelson	sl sl	Sandy	1600	7	596
11.	177	Thedalund-Kim	l/cl l/cl	Loamy	1500	6	478
12.	401	Tassel-Shingle-Worf	sl l,scl l/cl	Shallow Sandy	1000	8	382
13.	404	Tassel-Nelson- Tullock	sl sl ls/s	Shallow Sandy	1000	8	324
14.	159	Rock outcrop Ustic Torriorthent		Very Shallow	600	5	280
15.	347	Shingle-R.O.-Samsil	l/scl cl/c	Shallow Loamy	900	6	263
16.	158	Kim-Zigweid-Stoneham	l/cl l/cl l/cl	Loamy	1500	4	247

Table 1 cont'd

	<u>#</u>	<u>Soil</u>	<u>Texture</u>	<u>R. S.</u>	<u>Potential lbs/Ac/yr Product</u>	<u>N=125* # of Occurance</u>	<u>Total Acres</u>
17.	383	Briggsdale-Ft. Collins- Bowbac	l/cl l/cl sl/scl	Loamy	1500	2	240
18.	356	Sear-Wibaux	l/cnl cnl/cnvl	Very Shallow Loamy	900	2	230
19.	102c	Samsil-Gaynor-Lonviers	cl/c cl/c cl/c	Shallow Clayey	900	2	226
20.	409	Samsil-Shingle-Worf	l, scl l/cl	Shallow Clayey	900	3	188
21.	334	Ulm-Bidman-Briggsdale	l, cl/c l/c l/c	Loamy/Clayey	1300	4	177
22.	193c	Vona-Terry-Otero	sl/sl sl/sl sl	Sandy	1600	4	150
23.	369c	Briggsdale-Bowbac- Ranzi	l/c sl/scl sl/scl	Loamy/Clayey	1600	4	139
24.	373D	Samsil-Grummit-Shingle	cl/c cn-c l/scl	Shallow Clayey	900	1	100
25.	327c	Wibaux-R.O.-Shingle	cnl/cnl l/scl	Shallow Loamy	900	3	89
26.	271c	Limon-Gaynor	cl/sicl cl/c	Clayey	1300	2	70
27.	322c	Terry-Tulloch-Valent	sl/sl ls/s ls/s	Sandy	1600	1	20
28.	56	Aeric Haplagents		Clayey Overflow	2300	2	14
29.	393	Renohill-Worfka- Shingle	cl/c cl/cl l/scl	Clayey	1300	1	1

17,345

APPENDIX E.

PRAIRIE DOG TOWN ACREAGE
THUNDER BASIN NATIONAL GRASSLAND

1979 - 80

Association	National Grassland	Private & State	Total
Thunder Basin	4940 (33%)	9972 (67%)	14912 (64%)
Inyan Kara	1336 (17%)	6708 (83%)	8044 (35%)
Spring Creek	33 (20%)	134 (20%)	167 (1%)
Total	6309	16814 (73%)	23123

+
- 10% range: 5678 - 6309 - 6940
20,811 - 23,123 - 25,435

Number of Prairie Dog Towns - 161

Average Town Size - 144 acres

PRAIRIE DOG TOWN ACREAGE

Thunder Basin Grazing Association 1980

Allotment	Permittee	National Grassland	Private & State
231	Mortons Inc.	1501	4778
212	Irwin Livestock Co.	233	398
271	Keeline Ranch Co.	237	305
205	Dilts Co.	205	263
213	Donald Jacobs	305	263
299	Rosecrans Comm. Allotment	872	12
249	Neil Irene	470	739
219	McGuire Sheep Co.	---	503
201	Cow Creek Land Co	7	221
232	LS&J Livestock Co.	43	25
214	Jacobs Land & Live- stock (Kerr McGee Corporation)	47	---
228A	Cosner Ranch Inc.	102	---
235	Lincoln Pellatz	---	383
298B	Lincoln Pellatz and Earl Reed	13	10
260	Mary Turner	---	52
M	Peabody Coal	116	166
239B	Justin Joe Reno	68	---
220	Ira & Anna Small	120	393
250	Robert Mackey	15	6
208	4 W Ranch	162	378

Prairie Dog Acreage, cont'd

Allotment	Permittee	National Grassland	Private & State
207.	Field Ranch	1	449
239A	F.C. Reno & Sons	76	64
240	Reno Livestock Corp.	335	331
217	Patricia Litton	---	2
222	Earl Lynch	12	20
248	Robert Stoddard	---	47
246	Stoddard Partners	---	56
255	Stoddard Ranches Inc.	---	102
233	Nachtman Land & Livestock Company	---	6
Total		4940	9972
Total Acreage		14912	67% Private and State

PRAIRIE DOG TOWN ACREAGE

Inyan Kara Grazing Association

<u>Allotment</u>	<u>Permittee</u>	<u>National Grassland</u>	<u>Private & State</u>
499W	West Cellars Community Allot.	10	64
498M	Middle Upton-Osage Community Allot.	126	222
497F	Joe Fordyce	45	---
395	Warren & Myrna Shaw	181	21
305	Robert Carr	46	531
367	Franklin Manke	153	860
411	Frank Thompson Estate	217	2339
329	D&W Livestock Co.	---	910
352	J. A. Grieves Estate & Sons	---	230
313	Bruce Ranch	---	288
301	Adkins Brothers	248	108
307	Barton Land & Livestock Inc.	30	549
413	Ruby Townsend	47	195
394	Sammy Sewell	172	150
344	Mary Fowler	---	40
345	Art Hageman	---	111
364	Robert & Virginia Allen	38	9
339	George Dunham	---	61
353	Glenn Hanson	23	---
Total		1336	6708
Total Acreage <u>8044</u> 83% Private & State			

PRAIRIE DOG TOWN ACREAGE

Spring Creek Grazing Association 1980

Allotment	Permittee	National Grassland	Private & State
107	Frank Ray	---	109
102	Gerald Boardman	30	25
112	McManamen, Inc.	3	---
Total		33	134
Total Acreage <u>167</u>		80% Private & State	

APPENDIX F

DERIVATION OF COSTS AND EXPLANATION OF TERMS

- (1) Animal Unit (AU) - equals one 1,000 pound animal with average daily forage consumption of 26 pounds air-dry forage.*

Animal Unit Month (AUM) - equals the amount of feed or forage required by an animal for one month.*

Animal Month (AM) - a months tenure upon the range by one animal.*

Average Stocking Rate - is based on the permitted numbers of livestock on federal land and is 4.5 acres per AUM.

* Glossary of Terms Used in Range Management.
Society for Range Management.
- (2) Grazing fee - \$3.51 per AM is the price set by the grazing fee formula for Thunder Basin National Grassland.
- (3) Initial Treatment of Prairie Dog Towns - this is based on cost figures from the Buffalo Gap National Grassland prairie dog control program. Our cost is estimated to be \$7.00 per acre and may be an underestimate due to inflation.
- (4) Maintenance Control Each Year - prairie dog towns that are left for multiple-use will have to be maintained at a given size according to the Management Plan; therefore, periodic control will be necessary. Cost is figured at \$7.00 per acre of prairie dogs. The rate of prairie dog acreage increase is estimated at 30% per year based on historical rates of increase on Thunder Basin National Grassland.
- (5) Establishment of New Towns - this cost is a rough estimate only, because there was no information available on which to base this cost. \$20 per acre was considered a reasonable estimate.
- (6) Acres of Wildlife Habitat - because of the many wildlife species benefiting from prairie dog towns, one acre of town was considered one acre of wildlife habitat.

Appendix F, cont'd

- (7) Reseeding of Controlled Towns - costs are estimated to be \$50 per acre.
- (8) Acres of Range Closed to Grazing - this acreage is the same as the controlled acreage and will be rested from grazing for a 2-5 year period to allow range condition to improve on controlled acreage.
- (9) AUM's of Livestock Forage Foregone on Controlled Towns - this is the amount of grazing lost for livestock grazing while the controlled areas are regaining range condition. The value is based on the average stocking rate of 4.5 acres per AUM (see 1).
- (10) Grazing fees Foregone Until Range Condition Improves on Controlled Towns - this is fees lost by the Forest Service and the value is based on \$3.51 per AM for a 2-5 year recovery period.

APPENDIX G

ZINC PHOSPHIDE—A CONTROL AGENT FOR BLACK-TAILED PRAIRIE DOGS

By

Howard P. Tietjen
U.S. Fish and Wildlife Service
Denver Wildlife Research Center
Denver, Colorado 80225

The U.S. Fish and Wildlife Service recognized as early as 1969 that the rodenticides then in use (strychnine and 1080) posed a potential hazard to a variety of nontarget species living in, or adjacent to, treated black-tailed prairie dog (*Cynomys ludovicianus*) colonies. Several steps were taken to help solve this problem. The Service evaluated several alternative management/control methods including other rodenticides to directly replace strychnine and 1080. As a result, zinc phosphide was recognized as the only tool readily adaptable to the existing situation and research was initiated to fully evaluate this rodenticide for this use. Tests demonstrated that zinc phosphide was less hazardous than either strychnine or 1080. The efficacy and relative safety of zinc phosphide led to the conclusion that it was a logical and acceptable candidate for registration. (Tietjen, H. P. 1976. Zinc phosphide—Its development as a control agent for black-tailed prairie dogs. Special Scientific Report—Wildlife #195. U.S. Fish and Wildlife Service, 14 pp.) The Environmental Protection Agency, after a thorough review, granted registration (No. 6704-74) in September 1975.

OPERATIONAL GUIDELINES

When a new chemical control method is developed, the end product is more than a recommended formulation of the toxicant. During the development and testing processes, certain steps are worked out and proven as a necessary part of the application technique. To achieve the safety and effectiveness demonstrated by the research, it is essential that these steps be adopted as use instructions when the method is translated into operational use.

Use Instructions—Materials and Techniques

Adequate prebaiting, a properly formulated bait, and an application rate keyed to the individual problem situation are important in achieving consistent results. The bait must be of high quality—well accepted and uniformly toxic—and just enough must be applied to expose all prairie dogs. Thus, it is important not to underbait, which leads to marginal results, or to overbait, which is potentially hazardous to nontarget species, is uneconomical, and may lead to unnecessarily high zinc phosphide residues in range vegetation.



UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Wildlife Leaflet 509
Washington D.C. • 1976



The Grain Carrier and Formulation

Black-tailed prairie dogs will readily eat most cereal grains; however, of all the grains tested, steam-rolled oats proved the most effective and economical. Furthermore, oats was the only grain evaluated for primary hazards in the field; conceivably, other grains could be more attractive to grain-eating birds. To insure good acceptance, use the best possible grade of steam-rolled oats, free of weed seeds, for both prebait and bait.

The bait formula and mixing instructions (for a 100-pound batch) are as follows:

Clean steam-rolled oats—100 pounds

Zinc phosphide (94% active)—2 pounds + 2 ounces¹

Corn oil—17 fluid ounces

For uniform distribution of the zinc phosphide and corn oil on the oats, bait should be formulated in powered mixers such as those used at the Fish and Wildlife Service's Pocatello and Lafayette Supply Depots, or in a powered cement mixer. Place the oats in the mixer; add one-half of the corn oil and mix until the oil is uniformly distributed. Add the zinc phosphide, a few ounces at a time, and continue to mix until the grain takes on a uniform gray color. Add the rest of the corn oil and keep on mixing until the grain feels completely dry to the touch. The finished bait should be packaged in approved, labeled containers for transportation, storage, and application. Zinc phosphide is highly toxic if ingested or inhaled; observe all safety precautions when mixing, storing, and handling bait. An antidote statement is included in the sample label in Fig. 1.

Timing of Control Operations

For ill-defined reasons, black-tailed prairie dogs sometimes will not eat enough bait for effective population reduction. This reaction, which is especially common in late winter and spring, appears to be related to interruptions of routine daily activity brought about by unsettled weather, breeding activity, or other behavioral responses; or to the abundance of preferred natural foods during spring and early summer. For these reasons, control operations should be delayed until late summer or fall when activity patterns tend to normalize and competing foods are in shorter supply.

First Step: Prebaiting

Prebaiting is necessary for adequate and consistent control. In each prairie dog colony scheduled for treatment, apply 1 heaping teaspoon measure of high-quality, untreated rolled oats at every burrow, in exactly the same way as described below for applying bait. After 24 hours, check consumption. If all, or nearly all, the prebait has been eaten, proceed with baiting. If more than a small amount remains, do not bait. Baiting at this time would be largely ineffective and unnecessarily hazardous to nontarget species; in addition, it takes several treated grains to kill a prairie dog, so the animals that eat only a few may survive and become bait-shy. Therefore, keep prebaiting periodically until the prebait is freely eaten, and only then proceed with baiting.

Second Step: Baiting

Field trials clearly demonstrated that 2% zinc phosphide-treated steam-rolled oats applied at the low rate of 4 grams per burrow (1 heaping teaspoon measure) is just as effective as the previous

¹ The extra 2 ounces are added to formulate a true 2.0% active bait from 94% technical grade zinc phosphide.

standard of 14 grams per burrow (1 heaping tablespoon measure). Where bait was applied on the surface at the high rate, up to 5-10 grams of uneaten bait remained exposed at many burrows for a week or more after application. Without exception, in all prebaited colonies where bait was applied at the low rate, it was completely consumed (except for traces of chaff) within 24 hours. Applying more bait than is needed for control clearly presents potential hazards to nontarget species and unnecessarily contaminates the environment. **Do not use more than 1 heaping teaspoon measurement of bait per burrow.**

Within 1-3 days after successful prebaiting, go systematically through the colony and apply bait at every burrow, whether it appears active or not. (Inactive-looking burrows are often occupied, and if they are not, neighboring animals will often eat the bait placed there.) Find a flat, solid area next to the mound, or a nearby area where the animal has been feeding, and drop a heaping teaspoonful of bait on it from about waist height. The treated oats should scatter to cover about a square foot. For a typical colony, the amount of bait needed will be about 0.35 pounds per acre. After baiting, leave the colony undisturbed and safely dispose of any unused bait. Bait sacks should be destroyed by burying with waste or burning.

Frequency of Control Operations

One baiting, properly done, should reduce prairie dog activity 75-95%. Repeat baiting should not be required for a year or longer, depending on degree of population management needed. Proper attention to prebaiting should assure good control the first time. If it should become necessary to bait the same colony twice, delay the second treatment at least 60-90 days. Again, start with prebaiting and do not bait until the prebait is freely eaten.

Responsible Control

The U.S. Fish and Wildlife Service operates under several relatively new policies keyed to the management of prairie dogs. The first, implemented in 1965, established that all prairie dog control operations were to be halted and no new operations started until the proposed treated colony was certified as free of black-footed ferrets. A second related policy curtailed all "clean-up" operations in treated colonies, allowing surviving prairie dogs to repopulate (on an individual colony and geographic basis) in a relatively short period of time. In 1973, earlier policies were further refined and reenforced: (1) pre-treatment ferret surveys were maintained; (2) the use of 1080 was halted in all federal operations on public lands via Executive Order No. 11643; (3) the Department of Interior specifically identified those rodenticides (strychnine and zinc phosphide) that could still be used; and (4) control operations were more closely tied to a demonstration of need. Obviously, these policies have had an impact on the more recent control programs, compared to operations carried out during the 1940's, 1950's, and 1960's:

Those who undertake control operations bear the responsibility for the safety of man, the environment, and all nontarget animals that share the habitat with the target species. In the rangelands where black-tailed prairie dogs are found, these nontarget animals include the endangered black-footed ferret (*Mustela nigripes*), a variety of other predators and scavengers, many species of seed-eating birds and small mammals, and livestock. Field trials showed that baiting in prairie dog colonies with 2% zinc phosphide-treated steam-rolled oats applied at the low rate of 4 grams per burrow, should ordinarily result in little or no danger to these species. But this is not a guarantee, and it does not absolve the operator from responsibility. Good control and safety can be achieved only if the instructions given are carefully adhered to; all safety precautions are followed; and the time, place, and manner of baiting are governed by good sense and a concern for the welfare of nontarget species and the environment.

DIRECTIONS FOR USE

GENERAL - This product may be used to control black-tailed prairie dogs on rangelands in western United States (North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, New Mexico, Arizona, Colorado, Montana, and Wyoming) where non-target species (especially black-footed ferrets) will not be endangered. See ENVIRONMENTAL HAZARDS section below.

PREBAITING - Prebaiting with 4 grams (one teaspoon) of untreated steamed-rolled oats per mound, one or two days prior to baiting will increase acceptance of treated baits by prairie dogs.

BAITING - Apply bait only after all or most of prebait is eaten and only to areas where untreated bait was consumed. Establish observation period during prebaiting. Apply bait by hand as a six-inch bait spot on edge of each mound or in adjacent feeding areas. Application rate should not exceed 4 grams (one teaspoon) per bait spot. Treat during late summer or fall period (July-October). Do not exceed one bait application during this period.

ENVIRONMENTAL HAZARDS - THIS PRODUCT IS TOXIC TO WILDLIFE. BIRDS AND OTHER WILDLIFE FEEDING ON TREATED BAIT MAY BE KILLED. ZINC PHOSPHIDE BAIT MUST NOT BE APPLIED ON ROADS, RESIDENTIAL AREAS OR NEAR WATER. CHECK AND DISPOSE OF EXCESS OR SOILED BAIT AND CARCASSES DAILY BY BURIAL. BEFORE UNDERTAKING BLACK-TAILED PRAIRIE DOG CONTROL WITH THIS PRODUCT, CONSULT LOCAL, STATE, AND FEDERAL GAME AUTHORITIES TO INSURE USE IN ACCORDANCE WITH REGULATIONS AND TO INSURE THAT THE AREA PROPOSED FOR TREATMENT IS NOT INHABITED BY THE BLACK-FOOTED FERRET, AN ENDANGERED SPECIES AND PREDATOR OF THE BLACK-TAILED PRAIRIE DOG. APPLY PRODUCT ONLY AS SPECIFIED ON THIS LABEL.

ZINC PHOSPHIDE

ON

**STEAM-ROLLED OATS
FOR THE CONTROL OF
BLACK-TAILED PRAIRIE DOGS
(CYNOMYS LUDOVICIANUS)
ON RANGELANDS**

**FOR USE ONLY BY OR UNDER SUPERVISION
OF GOVERNMENT PERSONNEL TRAINED IN
MAMMAL CONTROL**

Active Ingredient

Zinc Phosphide 2.0%
by weight

Inert Ingredients 98.0%
Total 100.00%

WARNING

ZINC PHOSPHIDE BAIT MAY BE FATAL IF SWALLOWED! DO NOT BREATHE DUST OR FUMES. AVOID CONTACT WITH SKIN. WASH HANDS AFTER USING. DO NOT CONTAMINATE FEED AND FOODSTUFFS. KEEP AWAY FROM CHILDREN AND DOMESTIC ANIMALS. WEAR PROTECTIVE CLOTHING AND RUBBER GLOVES WHEN HANDLING BAIT. NOT FOR USE OR STORAGE IN OR AROUND THE HOME.

POISON

ANTIDOTE - In case of poisoning, give a tablespoon of salt or mustard in a glass of warm water to induce vomiting and repeat until vomit fluid is clear. Avoid use of all oils. Have victim lie down and keep warm. CALL A PHYSICIAN IMMEDIATELY!

CONTAINER DISPOSAL - Do not reuse empty container. Destroy it by burying with waste or burning. Stay away from smoke or fumes.

NOTICE - Seller makes no warranty, expressed or implied, concerning the use of this product other than that indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

WARNING

**KEEP OUT OF THE
REACH OF CHILDREN**

**SEE ANTIDOTE STATEMENT AND OTHER
WARNINGS ON THE RIGHT PANEL**

Net Contents 10, 25, or 50 pounds

EPA Registration No. 6704-74

EPA Est. No. 6704-ID-1 and 6704-IN-1
U.S. Department of the Interior,
U.S. Fish and Wildlife Service,
Washington, D.C. 20240

Fig. 1. Approved label panels for 2.0% active zinc phosphide-prairie dog bait containers.

CHARACTERISTICS OF THE BLACK-FOOTED FERRET

By Donald K. Fortenbery
Bureau of Sport Fisheries and Wildlife
Patuxent Wildlife Research Center Field Station
Rapid City, South Dakota

The black-footed ferret (*Mustela nigripes*) has been known to science for a little more than a century. It was described in 1851 by Audubon and Bachman, who studied a skin from Fort Laramie, Goshen County, Wyoming. According to most authors, the species was not reported again until 1876, and for those 25 years many zoologists doubted its existence.

Ferret numbers and distribution

Apparently the black-footed ferret has never been abundant, because it has been reported only a few times during the last 100 years. Its use by Indians as a talisman in religious ceremonies suggests rarity. Stuffed ferrets, some decorated with colored cloth bands and feathers, have been found as Indian relics in Montana and Wyoming. The Plains Indians, like people everywhere, valued rare objects, and skins of the black-footed ferret, along with ermine skins and other relatively scarce furs, were used for decoration and ceremony. Since ferrets have been found less frequently than ermines as Indian artifacts, they probably were less common. Many authorities believe that black-footed ferrets may now be on the verge of extinction.

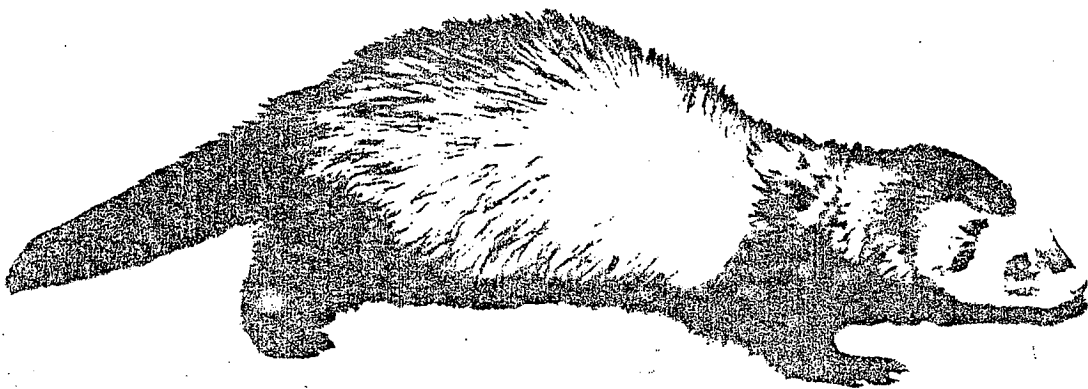
The original range of the black-footed ferret corresponded closely to that of the prairie dog, extending over the Great Plains area from Southern Canada to the west Texas plains, and from east of the one-hundredth meridian to Utah and Arizona. Small scattered ferret populations may still exist in prairie dog towns throughout this area. Individual animals may be so scattered that breeding opportunities are insufficient to maintain their numbers.

Identification

The nearest living relative of the black-footed ferret is an Old World ferret, the Siberian polecat (*Mustela eversmanni*). It has been postulated that the black-footed ferret's forebears came over from Asia to Alaska by a prehistoric land bridge that existed where the Bering Strait now lies. A domesticated form of another Old World ferret, the European polecat (*M. putorius*), is a common laboratory animal and a popular pet in the United States. In the past, it has also been used for rat control and for hunting. The European polecat and the black-footed ferret, though distinctly different species, are superficially alike in size and certain other



U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Resource Publication 109 • 1972



Comparison of black-footed ferret (above) and European polecat. Note that although both animals have dark masks and dark legs, and tail length about one-fourth that of the body, the blackfoot has less conspicuous guard hairs, its tail is uniformly cylindric throughout its length, only the terminal third is black, and the muzzle is blunter. The European polecat's tail is tapered slightly throughout its length, two-thirds or more of it is black, and the muzzle is more pointed. Because the European polecat's fur color is extremely variable, ranging from white albino to extremely dark specimens, the color pattern of the tail seems to be the most reliable identification characteristic.

characteristics, and one can be mistaken for the other. This confusion is compounded by the practice of many pet dealers of selling polecats as "black-footed ferrets."

The black-footed ferret is about the size of a mink but is more slender and weasel-like; it has a total length of 18 to 24 inches, a tail length of 4 to 6 inches, and a weight of 1½ to 3 pounds. As in most species of the weasel family, the male is usually much larger than the female. The backs and sides of both sexes are buffy yel-

low with a darker saddle-shaped patch. The underparts are whitish. The feet, the legs, and the tip of the tail are black, and the coat does not turn white in winter. The ferret is the only black-footed native weasel in North America.

The European ferret is about the same size but less slender than the native species, and may be dark brown, albino, or marked like its black-footed cousin; the fur is much coarser and has long guard hairs. The dark tip extends at least half the length of the tail, whereas in

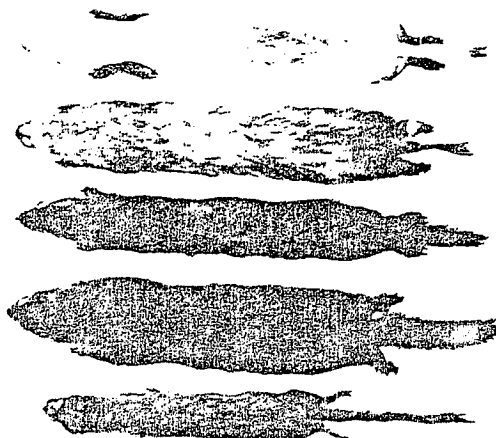
the native ferret it covers only about a third of the length of the tail. Apparently the European ferret survives very poorly in the wild in North America, self-sustaining feral populations rarely being found here.

The black-footed ferret has a more massive skull than a weasel or even a mink; it is broad between the eyes with a blunt muzzle and larger ears than most weasels. It has a typical weasel-shaped body, long and sinewy, and it moves in a weasel-like manner. The physical characteristics of the black-footed and European ferrets and long-tailed weasel are compared in the table.

Life history and habits

When ferrets breed is still a mystery, but probably the young are born in May or early June. Litters of 4 or 5 are the rule. Young of the year are not usually seen above ground until July, when they are one-half to two-thirds grown. Whether the adult male remains with the family is not known. The family group seems to disband in late August or September, when the young, presumably, move to other areas.

Black-footed ferrets live principally in prairie dog towns and feed to a great extent on these animals. Ferrets are primarily nocturnal, but are also active during daylight hours, especially in the summertime. They may be seen in prairie



Comparison of museum skin specimens of the black-footed ferret and other weasel-like animals that might be confused with it: black-footed ferret (top); European polecat, light phase; same, dark phase; mink; long-tailed weasel.

dog burrows with only their heads showing, or lying on the edge of the mounds. Sometimes they can be seen going from mound to mound, peering and sniffing down the burrows.

Ferrets and prairie dogs are often observed near each other and, while watchful, the prairie dogs seem little concerned about the presence of ferrets. Indeed, at times the prairie dogs are

COMPARISON OF THE PHYSICAL CHARACTERISTICS OF THE BLACK-FOOTED FERRET, THE DOMESTIC FERRET, AND THE LONG-TAILED WEASEL

	Weight	Length	Color	General appearance
Black-footed ferret	1½-3 pounds; male 1¾ to 2¼ pounds; female 1¼ to 2 pounds.	18-24 inches; tail ¼ of body length.	Buffy yellow back and sides, darker saddle; lighter underneath; black feet and legs; distal third of tail black; light face with contrasting black mask.	Sleek with short guard hairs; black mask usually very distinct; tail almost same diameter for full length; ears large for a weasel.
European ferret	1½-3 pounds	18-24 inches; tail ¼ of body length.	Straw to dark brown or colored like a black-footed ferret; distal two-thirds or more of tail black; mask paler and legs distinct. Albinos commonly produced in captivity.	Coarse fur with long, dark-tipped guard hairs; mask, if present, usually less distinct than above; tail usually tapered from base to tip, similar to otter tail in shape.
Long-tailed weasel	7-12 ounces	12-20 inches; tail nearly half or more of body length.	Light brown to dark chocolate brown with yellowish belly; turns white with black-tipped tail in northern part of range during winter; may possess a semblance of a brown mask when changing from white to brown color; in SW has contrasting black and white face markings.	Small, sleek, and sinewy; tail long; ears small.



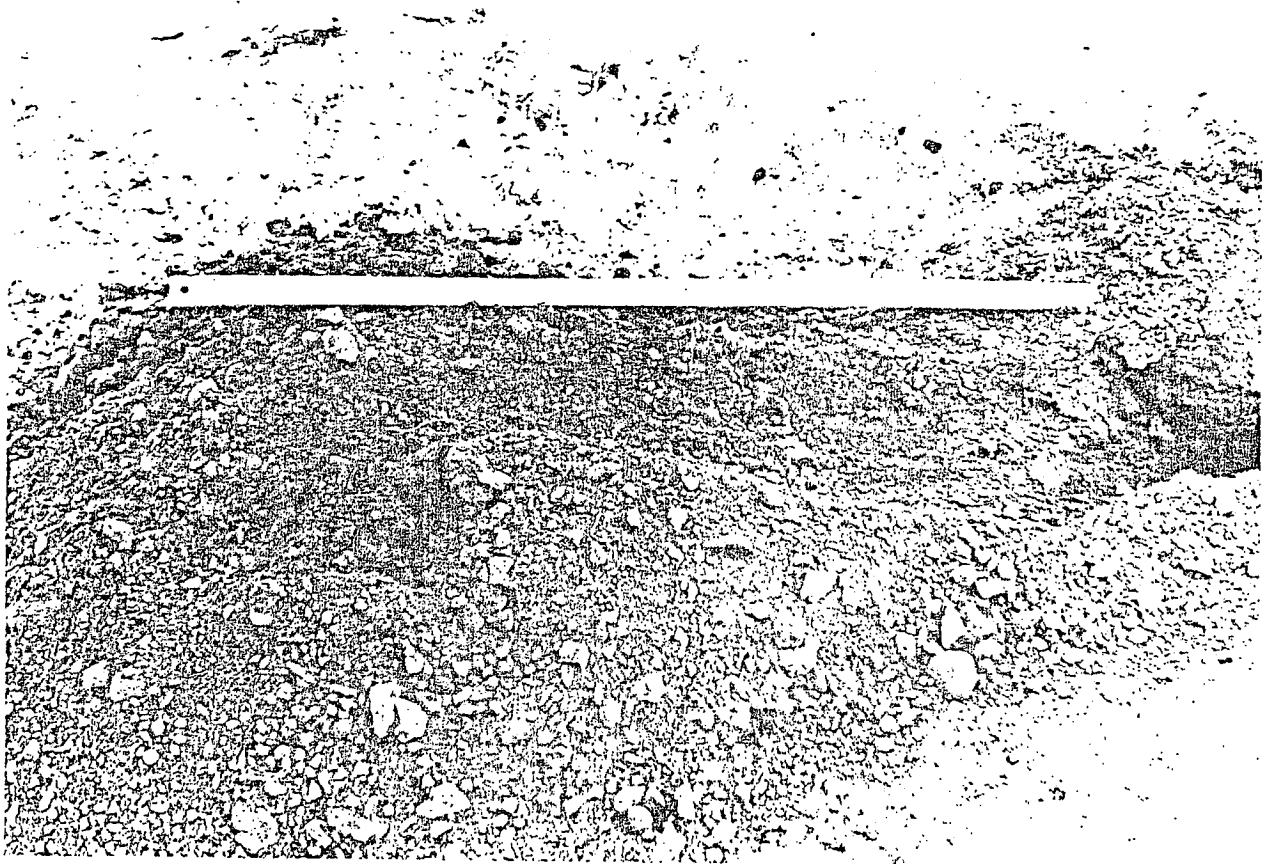
Two ferrets at a prairie dog burrow. Note the blunt muzzle and the large eyes and ears.

aggressive toward ferrets; they give chase as the ferrets run across the town, and even run alongside them and jump in front of them. This causes the ferrets to change direction. It is believed that this avoidance by the ferret does not denote fear, but only a disregard for the "dog," which seems bent on harrassment rather than on actual combat.

I know of no one who has ever actually seen a ferret kill a prairie dog in the wild. However, when Conrad Hillman was a graduate student

at South Dakota State University, he saw a ferret capture an adult prairie dog on the surface of the ground and drag it kicking down a burrow. The ferret reappeared about 20 minutes later with blood on its muzzle.

I have seen ferrets dragging dead adult prairie dogs across a town, and others have observed ferrets in captivity killing the "dogs." I have also watched a ferret go down a burrow, emerge with a young prairie dog in its mouth, and take it down another burrow.



A fresh ferret trench.

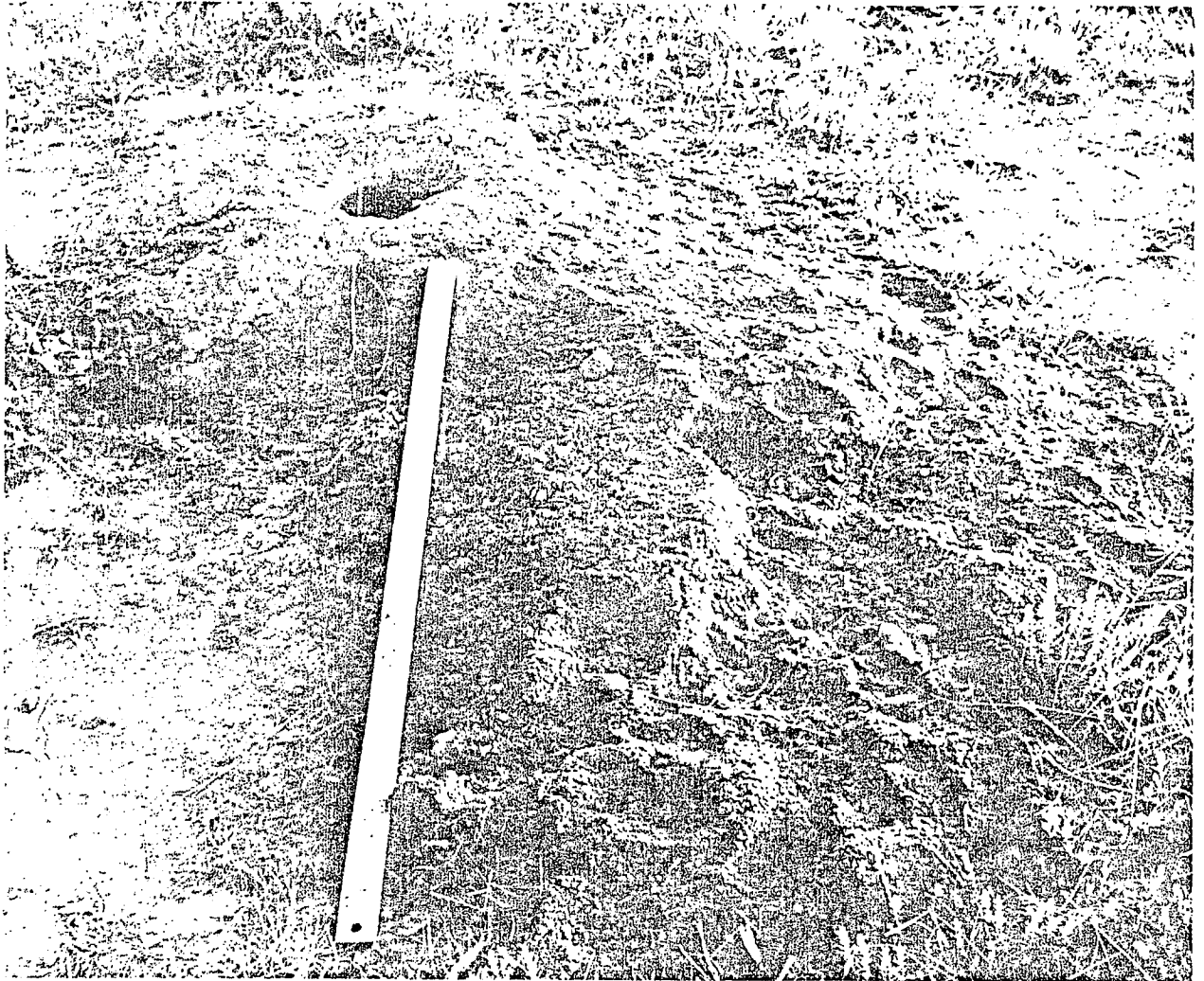
How to find ferrets

The best time of the year to see ferrets is in July and August. At this time, the adult female brings the young out of the burrow in the morning and at night. They can often be observed from an hour or two before dawn until mid-morning or noon. They may reappear after dark and remain active until midnight.

Usually the most effective way to look for ferrets is with a spotlight at night. A simple hand-held spotlight that plugs into an automobile cigaret lighter is sufficient. The best procedure is to park on a prairie dog town where one can see as much of the town as possible and sweep the light over the town every 10 minutes or so. In direct light the ferret's eyeshine is a very bright green, and the eyes appear large. Often when the light passes over the animal it will not face the beam, but when the beam is flashed back a second time it will. Therefore, it is a good idea to work the light back and

forth. A pair of binoculars is helpful in identifying the animal, for a weasel's eyeshine is also green. Under certain conditions, the eyes of badgers appear greenish, as do those of coyotes and even of cattle. In a prairie dog town on a dark night, a steer's eyes at 500 yards might be mistaken for those of a ferret at closer range.

Ferrets do much digging in prairie dog burrows, mostly at night. The ferret backs out of the burrow holding the soil against its chest with the front feet, then passes it to the back feet and kicks it out behind. It does this repeatedly, trip after trip, backing out progressively farther from the burrow in the same track. This procedure often leaves trench-like tailings of loose dirt on top of the ground. The trenches are usually about 6 inches wide, 2 to 3 inches deep, and 1 to 10 feet long. Sometimes, when ferrets dig, they do not form trenches but string soil outward, away from the mound.



Fresh ferret activity. Soil is pulled outward and away from the mound for about 3 feet. Tracks in the foreground were made by a coyote.

In contrast, a digging prairie dog either carries the earth out and uses it to build up the mound or pulls the earth from outside the burrow in toward the mound. Sometimes, a prairie dog forms a trench when bringing dirt out of the burrow to rebuild the mound, but the trench usually curves around the burrow opening and does not normally extend beyond the mound itself. Soil strewn outward from the mound, whether or not a trench has been formed, is strongly indicative of ferret work. Since prairie dog digging and ferret digging can easily be confused, examinations for ferret sign should be made early in the morning. The prairie dog

is strictly a diurnal animal, and almost never comes out at night. Therefore, an early morning check for fresh sign eliminates prairie dogs as being responsible for any digging made during the night.

During warm weather when the prairie dogs are most active, they usually destroy ferret sign as soon as they come out in the morning; but in the winter when they are less active or the ground is frozen, the trenches may persist for a long time. Therefore, the best time of year to look for sign is in the winter, preferably when snow is on the ground and tracks can be seen extending from burrow to burrow. Ferret



An old ferret trench which probably has persisted for several months.

tracks, both in the snow and otherwise, and ferret scats are very similar to mink tracks and scats. However, ferret scats are seldom found, since most of them are deposited underground in burrows.

Prairie dogs have a penchant for covering up burrows occupied by ferrets or recently used by them. Though they may do this also when rattlesnakes, badgers, and coyotes use their bur-

rows, several freshly covered holes in a small town, or in a particular area of a town, should lead one to suspect the presence of a ferret. In covering these burrows, the prairie dog kicks dirt into the burrow-opening and then tamps it down tightly with its nose. Apparently, the ferret leaves this earthen prison with ease. In fact, a covered burrow where something has dug out from the inside and left an opening



Black-footed ferret scats. They are about $\frac{1}{4}$ inch in diameter and consist almost entirely of hair and bits of bone. Notice the segmentation and twisting.

about the size of a silver dollar may be evidence that the "masked mustelid" has made good his escape.

Anyone having knowledge of the presence of ferrets, or having seen any of the ferret signs described above, should promptly notify:

Biologist
Bureau of Sport Fisheries and Wildlife
919 Main Street, Room 210E
Rapid City, South Dakota 57701

or—

Director
Patuxent Wildlife Research Center
Laurel, Maryland 20810

The date and precise location of the observation, and other pertinent information, should be given. These records may provide clues to the status and distribution of this little-known animal. A more complete knowledge of the black-footed ferret can then be applied in management to prevent its extinction.

Photo credits:

European polecat by Rex G. Schmidt;
museum skins by Ray C. Erickson;
two black-footed ferrets by Duane Rubink;
all others by Donald K. Fortenbery.

Ferret tracks in crusty snow. The tracks are about 14 to 18 inches apart and resemble those made by mink.

APPENDIX I

Forest Service Interdisciplinary Team

Jack Cameron	District Ranger
Ladd Frary	Resource Staff Officer
Chuck Kienast	Supervisory Range Conservationist
Tom Komberec	Wildlife Biologist - Team Leader
Wyatt Fraas	Range Conservationist
Mark Tucker	Range Conservationist
John Lott	Soil Scientist

APPENDIX J

Copies of written comments concerning the Draft Environmental Statement are included in this appendix.

The circled numbers in the right hand margin of the letters identify the substantive comments and the Forest Service replies are keyed to these numbers on the pages following the public comments.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Billings Area Office
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO:

SE

April 9, 1981

Mr. Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, WY 82070

Dear Mr. Rollens:

We have reviewed your draft Environmental Assessment (EA) on prairie dog management on the Thunder Basin National Grasslands and have the following comments.

A biological assessment pursuant to Section 7(c) of the Endangered Species Act (ESA) is required only for major construction projects. For nonconstruction activities, some sort of internal evaluation by the responsible Federal agency is necessary to determine if listed species may be affected. Normally, the Forest Service prepares a separate document entitled "Biological Evaluation". However, an EA is satisfactory if listed species are evaluated and a determination of effect is reached.

It is apparent that selection of any alternative calling for prairie dog control may ultimately affect the black-footed ferret. However, without knowing where controls will occur and whether ferrets occur at those sites, a "may affect" determination and subsequent formal consultation on the EA would not be prudent. Consultation on control actions should be initiated during preparation of assessments on specific control actions if a "may affect" determination is reached at that time. We further recommend that ferret surveys be conducted on prairie dog colonies designated for control and the results of these surveys be used as a basis for determining if formal consultation is necessary. Depending

upon results of assessments and consultation on the effects of specific control actions on the ferret, any amount of control identified in the selected alternative could be subject to change. A copy of USFWS draft guidelines for black-footed ferret surveys is enclosed.

The extensive amount of prairie dog control called for under the preferred Alternative IIC would remove a considerable amount of potential ferret habitat. According to your EA, the potential for ferret recovery would be fair to low, with only the minimum habitat requirements provided for. At the same time, pressures to prairie dog towns from coal development and associated recreational demands are expected to increase. Unless ferrets are identified, the FWS is not in a position at this time to say that an individual prairie dog town in the Grasslands is necessary for the survival and recovery of the ferret. On the other hand, the ESA directs Federal agencies to develop programs to promote the conservation of listed species. We hope that any proposal implemented by the Forest Service will adequately consider the benefits to ferret recovery that may be realized by providing, in an area of historical ferret use, more than the minimum habitat requirements.

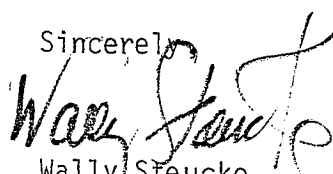
Prairie dog control may also affect the bald eagle depending upon the significance of prairie dogs in the diet and the time of year of control. These factors should be evaluated in the EA. The need for consultation on the bald eagle should also be evaluated during preparation of assessments on specific control actions. The effects of grazing on eagle habitat (e.g. cottonwood regeneration) should be considered.

Other wildlife species are also dependent on or benefited by prairie dog towns. Your EA concludes that the loss of prairie dog towns under Alternative IIC would have serious effects on other wildlife and wildlife habitat management. Of particular concern are the golden eagles, ferruginous hawks, prairie falcons, and other raptors feeding on prairie dogs in the Grasslands.

The preferred alternative appears to give only minimum consideration to wildlife concerns. Managing for only 1,000 to 2,700 acres of prairie dog towns on 572,319 acres of Federal land will provide little benefit to wildlife species associated with prairie dogs. Your EA identifies a somewhat arbitrary upper limit of 37,000 acres of prairie dog towns that would still be compatible with other mandates regarding all Grassland

resources (Alternative IIA). Alternative IIA presents a more reasonable approach to endangered species conservation and consideration of other wildlife resources. However, prairie dog control by poisoning should be regarded only as an initial tool for range restoration early in the implementation of your management plan. Sound grazing practices to prevent excessive prairie dog expansion are a more rational approach to long-term management. We further recommend that, rather than apply an indiscriminate 40-acre upper limit on prairie dog town size, this constraint be applied only when necessary.

Sincerely,



Wally Steucke
Area Manager

enclosure

cc: ES Field Supervisor, Cheyenne



United States Department of the Interior

IN REPLY REFER TO
1792 (932)
6610

BUREAU OF LAND MANAGEMENT

State Office

P. O. Box 1828

Cheyenne, Wyoming 82001

RECEIVED

APR 30 1981

Mr. Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Dear Mr. Rollens:

The Wyoming State Office of the BLM has reviewed the draft environmental assessment for the Thunder Basin Prairie Dog Management program. The BLM looks upon your proposal with interest as the results, no doubt, will set precedent in our own range and animal damage control programs. The following comments are intended to provide some constructive thought based upon some of our experience in similar situations.

1. Section 7, consultation under the Endangered Species Act regarding the potential effects upon the black-footed ferret and bald eagle, will be required prior to project implementation. It would be beneficial to have an indication or evidence in the EA that the consultation process has been initiated. 10
2. The black-footed ferret recovery plan for the Thunder Basin Grasslands should be included as an appendix to the EA as it contains critical assumptions in the alternative analysis. 30
3. Long term biological controls could provide economical, effective, and ecologically sound solutions to the problem of expanding prairie dog populations. Considering the known relationship between overgrazing and prairie dog town expansion, three alternatives are offered for consideration in an alternative analysis.
 - a. Reduce levels of grazing pressure. 31
 - b. In combination with reduced grazing pressure, initiate a program of range fertilization around expanding prairie dog towns. The increased growth of vegetation has been demonstrated to limit town growth.
 - c. Initiate a natural predator introduction or enhancement program. Swift fox reintroduction into South Dakota prairie dog towns, for example, has been shown to reduce prairie dog numbers.

4. The scoring on Table 2 (page 40) appears incorrect for evaluation criterion B. The score for alternative IIB., evaluation criterion B, should be 3 (positive effects) because the potential for meeting the Black-Footed Ferret Recovery Plan is fair to good (page 23). Alternative IIB. should not be scored the same as alternative IIC. for this criterion which by contrast has only poor to fair (page 26) potential for meeting the objectives of the recovery plan. Correct scoring of alternative IIB. in this manner would give a weighted score of 15 for criterion B and a total score of 37. Alternative IIB. as a result of these revised computations, therefore, appears to be the logical preferred alternative.

32

Sincerely yours,

J William Eikenberry

for Maxwell T. Lieurance
State Director

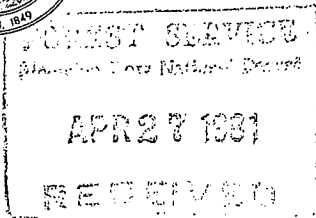


United States Department of the Interior

IN REPLY REFER TO
6800

BUREAU OF LAND MANAGEMENT

Newcastle Resource Area
Box 757
Newcastle Wyoming 82701



April 24, 1981

Mr. Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, WY 82070

Dear Mr. Rollens:

We have reviewed the draft environmental assessment and prairie dog management plan for the Thunder Basin National Grasslands and have the following comments:

What criteria will be used in determining areas to be used for relocation of colonies? Will towns be relocated on lands leased by the same permittee that towns were removed from? 17

Minimum acreages mentioned for black-footed ferret habitat may not be the optimum. If colonies are to be managed as potential black-footed ferret habitat, we would recommend using optimum rather than minimum figures. 11

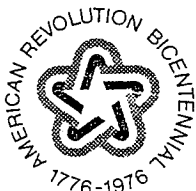
Will future control actions be based on a schedule, i.e., based on the 30% increase figure, or will colonies be surveyed periodically for control needs? 18

Overall, we feel this document was well researched and prepared and was presented in a logical and easy to follow format. We support your efforts to deal with this problem, and agree with your selection of the preferred alternative.

Thank you for the opportunity to review and comment on this plan and EA. We would like to have a copy of the final plan and EA when it becomes available.

Sincerely yours,

Donald S. Peterson
Acting Area Manager



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

NNF

REPLY TO: 1950 Forest Service National Environmental Policy Act (NEPA) April 17, 1981
2650 Control

SUBJECT: EA - Thunder Basin Prairie Dog Management

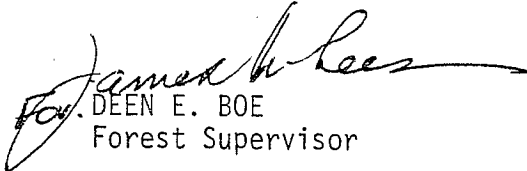
TO: Forest Supervisor, Medicine Bow N.F.



We have reviewed your Draft Environmental Assessment on Prairie Dog Management and wish to comment.

It's apparent that you've avoided several of the primary weaknesses that we have now identified in our own prairie dog management program. However, we see one area of concern with your management plan and this is the large number of colonies that are scheduled for partial control. We have found that when only part of a colony is treated that the original size of the colony remains unchanged and you end up with an area of high dog density and an area of lower dog density. 33 A major maintenance problem is also created. To the extent possible, we recommend that you keep this type of treatment to a minimum. This might be accomplished by identifying those colonies that tend to be more stable in size and/or geographically isolated and then designating these colonies as leave areas. Complete control coverage is then prescribed to as many other colonies as possible.

I hope that we have provided some meaningful input.


DEEN E. BOE
Forest Supervisor

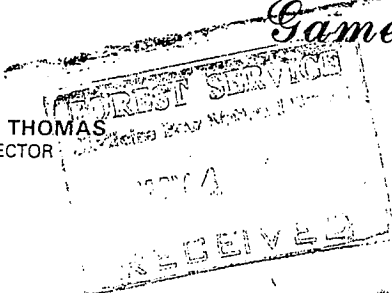


Game and Fish Department

CHEYENNE, WYOMING 82002

May 1, 1981

EARL M. THOMAS
DIRECTOR



EIS 758/L1, Thunder Basin
Prairie Dog Management Plan
Medicine Bow National Forest

	FS. EA.	AD.
	PL.	MB.
10	F.W.L.S. WAM	DE
	ENG.	AR.
	TERREL	RE.

Mr. Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Dear Mr. Rollens:

We have reviewed the Thunder Basin Prairie Dog Management EAR and offer the following comments in order of pagination of the document.

Page 2, Public Issues. We would not consider occupancy of less than 1% of the federal land on the Grasslands by prairie dogs an "infestation." There are no data in this document to indicate "devastation" of rangeland by prairie dogs. Data from the literature cited in the EAR indicate that livestock may cause vegetation problems on prairie dog towns as much as prairie dogs. 1

Public Issue B. The map with this document does not support the idea that prairie dogs move from public land to private land. Over 70% of prairie dog towns are on private land, including nearly all of the very large towns and many towns on private land are completely isolated from towns on public land. 1

In 1976, 73.5% of the prairie dogs were on private land. In 1980, 72.7% of the prairie dogs were on private land. This does not suggest movement from public to private lands. Item D, on Page 3, indicating that the percentage of prairie dogs on private lands was the same in the 1950's also brings up a question of the suggested movement. 1

Page 3, Management Concerns, Item A. There are many more species dependant upon prairie dog holes or prairie dogs as prey. They include snakes, mice, voles, ground squirrels, rabbits, badgers, skunks, weasels, mink, foxes, hawks and owls.

Page 4, Opportunities, Item B. Retaining habitat for the bald eagle may not be a legitimate opportunity resulting from prairie dog management. Analysis of eagle casts from roosts in Campbell County indicates that bald eagles are 23

Mr. Donald L. Rollens
May 1, 1981
Page 2, EIS 758/L1

feeding largely on carrion--dead domestic sheep, antelope, deer, and jackrabbits.

Page 9. There are records of plague in Northern Wyoming. Plague occurred in the late 1940's on the Powder River from below Kaycee to near Arvada.

13

Page 10, Evaluation Criteria. Criterion A (maintain livestock grazing on the Grassland), if this means at current grazing levels; and Criterion C (maintain at or improve range condition on grazed lands) may not be compatible goals.

Page 11. Introduction of domestic ferrets or Siberian polecats would be a violation of State law and the Federal Land Policy and Management Act.

24

Page 14, Alternative II. One measure which should be instituted to limit reoccupation of controlled areas by prairie dogs is different grazing practices. The EAR contains very good documentation to support the effectiveness of grazing modification in preventing the spread of prairie dogs. Without a change in grazing practices, prairie dogs may continue to invade areas where grazing is heavy.

6

Page 15, Alternative IIA. Is there documented justification for the decision that prairie dogs must be restricted to no more than 10% of the Grassland in order to be compatible with multiple use management?

25

Page 15, Alternative IIB. There are already 6,300 acres of prairie dogs on federal land on the Grassland. To redistribute prairie dogs, thus transplanting what has been identified in this EAR as a problem, does not seem to be an acceptable alternative. If current grazing practices are contributing to the spread of prairie dogs, and if prairie dogs are moved to areas of poor grazing practices, prairie dogs will increase, and the effect will simply be spreading the problem.

Page 18. Leaving prairie dog populations as they are now, or any of the other alternatives, will not necessarily benefit black-footed ferrets. We know of little recent evidence of ferret occurrence on the Grassland.

26

Page 38. Noticeably missing from the list of alternatives is improved grazing management, or a combination of partial control and improved grazing management. It is not going to be cost effective, nor good grazing management, to poison prairie dogs, then rest grazing for a time, and return to heavy grazing, because prairie dogs are going to reinvade towns that are heavily grazed soon after treatment. This is a very costly program. If prairie dogs are to be effectively controlled, some different type of grazing management will be required, because prairie dogs have been increasing rapidly under current management practices.

6

Page 39, Table 1, Evaluation of Alternatives. The assumption that range deterioration is solely due to prairie dogs is incorrect, as is the assumption that prairie dog towns are unsuitable for livestock grazing.

14

Mr. Donald L. Rollens
May 1, 1981
Page 3, EIS 758/L1

Page 42. Alternative IIC ranked highest overall with a spread of only 6 pts., less than 17% difference between the evaluated alternatives. No control was only 5% different than Alternative IIC.

32

"The preferred alternative will reduce the possible movement of prairie dogs from federal land to private and state lands." This is unlikely. Retreatment is necessary every year to keep prairie dogs from increasing. And, prairie dogs will still move onto improperly managed land.

Page 43. "Soil erosion and water degradation attributable to prairie dogs will be eliminated...." Elsewhere in this document it is noted that the effect of prairie dogs on soil erosion and water degradation cannot be separated from that caused by livestock.

The EAR notes that the only reason for prairie dog control is to prevent prairie dogs entering private land from federal land. The map of prairie dogs and the equal increase rate on both federal and private land do not support this.

Page 44, Bottom of page. Prairie dog control is not the same as prairie dog management.

Please contact this office or our District Office in Casper if we may be of further help on this project.

Sincerely,



W. DONALD DEXTER,
ASSISTANT DIRECTOR, OPERATIONS
WYOMING GAME AND FISH DEPARTMENT

WDD:HBM:mlr

cc: Game Division
Fisheries Division



THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Department of Agriculture

FOREST SERVICE
Medicine Bow National Forest
LARRY J. BOURRET, COMMISSIONER
MAY 1 1981
RECEIVED

TELEPHONE: (307) 777-7321

CHEYENNE, WYOMING 82002

April 28, 1981

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UNIVERSITY OF WYOMING, LARAMIE

R
Don L. Rollens
Forest Supervisor
United States Department of Agriculture
Forest Service
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Dear Don;

We have reviewed briefly, the Thunder Basin Prairie Dog Management Environmental Assessment and while our comments were due April 24, 1981, we hope you will still accept them.

We agree with your soil loss data and your cost of control using zinc phosphide. We believe the Forest Service must control the prairie dogs on areas adjacent to private lands or provide monetary mitigation for private landowners providing "critical habitat for Black-Footed Ferrets.

We believe your agency should develop a ferret search protocol as soon as possible and provide cost data on such.

Sincerely yours,

Larry J. Bourret
Larry J. Bourret
Commissioner

LJB/ea

Converse County
Weed and Pest Control District

Douglas, Wyoming 82633

P.O. Box 728

April 20, 1981

307 - 358-2775

Donald L. Rollens, Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Dear Mr. Rollens,

Thank you for the opportunity to comment on the draft EA for prairie dog management in the National Grassland. I am going to limit my comments on this plan as they pertain to Converse County. However, they may be applicable elsewhere.

I concur with the choice of Alternative II C as the best possible solution to the prairie dog problem in the grasslands. However, I would like to see a change in the selection for control criteria on pages 43, 44, and 94 as follows:

Page 43 last paragraph - change to;

- 1) the prairie dog towns are contiguous with private or state land, or
- 2) they are within $\frac{1}{2}$ mile of private or state land.

19

Page 44 2nd paragraph

Insert "or State" after the word Private in the 3rd line and eliminate "and are on federal land tracts of more than 640 acres" from the sentence.

19

Page 94 Guidelines For Prairie Dog Control

Number 1 - change to:

1. Prairie dog towns that will impact private or state land will be controlled using zinc phosphide. The Forest Service considers these those prairie dog towns that are contiguous with private or state land or those within $\frac{1}{2}$ mile of private or state land.

20

Number 2 - change to:

2. Prairie dog towns that are more than one-half mile from private or state land will be retained and usually reduced in size ... etc.

20

The above changes would eliminate towns on smaller tracts of federal land within $\frac{1}{2}$ mile of other lands. This would reduce reinfestation of Private and State lands from federal lands. As the figures for the distribution of infested acres indicate, it is intuitively obvious that preferred prairie dog habitat exists to a greater extent on private lands than on federal lands. During seasonal dispersal, prairie dogs entering private surface will no doubt have a better chance of finding suitable habitat and surviving to establish a colony than prairie dogs on federal surface. Under this new guideline, the larger tracts of federal land that would be required for retaining new dog towns would have an enhanced ability of holding prairie dogs on Federal land because of the minimum $\frac{1}{2}$ mile distance limit. A one mile limit would further enhance this holding ability and should be seriously considered.

21

The change would eliminate several more towns from Table #1, Pages 96-98, including 231 -1 and 2, 231 - 7 and 8, 231 - 16, 212 - 6, 205 - 1, 213 - 2, and 213 -3. And this would not lower the number of infested acres below the 1000 acre minimum of the alternative requirements. Only one town in the Rosecrans BFF Habitat Area would be eliminated and leave 1037 acres intact in this habitat area. Of course, Table 2, Page 104 would have to be changed to reflect this. 21

One other questionable item was the table on page 72, #239A - Billy Edwards: The only town marked 239A-1 appears to be on F. C. Reno and Sons and not on Billy Edwards. 22

This EA was well done and very comprehensive and complete. The selection of Alternative II C would meet the Weed District's objectives in prairie dog control in Converse County as well as the Forest Service's objectives. I hope you seriously consider the changes suggested as they will eliminate many problems in the future.

At this time, I would like to say something about zinc phosphide. I noticed you didn't get very specific as to your control procedures.

Zinc phosphide is not a very effective toxicant on prairie dogs and probably a 70 to 75% kill can be expected. Pre-baiting may be speeded up by applying the material with a grass seeder from the back of a pickup. A chain could be drug behind the truck at this time. When the toxic treatment begins, crew members would treat the holes between 2 parallel chain marks across the town.

Has the Forest Service tried to get any other toxicants registered for use on prairie dogs, especially as clean up treatment on zinc phosphide treated towns? It may be worthwhile to pursue this. Retreatment of the towns will be necessary to clean up the prairie dogs left after baiting. Another toxicant is usually recommended due to bait shyness which may have resulted from non-lethal doses of zinc phosphide. Only a third or less of the original town would remain and retreating this area would expose non-target species to a minimum amount of more effective toxicants. Retreatment should follow 2 or 3 weeks behind original treatment for control to be effective.

Thank you again for this opportunity. If I can be of assistance to you in this project, do not hesitate to contact me.

Sincerely,



Roy Reichenbach
Supervisor

Thunder Basin Grazing Association

P.O. Box 136
Douglas, Wyoming 82633

BOARD OF DIRECTORS

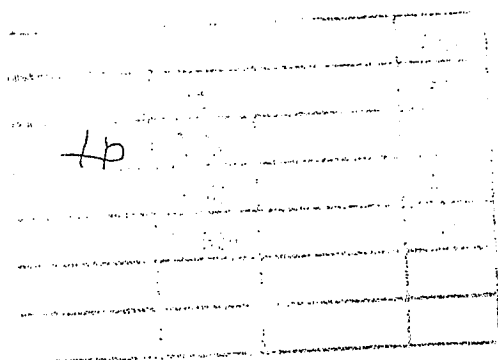
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Range Manager & Fieldman

April 22, 1981

Phone 358-2912
111 South Third

U. S. Forest Service
Medicine Bow National Forest
Mr. Donald Rollens, Forest Supervisor
605 Skyline Drive
Laramie, Wyoming 82070



Dear Mr. Rollens:

Our comments on the Prairie Dog Draft EIS are as follows:

We feel that the alternative selected which is Alternative IIC (1,000 to 2,700 acres of prairie dogs) should be set at the minimum figure of 1000 acres. This will meet the minimum requirement of the black footed ferret which we understand may be declared extinct. Since dog towns can increase 30% a year, cutting back to 1000 acres, will not be an irretrievable measure.

The Association of National Grasslands recently voted for a recommendation to control prairie dog towns on public lands to 10% of their present size.

We feel that using Conservation Practices Funds to control prairie dogs is a justifiable use of these funds. C P Funds have been used to control noxious weeds. We also feel the C P funds should be used to restore areas depleted by the prairie dogs.

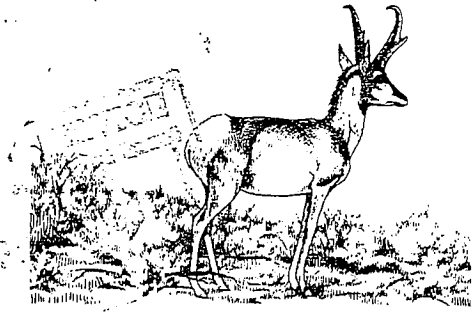
We disagree with the statement that the only tangible benefit from the prairie dog control will be an improvement in political relationships with users of the federal lands. The restoration of the range resource will also be a tangible benefit.

2

Sincerely,

Charles G. Irwin, President
Thunder Basin Grazing Ass'n.

cc



Sierra Club

Northern Great Plains Region

Bruce Hamilton
Regional Representative
P.O. Box 1078
Lander, Wyo. 82520
(307) 332-9824

Rose McCullough
Assistant Representative
715 South 14 St.
Lincoln, Neb. 68508
(402) 435-7023

April 22, 1981

Donald Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, WY 82070

Dear Donald Rollens,

I would like to submit the following comments on the draft environmental assessment on Thunder Basin National Grassland Prairie Dog Management.

I am pleased to see the Forest Service taking a strong interest in prairie dog management. For too long prairie dogs have been viewed solely as varmints that were to be exterminated. This EA does a commendable job of recognizing and reporting the valuable ecological role prairie dogs play on rangelands in the West and the value prairie dogs provide to the owners of the national grasslands--the American public. Permittees and adjacent landowners have the right to expect reasonable management and some control of dog towns on public lands. But control at the request of livestock operators should not be conducted to extremes where other resource values are sacrificed.

The EA contains an excellent summary of the interrelationship between prairie dogs, man, livestock, soil fertility, and endangered species and other wildlife. I agree with most of what is contained in the EA. But I strongly disagree with your selection of IIC as the preferred alternative. You appear to have ignored most of the EA's useful information when choosing this alternative.

Instead, I would suggest a modification of IIB as the preferred alternative--managing 2,700 to 6,300 acres of prairie dog towns. I say a modification because I have serious reservations about the proposed methods and locations of control and the post-control management with all of the alternatives considered. I will detail these concerns and propose some possible alternatives in the specific comments that follow.

--IIC, the preferred alternative, will lead to a decrease in endangered species habitat. It would provide a poor to fair potential for black-footed ferret recovery. This is unacceptable. There are enough recent verified sightings of ferrets in the area to warrant a more positive approach. By comparison IIB offers a fair to good chance of meeting ferret recovery responsibilities.

--In the public issues section you note two conflicting perceptions: first, that "thousands of acres of rangeland are being devastated by prairie dogs," and second, that "prairie dog infestations are a symptom of overgrazing or other land abuse and won't be a major problem if the land is properly managed." The EA only addresses how to control prairie dogs through shooting, poisoning and other direct control methods, thereby accepting as fact that the prairie dogs, not livestock management, is the problem. Nowhere in the EQ is it ever documented that there is more than a "perceived" conflict between

"Not blind opposition to progress, but opposition to blind progress."

1

6

prairie dogs and livestock. Nowhere in the EA is there any discussion of changing grazing patterns in order to control prairie dogs. Several studies cited in the EA note that prairie dogs are actually beneficial to livestock and that livestock congregate in dog towns. Perhaps the real problem is one of education--changing the perception of those who complain rather than taking costly and environmentally destructive actions to address a perceived problem. 6

--There is an unproven assumption in the EA that dog towns will continue to expand indefinitely unless control measures are taken. True, prairie dogs are prolific, but they need the right conditions to expand. One needs to look at why dog towns have expanded between 1975 and 1980 (the two most recent surveys). Is the sole reason a lack of poisoning or have land management practices led to favorable conditions for expansion? After answering that question one can then ask whether the best solution is reintroduction of poisons or a change in land management. 9

--The U.S. Fish and Wildlife Service should be formally consulted under Section 7 of the Endangered Species Act before this plan is implemented. Implementation of IIC, the preferred alternative, could jeopardize the black-footed ferret. 10

--Not enough information is given on the Rosecrans black-footed ferret potential habitat area. Since it may be as small as one township in size is this really large enough to provide for a viable population of ferrets? Isn't it true that none of the recent ferret sightings have been in the proposed potential habitat area? Empty habitat is important for future restocking, but what is being done to protect other areas where ferrets might already exist? You seem to assume that your obligations under the Endangered Species Act can be met by providing one suitable site that meets the bare minimum identified requirements. Meanwhile, by de-emphasizing the other existing towns (and possible occupied critical habitat) you may be abetting the eradication of the species. The Endangered Species Act not only requires federal agencies not to take actions that would further endanger a species, it also calls for positive steps to protect endangered species and prohibits the taking of an endangered species by any party--public or private. Since there are positive recent sightings in the Thunder Basin National Grasslands area, the Forest Service should be working out positive cooperative agreements with adjacent landowners and permittees to protect critical habitat. Instead, you seem resigned to the fact that all private and state land and most federal land will be poisoned. You've located an easy place to protect, but you may not be doing a thing to protect some of the few remaining black-footed ferrets on the face of the earth. 11

--You assume that zinc phosphide is safe for use in ferret habitat when this conclusion is open to debate. Some tests have shown zinc phosphide to be non-toxic on a closely related ferret, but no data exist on black-footed ferrets and on the possible long-term, less-than-lethal effects of the poison. 12

--No acknowledgement is made of the fact that plague has played a major role in controlling prairie dog numbers in this part of the country. 13

--Reintroduction of swift foxes might be a more ecologically sound and economical method of control. This is being tried in South Dakota to a limited extent. 8

--A more thorough investigation needs to be made of the influence of present grazing practices on prairie dog populations in the area. The EA only considers temporary reductions after poisoning to allow reestablishment of vegetation and then a return to the same grazing situation as before. If the researchers are right, and there is a mutually beneficial relationship between prairie dogs and livestock, then it seems logical 6

to try to establish that balance by looking at both sides of the scale, instead of always only reducing the prairie dogs. If livestock management was altered perhaps costly toxicant control would not have to be periodically repeated.

--Parts of the economic analysis appear faulty. It is assumed all prairie dog town acreage is unsuitable for grazing when most studies have shown that this is not so. In fact dog towns are often preferred sites for grazing and dog town activity can increase forage production. Also, some towns are located on areas beat out by livestock (old sheep winter bed grounds) and areas where topsoil was blown away in the Dust Bowl Days so that no forage is lost to livestock by the presence of these towns. Even with all these faulty assumptions it still appears that it costs more to poison an area than the forage you save from hungry prairie dogs. Similar conclusions on the futility and economic unsoundness of poisoning dog towns is coming out of the Forest and Range Experiment Station work in Rapid City, S.D. 14

--The announced decision on page 43 to only control the problem towns is a good one that I strongly support. On page 14 you state that up to 3,000 acres of dog towns could be retained without relocation of towns and without unduly impacting private lands. When you consider that some of the impact on private lands might be beneficial or inconsequential (because the land is unproductive to start with) then some target upwards of 3,000 acres appears reasonable to satisfy permittees, keep costs down, and protect ferret habitat. This is why I think the acreage in IIB is reasonable. It would allow reductions in problem areas--such as where plague is a health problem--without the drastic reduction called for in IIC.

--There is no mention made of the impact coal and uranium development is having on prairie dog towns. With all the new mines, new roads, new rail lines and new residents who like to varmint hunt there is probably a significant loss of habitat and a reduction in the population. 15

--By reducing all dog towns outside the Rosecrans habitat area to no more than 40 acres in size you are guaranteeing that the only suitable habitat for ferret recovery will be in one limited area.

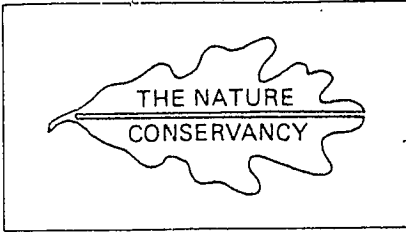
--One shouldn't base a management plan on the assumption that adjacent landowners and permittees will break the law. Such a stand only encourages illegal action. A much more positive cooperative approach is necessary if the program is to be a success.

Thank you for this opportunity to comment. Please send me a copy of the final environmental assessment and notice of decision.

Sincerely,



Bruce Hamilton
Regional Representative



WYOMING NATURAL HERITAGE

PROGRAM OFFICE
Medicine Bow National Forest
82001 • 307-634-9629
APR 15 1981
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	F.S.	
	PL.	
JA	ROVLS. WUS.	
	ENG.	
	T.F.R.&L.	
April 14, 1981		

1603 Capitol Avenue, No. 325 • Cheyenne, WY 82001

Mr. Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

With Wyoming State Dept. Environmental Quality - Land Quality Division

Dear Mr. Rollens

Thank you for your copy of the draft environmental assessment of the Thunder Basin Prairie Dog Management plan. I have several comments.

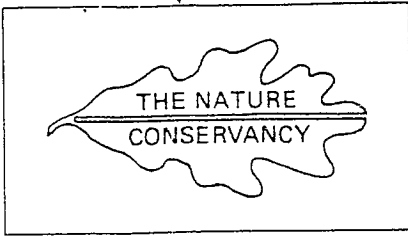
First, toxicant control of prairie dog colonies has been so much sand down a rat hole. From 1966 to 1972, Wyoming poisoned 474,000 ac. with about 85,000 pounds of strychnine, 11,000 pounds of 1080 and over 39,000 gas cartridges. Up until 1966, records were poorly kept, but one can assume that it was as intense a campaign. Now, the livestock interests demand this continued subsidy once again, although it clearly was ineffective in the past. The prairie dogs are back.

Citing your own figures, it costs \$7.00/ac to poison yet you lose only \$1.14/ac per year in forage to the prairie dogs.

I agree with you that some control must be carried out, even if only to keep the locals from going out and spreading strychnine, thallium and God knows what else in Biblical imperative to subdue the earth. Another alternative to this would be to try to educate them to the ecological situation they are trying to deal with. "If you think education is expensive, try ignorance" - Anon.

First, prairie dogs coexisted in great abundance with buffalo, antelope deer and perhaps elk in Thunder Basin. Therefore, prairie dogs per se do not destroy ungulate forage production, but existed in a dynamic balance with enough bison to "blacken the prairies". Your assessment plan did not cite Robert Lang's work (1973. Vegetation changes between 1943 and 1965 on the shortgrass plains of Wyoming. J. Range Management 26(6):407-409) which showed TBNG vegetation quality and quantity to be steadily declining in the absence of prairie dogs. Why wasn't this cited? The assertions in your report (pp.54-55) that prairie dogs are a symptom of overgrazed, deteriorated range are further supported by Kathy Fagerstone's recent research (Denver Wildlife Research Center) on Buffalo Gap National Grassland which showed that during the post-1968 expansion of prairie dogs, the new colonies literally follow 4 miles of fence line where they occur on the overgrazed federal lands and private lands on one side of the fence only. The prairie dogs did not expand in the land which was not overgrazed. With Lang's work showing a 35% decrease in productivity without prairie dogs and this work in BGNG, you could do a fair job of making a case that the TBNG prairie dog problem is a symptom of an overgrazing problem. Could you consider this as another alternative?

Nevertheless, you asked for a response to your stated alternatives, I would favor alternative II-B. You would have some prairie dog control to appease the private landowners, yet you would have , to use your words, a "Fair to Good" potential of meeting the Black-footed Ferret Recovery Plan. Your claim of a loss of from 600 to 1400 AUMs is distorted. I studied 34 prairie dog colonies in TBNG and 55



WYOMING NATURAL HERITAGE PROGRAM

with Wyoming State Dept. Environmental Quality - Land Quality Division

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colonies in eastern Wyoming in 1974 (Stromberg, M.R. 1975. Habitat relationships of the Black-tailed Prairie dog (Cynomys ludovicianus) : Vegetation, soils, comparative burrow structure and spatial patterns. M.S. thesis. Univ. Wisc. Madison. 175pp) . Many colonies were on sheep winter feed lots, greasewood flats and other virtually unproductive sites and should not be included in your forage loss figures. These were lost anyway! If you would categorize the various towns on your map as to production value estimates (assuming elimination of prairie dogs) for each site, then this alternative (II-B) would look a lot better. I think the blanket assumption of productivity being equal on all TBNG prairie dogs colony sites, given the enormous variability I observed, is unwarranted. I would suggest with altered grass production figures, you could satisfy the ranchers, educate some and still have a "Fair to Good" potential of meeting the Black-footed Ferret Recovery Plan. 7

My last point concerns the Swift Fox. In a paper in press, (Floyd, B. and M.R. Stromberg. 1981. Recent records of swift fox (Vulpes velox) in Wyoming. J. Mammal.) I present evidence that the swift fox is making a great return in Wyoming. Because the swift fox is found to the east of TBNG (Hillman, C.N. and Jon C. Sharps 1978. Return of the Swift Fox to Northern Great Plains. Proc. So. Dakota Acad. Sci. 57:154-162) and to the south (Floyd and Stromberg, 1981), I think you should consider reintroducing the Swift Fox to TBNG as a prairie dog predator. In South Dakota, the Swift Foxes denned in prairie dog colonies and prairie dogs were the major diet item. Further, you would be doing your part to help a native species of wild-life which is considered protected in all the other states in which it occurs except Wyoming. I met with Mr. Sharps yesterday and he explained the successful method he has worked out to introduce swift foxes onto prairie dog colonies. The Forest Service should consider this alternative method of prairie dog control in TBNG. 8

I hope you can modify your environmental assessment. I have included copies of Lang's work and that of Hillman and Sharps. I would be glad to let you borrow a copy of my M.S. thesis. My loaner copy is at Devil's Tower temporarily. I will forward it when it is returned if you should so desire.

Sincerely,

Mark R. Stromberg

Mark R. Stromberg, Ph.D.
Program Coordinator/Zoologist

cc: Harry Harju

THE UNIVERSITY OF WYOMING

College of Agriculture and Experiment Station

Agricultural Building, Laramie, Wyoming



DIVISION OF AGRICULTURAL ECONOMICS

Mail Address:
Box 3354, University Station
Laramie, Wyoming 82071

April 30, 1981 ^{re: B}

Donald L. Rollens
Forest Supervisor
Medicine Bow National Forest
Skyline Road
Laramie, WY 82070

Dear Mr. Rollens:

I note that the period for public comment on your draft environmental assessment for the Thunder Basin prairie dog management expired April 24. I received a copy April 20, and because of travel I didn't have time to complete this earlier. I hope the comments can still be accepted. I'm sorry I didn't have time to respond to Mr. Komberec's request to review the rough draft.

I note that 572,000 acres of Federal and 143,000 AUM of livestock grazing works out to 4 acres per AUM.

Page 8, first full paragraph: I am not qualified to dispute the benefits to other wildlife from prairie dogs or prairie dog activities, and prairie dog towns. However, reference to appendix C doesn't indicate any real quantification of the effects. It is quite easy to see why the raptors, predators, reptiles, and prey animals such as the cottontails or jackrabbits might be benefited. It is not so easy to see why the antelope, deer, bison, or cattle would be benefited (cross reference page 58). The simple assertion of benefits without any documentation of or quantification of the extent of benefits doesn't really seem to mean much.

Page 10, regarding your literature cited: Who is the publisher of the article by Clark and Stromberg? In general, are the citations in your literature cited sufficiently complete for a reader to know who and where to write if I want to get access to the original documents? I don't think they are sufficiently complete. For instance, are there publication numbers associated with the article by Steinhoff? Would I write to Washington, D. C or a field office to obtain copies? Similarly on the U.S. Forest Service publications. Would one write to the regional office or to the Forest Supervisors' Office?

Page 17, paragraph 4: "Habitat for many other wildlife species which use prairie dog towns would be eliminated a few years after the tunnels collapse," etc. I do not see how this type of statement can be completely true. Habitat might be affected and the wildlife population affected, but I cannot believe

that the "habitat. . . would be eliminated" unless the tunnels are actually the habitat. The argument is overdrawn here and at many subsequent points where there are references to "habitat lost" or other similar phraseology. See also pages and paragraphs as follows: p. 19, para. 6; p. 24, para. 6 (6); p. 26, para. 11 (6); p. 29, para. 1 (6); p. 38, para. 4. This may not be a complete listing of places where references report "habitat lost".

Page 19, paragraph 1: There is mentioned of AUM's foregone, but no indication of value. Page 19, paragraph 2: Under the general heading of costs, "grazing fee receipts foregone per year-\$4,914.00 plus. This is based on \$3.51 per animal unit (AU) and would increase as grazing fees are raised". Whether intended or not, this implies \$3.51 is the value of grazing foregone, which was mentioned in the previous paragraph. I assume that if timber or mineral values existed then those costs would also be based on the stumpage value or the mineral lease fees or royalties paid to the government. However, at a subsequent point in your prairie dog statement the recreational or other esthetic benefits or values on the prairie dog towns are placed at about \$3.00 per acre. That \$3.00 an acre doesn't represent any revenue to the government. Why are commercial uses valued based on revenues produced to the government while some of the noncommercial uses are valued based on purely blue sky estimates for recreational uses and esthetics?

28

The value of production of cattle and calves in Wyoming has been estimated at \$10.95 per AUM for 1972-78 and \$23.71 for 1979. Comparable figures for sheep are \$9.40 per AUM for 1972-78 and \$17.17 per AUM for 1979, excluding the wool incentive payment. (Kearl, W. Gordon. 1980. "Input-output Data for Cattle and Sheep Production-extracted from State Aggregate Statistics." Division of Agricultural Economics, University of Wyoming, AE 80-03, January 1980.) Wyoming is one of a few states where dairy cattle or livestock feeding are so unimportant that ESCS statistics on values of cattle production represent beef cattle and range livestock production pretty much directly.

Recognize that gross values of production are related to ability to pay grazing fees but there is only an indirect connection between values of production and appropriate fee levels. The money from gross value of production is used to pay all operating costs, including grazing fees, and must also provide return to the operator for his labor and capital, in order that he can spend money to cover his living expenses.

Gross values of production represent new money brought into the state and spent, and respent within the economy more than once. Multipliers commonly assumed to apply livestock production are on the order of 2.0 to 2.5. Using those kinds of multipliers then the value of an AUM to the economy is on the order of \$20 to \$25 at 1972-78 prices and on the order of \$40 to \$60 at 1979 prices, depending upon whether cattle or sheep are being considered. It would be much more appropriate for the Forest Service to consider these types of values in environmental assessments or environmental impact statements or costs benefit work, than to consider only the grazing fee receipts.

An explanation of the approach outlined above can be found in: Heady, Harold F., et. al. "Livestock Grazing on Federal Lands in the 11 Western States." Journal of Range Management. Vol. 27, No. 3, May 1974, pages 174-181.

A more involved approach could involve primary data collection from ranchers and business firms. That would be followed by construction of an "input-output model", which is a type of economic model used to measure impacts of economic changes. The most recent known example of the approach applied to the range livestock industry is: Obermiller, Frederick W. "Baker County, Oregon, Input-Output Model" submitted to Baker County Court by Oregon State University Department of Agricultural and Resource Economics, Corvallis, Oregon, November 4, 1980. You might obtain a copy by writing to the author.

That study reports on a net reduction of 10,589 AUM's resulting from 11,991 AUM reductions and 1,402 AUM increase elsewhere. That "ultimately would reduce gross revenue to BLM dependent ranchers by almost \$400,000 per year" (\$37.78 per AUM). Also, there would be "an aggregate loss in Baker County business revenue valued at about \$1,109,000 per year" (\$104.73 per AUM, and a multiplier of 2.77 is indicated). The data shown earlier for all Wyoming looks rather conservative in relation to this Oregon study.

Referring back to the failure to apply any output value to the AUM foregone, and use of the \$3.51 grazing fee figure, there are additional references of this type at locations as follows:

<u>Page</u>	<u>Para</u>	<u>Page</u>	<u>Para</u>	<u>Page</u>	<u>Para</u>
20	1-2	24	1-2	27	3-4
21	8-9	25	1-2	28	9
22	5-6	26	7-8	29	4-5

I won't guarantee that the above is all-inclusive.

Page 33, paragraph 1: There is reference here which assigns a value of \$3.00 per acre of prairie dogs, along with reference to appendix F. As I examined appendix F I find that that the value has apparently been assigned on a purely arbitrary basis. 28

Page 75, paragraph 2 says "another way of placing a dollar value on prairie dogs is to calculate the value of the forage eaten or affected by them. That seems to be related to the completely discredited cost of production theory of value. If we applied that same approach to production of agricultural products then we would say agricultural products should be valued based on cost of producing them. 28

Page 33, paragraph 4: Here again the forage is valued at \$3.51 per AUM. In this case it is valued indirectly as the value of forage eaten by prairie dogs, at \$1.14 per acre, but appendix F tied that value to the \$3.51. Incidentally there is a contradiction between appendix F which mentions .324 AUM's per acre and elsewhere which indicated 4.0 acres per AUM or .25 AUM's

Donald L. Rollens
Page 4

per acre. Perhaps, in the one case it is cattle AUM's and in the other case it is prairie dog AUM's.

This approach to valuing forage based on consumption by prairie dogs and the grazing fee rate also shows up on following pages and paragraphs: p. 33, para. 4; p. 35, para. 1; p. 36, para. 3.

Page 41: In view of what I have said previously about the benefits of livestock grazing, compared with the \$3.51 which gets cranked into these annual costs, it hardly seems necessary to make any further comment. Needless to say, the annual costs associated with the alternatives would all be much larger than shown. Unless I have missed something the proportions would still be about as shown on page 41 so it should still be possible to conclude that alternative II-C, which I believe was the alternative chosen by the Forest Service is the logical alternative to choose. The main difference would be that if real costs were set up as I think they should be then alternative II-C would probably be the preferred alternative by a much wider absolute margin.

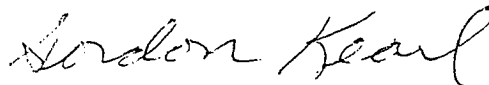
Page 51, paragraph : "it has been a commonplace for people seeking reasons to poison prairie dogs to invoke damage to water fowl, upland game bird, and other ground nesting bird habitat by prairie dog activities as support. However, there appears to be no basis for this in the scientific literature. On the other hand, literature showing damage to such habitat from livestock grazing is quite extensive". A list of citations follows in the EAR.

Is it quite possible that the people who were identifying damage to habitat from livestock grazing may have been less than fully objective or concerned about identifying damage to habitat for the game species? If a range scientist highly oriented toward grazing were to make such studies might he reach different conclusions than those reached by the wildlife scientists? All of the titles referenced indicate that they related to the relationship grazing and wildlife habitat. Documentation of the beneficial relationships between prairie dogs and other wildlife seems to be a little thin, except for the blackfooted ferret. This appendix C seems biased against grazing. A word for word reading of the literature cited doesn't suggest very much in the way actual honest to god studies focused on the relationship between prairie dog towns and other wildlife habitat except for the black-footed ferret.

29

I do not disagree with your choice of alternative II-C.

Sincerely yours,



W. Gordon Kearn
Professor

WGK:ss

cc: Andrew Vanvig
Alvin Gale
Larry Bourret
Charles Irwin
Dale Greenwood

April 21, 1981

Donald L. Mollens
Forest Supervisor

RECEIVED

Dear Don,

In reply to the draft environment assessment of prairie dogs of Thunder Basin National Grasslands, I have these comments.

Page 2, (C) I have hunted prairie dog towns in this area for over 30 years, both night and day, for coyotes and have never seen a black footed ferret or any other species that I could not identify.

Page 3, (E) Not true. Prairie dogs overgraze. 1

Page 7, third paragraph. Not true. I have seen many instances of prairie dog towns stasting and thriving where there has been no land disturbance. Primary ground cover in a dog town is weeds and weedy grass invaders such as Russian thistle, Indian wheat, threoon, and others which are not palitable to livestock or prairie dogs. 3

Page 8, third paragraph. Rattlesnakes and Black Widow spiders are common in prairie dog holes.

Page 8, fourth paragraph. Three positive sightings of black footed ferret in five years hardly calls for maintaining thousands of acres of dog towns at the expence of antelope and deer, not to mention domestic animals. A 1980 issue of Wyoming Wildlife--issued by Wyoming Game and Fish Comm. Stated the last positive sighting of black footed ferret in wyoming was in 1920. 4

Page 8, fifth paragraph. Bald eagles in this area winter almost exclusively in timbered hills or roughs where there are no dog towns. 5

Page 9, second paragraph. From my experience, hawks and eagles have very little sucess in killing prairie dogs. Of course, they do eat dead ones that something else has killed.

Page 71, Allotment 299 Rosecrans Community Pasture. Allotment shows 872 acres of dog town. I am familiar with this allotment and there is at least three times that many. With a conservative estimate of 30% increase in prairie dogs each year, all the prime grazing land will be gone in a few years. I maintain that domestic livestock are more important to the American economy than prairie dogs.

I object to the way the whole assessment is biased against domestic livestock and ranchers.

Chuck Kienast, Range Conservationist, Douglas, stated to me "that there would probably be no control on Rosecrans Community Pasture since it was a large block and it was far enough from deeded land that they would not migrate to it."

Don, I personally invite you, at my expense, to come and I'll show you the prairie dog towns in the Rosecrans Pasture and other areas near here. Just give me a call at 358-2118 and we'll make arrangements. I'd like to verify all these statements I have made.

Sincerely,

Earl W. Reed

Earl W. Reed

JAYSON PARKS
1421 GRACE AVE.
WORLDAND, WY 82401

APRIL 24, 1981

FOREST SUPERVISOR
MEDICINE BOW NATIONAL FOREST
605 SKYLINE DRIVE
LARAMIE, WY 82070

Dear Sir:

I am writing regarding the proposed Thunder Basin Prairie Dog Management Plan. The draft environmental assessment is quite comprehensive and well written. My major concern is your preferred Alternative, II C.

We seem to be attempting to treat the symptoms instead of the cause at the high cost of taxpayers money. The cause which is overgrazing is pointed at several times in your assessment.

Referring to page 6, "some allotments have been considered overstocked,"

On page 7 the document states that, "some forms of vegetative disturbances; such as overgrazing, drought, fire, or agriculture, "" is necessary for the establishment of prairie dogs."

To allow an annual 30% expansion (1976 to 1979) in prairie dog town acreage there appears to be a grazing problem. Also referring to page 20, Item (9), "Improved range management could alleviate the amount of grazing reduction necessary."

The money spent in Alternative IIc, could be more wisely invested (not frivolously spent) in implementing proper range management techniques such as grazing systems in order to improve range condition and ultimately carrying capacity. Stocking rates may have to be reduced in increments over a period of time until suitable range management practices and the associated range developments can be operational.

These Federal lands (public lands) constitute one of the few remaining natural and viable habitats for primarily the black-footed ferret and black-tailed prairie dogs, not to mention the many other associated wildlife species. Even preserving this habitat is tenuous, considering the present energy regime and crisis exists.

Also in reference to page 43, and I quote, " Basically the only reason for control of prairie dogs on federal land is to alleviate the impact of prairie dogs from federal land on private land."

Why is the Forest Service providing funds for prairie dog control on private lands? 16

I would support Alternative I for the above stated reasons and with a well managed range program I am sure the prairie dog would be naturally controlled. It would be far more cost effective in the long term. I am sure the private landowners will effectively control prairie dogs on the approximately 47% of land they control. Also this still currently leaves only approximately 4% (23,123 acres) of the Federal land only (572,319 acres) for black-tailed prairie dog habitat.

I appreciate your interest in seeking public opinion and giving me the opportunity to comment!

Sincerely,
Jayson P. Parks



816 N. 15th St. Apt. 4
Worland, WY 82401
April 22, 1981

Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, WY 82070

Dear Sir:

I am writing in response to the Draft Environmental Assessment for the Thunder Basin Prairie Dog Management proposal.

This is indeed an impressive document; strongly supported by field research and well organized. The sections on prairie dog biology and ecological relationships are especially enjoyable to read and quite revealing about these grassland mammal communities.

My concern for grassland ecosystems compelled me to read, with great interest, your proposed alternatives. What astonished me was that you would select alternative II C, to actively manage and limit prairie dog towns to 2,700 acres or less, when your own information obviously points to alternative I.

Examples of evidence in the draft supporting alternative I are given here:

- p. 54 "... there is little evidence to show (that prairie dogs) are solely responsible for the deterioration (of rangelands) (or) that their eradication alone will provide increases in range condition and productivity..."
- p. 7 "Some form of vegetative disturbance; such as overgrazing... is necessary for the establishment of prairie dogs..."
- p. 54 an observation that "... prairie dogs... are attracted to areas of (vegetation) (forbs and shortgrasses typical of early stages of succession) after cattle have caused retrogressive succession."
- p. 57-59 a list of Animals Known to Benefit From Prairie Dog Towns
- p. 9 "... golden eagles with prairie dog towns in their territories appear to have greater reproductive success than those eagles without ..."

p.53 "... surface soil samples from prairie dog towns had significantly greater average concentrations of organic matter, phosphorus, potassium and calcium ..." and "... influences of prairie dogs ... may be similar to the positive effects of fertilizer application."

p.54 "... prairie dogs may speed up recovery of deteriorated ranges by ... favoring the increase of climax plants, principally forage grasses.

These quotes from the text of your draft statement point up the positive significance of prairie dogs in grassland settings. At least they are indicators that benefits of their presence is definitely possible. Introducing more manipulations of these already deteriorating rangelands and risking more environmental degradation, especially by ignoring your own information, would be very irresponsible.

The alternatives given seem to ignore a fact that also is implicit in your draft. Range deterioration, and the advance of prairie dogs, is a result of cattle mismanagement. The expansion of p.d. towns at a rate of 30% suggests serious range degradation, and a different problem all-together.

Impact alternatives with the different management alternatives even points out other problems with ITC. Endangered species, recreation, scientific study and other multiple-use facets would be decreased or eliminated.

I support Alternative I because it would require very little or no costs, would involve very little involvement in comparison to any others and because economic losses (grazing fees or sum's) would not necessarily have to be lost. (see p. 54, 55)

Perhaps the real explanation for the F.S. selection of ITC is found in paragraph 4 on page 43. "...to alleviate the impact of p.d.'s from federal land on private land." This is an unacceptable reason. It's my land too and I want them ~~on~~ my land. (Management, NOT politics!!) I sincerely hope that you will revise your decision and select Alternative I.

Sincerely

April 19, 1981

Dave Roberts
308 So. 23rd St.
Worland, Wyoming 82401

Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Dear Mr. Rolles:

I have had a chance to review the environmental assessment of the Thunder Basin Prairie Dog Management and I am writing this letter to register my comments on it. I will start with some general comments and then proceed to the more specific responses.

First of all, I'd like to compliment you and your staff on what I felt was a very well prepared and professional document.

They obviously put a lot of time and effort ⁽²⁾ into it, and it shows in the thoroughness and systematic approach that was used.

I do have some concerns, however. I have a very distinct feeling that the "big picture" perspective of prairie dog management was lost somewhere in the mechanics of the process. I was surprised to read that only 1% of the federal acreage of the grasslands was currently inhabited by prairie dogs. There must be quite a commotion over this mere 1% of the land base! Furthermore, I was absolutely dumbfounded by the selection of alternative II C as the Forest Service's preferred alternative. For the FS to reduce this prairie dog town acreage on federal land from 1% to less than $\frac{1}{2}$ % is absolutely inconceivable, especially with federal land making up only 30% of the national grassland total acreage. The importance of these federal lands as an "island", or sanctuary, in a "sea of rodent control" on the surrounding private and state acreage, cannot be over emphasized. ⁽²⁾

Knowing the ecological importance of prairie dog towns, and recognizing that the Forest Service is supposed to be a multiple use agency, the selection of alternative IIc as the preferred alternative can only be termed the "barest of tokenism" for the wildlife resource.

It was also interesting to note that the prairie dog town acreage ratio, by land ownership status, has remained nearly the same since the 1950's, and that the prairie dog population has recently "exploded" since the removal of topicontr as a major control method on federal lands. These figures strongly suggest that there may be more fundamental problems (i.e., domestic livestock overgrazing, etc.) than just the presence of prairie dogs.

I also have the following specific comments:

A.) Page 17 -

The second paragraph states that alternative III violates the law, and
(3)

therefore, does not meet Alternative Formulation Criterion A. Yet this alternative is presented as a viable, possible action. Isn't this a contradiction?

B.) Page 40; TABLE 2 -

The rationale behind some of the score values ^{is obscure}. With only 1% coverage ^{currently} prohibited by prairie dogs, it's difficult to see how alternatives II C and III could score so high under criterion A. There also is no foundation developed for scoring alternatives II C or III with a 3 value under criterion C. It's also unclear how alternatives II C or III can score so high (3) for minimizing soil erosion or improving water quality, especially when pages 31 and 32 state that the alternatives can't be segregated in regard to this criterion.

C.) Page 42; 4th Para., 2nd sentence -

I don't believe this is a true statement. I don't see how the FS preferred alternative (II C) best reconciles either public issues or assessment objectives. I do understand, however, how alternative II C could relieve some pressure from special interest groups

(i.e., ranchers), and thereby, relieve some Forest Service management concern. This is so much as admitted on page 45.

Please register me as favoring alternative II B as my 1st choice!

Thank you for this opportunity to respond, and I hope you will consider my comments seriously.

Respectfully yours,
Dave Roberts

Richard L. Kroger
319 S. 20th St.
Worland, WY 82401

FOREST SERVICE
Medicine Bow National Monument

April 20, 1981

Medicine Bow NF
605 Skyline Drive
Laramie, WY 82070

Dear Sir:

I wish to make my views on your environmental assessment for the Thunder Basin Prairie Dog Management Plan known.

It is inconceivable to me how you selected Alternative II C as the preferred alternative. All your documentation points out the desirability of maintaining greater areas for prairie dog than in II C.

Maintenance of greater prairie dog areas is in line with the Forest Service's mandate for multiple use management. Getting rid of prairie dog to just increase a few AUMs is not multiple use. I realize the grazing industry swings proportionately more weight than its benefits to the public is and that the land managing

agencies usually knuckle-under to their interests! Such should not be the case and the Forest Service should exert its mandates and manage its public lands for the public. If grazing on the National Grasslands is anything like on many Forests, the livestock overuse of the vegetation and associated impact are the main problems.

I recommend that the Forest Service bring the livestock numbers down to a level that will allow restoration of range conditions. This should slow the spread of prairie dogs. For the present thought it is clear that extensive prairie dog control on the Thunder Basin National Grasslands is totally in opposition to Forest Service's real mandates.

Sincerely,
Richard L Kroger

April 21, 1981

Dear Sir:

I recently had the opportunity to read and ponder your environmental assessment of the proposed Thunder Basin Prairie Dog Management Plan.

First I would like to compliment the originator of the document for a job well done and to praise his supervisors for allowing such a truthful document to be released to the public; that's what EA's are supposed to be for. However, I must also deal you some facts as well concerning your choice of alternatives.

The choice of alternative IIC is a SIN in the eyes of justice. To opt to kill almost an entire prairie dog population to appease a few WELFARE permittees is unthinkable.

The prairie dog population serves as an important if not primary food source for many prey species including ENDANGERED SPECIES and provides many hours of enjoyment for people visiting The Grasslands, THEIR LAND, not just the few permittees. Limiting the number and distribution of prairie dog towns will significantly limit and reduce prey species distribution and population densities, thereby denying the public their natural heritage even more. I may also remind you that it is unlawful to disturb Threatened and endangered species and their habitat, this includes golden eagles. For your information habitat includes hunting territory, i.e. prey.

The 1980 inventory revealed that approximately 1577 aum's of forage were being encompassed by prairie dog towns, not eaten, just encompassed. You openly admitted that the cattle also grazed on the prairie dog towns due to the increased forage availability, nutrient level and palatability of plants found onsite, thereby creating an overgrazing problem.

If the prairie dogs did actually eat the forage from the range they occupied they would consume approximately 1577 aum's or the equivalent of forage for 131 cows for twelve months. On 572,319 acres of federal land this will not help you attain the range condition goal of HIGH FAIR OR BETTER. It is obvious from your report that you have a very serious grazing problem from cattle based on the ease of the spread of the dog populations as they favor overgrazed conditions. High Fair is a pathetic goal to manage for as well.

The control of the dog population to release 1577 aum's would probably be reallocated to permittees after the poison program was complete and the Forest Service could receive approximately \$5,000 for the aum's. It would cost the taxpayers in one form or another approximately \$31.00 per aum to control the dogs or \$48,887. I again ask you is that prudent and proper management of public lands and public money, I think not.

The low level at which you intend to keep dogs will make it easier for the ranching community to totally eliminate the dogs totally at their own will while the Forest Service looks the other way because it has no teeth or desire to force compliance.

I could write you a book on the injustice you are proposing and I object to the manner in which you are proposing to "MANAGE" my lands. Those are everyone's lands.

Give Wildlife a fair and equal share for a change.

Thank you for the opportunity to comment.

Sincerely,
Chuck Stone
Chuck Stone

APR 24 1981

April 22, 1981

Dear Sir:

We would like to protest the selection of Alternative IIC as the preferred alternative picked by the Forest Service in the Thunder Basin Prairie Dog Management Plan. At first sight it is hard to believe that Alternative IIC could be preferred (selecting the least amount of prairie dog acreage, 1,000 to 2,700 acres) in view of the excellent documentation of the multiple use benefits of prairie dogs. We did not have to wonder long though about the choice of Alternative IIC, considering that it is just another example of the Forest Service knuckling under to the grazing lobby even in view of the evidence showing the many benefits of a viable prairie dog population.

We would like to see the livestock overgrazing brought under control in Thunder Basin National Grasslands and thereby an improvement in the entire range. If this could be accomplished, then Alternative I would have our support. As it is now, we support Alternative IIA.

Thank you for the opportunity to comment on your selection.

Sincerely,

Mr. & Mrs. Paul Kuecks

Mr. & Mrs. Paul Kuecks
214 S. 5th
Douglas, Wy. 82633

April 11, 1981

Dear Sir:

We are writing to comment on the environmental assessment of the proposed Thunder Basin Prairie Dog Management Plan. We wish to compliment you on a well-prepared document, but were stunned at the selection of Alternative IIC as the Forest Service preferred alternative. Such a selection is utterly incompatible with the document itself. It is difficult to believe that anyone that has read this well-researched document could make Alternative IIC their preferred alternative. You have page after page of documentation of the multiple-use benefits of prairie dogs and then the Forest Service (FS) selects the bottom line in prairie dog acreage (1000 to 2700 acres) which is not adequate to meet threatened and endangered species needs!

We would like to refer you to page 7, Biological: "some form of vegetative disturbance; such as overgrazing....is necessary for the establishment of prairie dogs. In many cases, total vegetative cover and plant production increases on prairie dog towns. The nutritional value of plants growing on prairie dog towns has been found to be quite high."

Page 9, "prairie dogs may be an important food source for bald eagles (endangered species). Golden eagles with prairie dog towns in their nesting territories appear to have greater reproductive success than those eagles without access to prairie dog towns."

Page 53, "surface soil samples from prairie dog towns had significantly greater average concentrations of organic matter,

phosphorus, potassium and calcium than those from adjacent range. The influences of prairie dogs on soil fertility and nutrient availability may be very similar to the positive effects of fertilizer application to native range....heavy use by large hoofed animals resulting in soil compaction and overgrazing which destroys vegetation cover are more serious causes of soil erosion (than prairie dogs)."

Pages 57, 58 and 59 - three page list of animals that benefit from prairie dog towns (includes such sensitive species as black-footed ferrets, bald eagles, burrowing owls, golden eagles, ferruginous hawks, mountain plovers, swift fox, and long-billed curlews) and so it goes page after page. Indeed, after reading this document, it is easy to conclude that the resource base would be better served by raising prairie dogs than livestock on Thunder Basin!

If prairie dogs are expanding at a rate of 30% a year and they can only expand into areas of vegetative disturbance such as overgrazing, this indicates to us that the FS has an overgrazing (livestock) problem rather than a prairie dog problem. Perhaps there should be a livestock reduction program rather than an ecologically damaging prairie dog control program through the use of toxicants. Alternative IIA allows 37,600 acres of dog towns, still only 6.6% of the Federal lands, a small percentage considering the multiple-use benefits of prairie dogs mentioned many times in this document. We wonder how the figure of 10% as the upper limit of tolerable prairie dog acreage was developed (page 15)? we don't believe that Alternative IIC provides sufficient habitat to accomodate threatened and endangered species (e.g., black-footed ferret) and, in no way, is adequate to reap the numerous multiple-use benefits from prairie dogs listed in this document.

If livestock overgrazing is brought under control on the National Grasslands (this seems to be the real culprit here, based on this document), we would support Alternative I. Based on this document, such a livestock reduction would result in range improvement and a resulting natural check on prairie dog town expansion. It would offer the best possibility of meeting threatened and endangered species requirements and would offer the maximum multiple-use benefits to the public land resource (which includes far more than local livestock interests).

we appreciate this opportunity to comment.

Sincerely,

Mr. and Mrs. Charles R. Neal

Mr. & Mrs. Charles R. Neal

1519 Cloud Peak Drive

Worland, Wyoming 82401

Rt. 1, Box 168C
Worland, Wyoming 82401

April 20, 1981

Forest Supervisor
Medicine Bow National Forest
605 Skyline Drive
Laramie, Wyoming 82070

Sir:

We are writing herein to comment on the environmental assessment for your proposed Thunder Basin Prairie Dog Management Plan. The document appears to be well documented and well researched; however, we feel the selected alternative, IIC, is grossly inconsistent with the supporting documentation. The large body of information dealing with multiple use benefits of prairie dogs cannot be interpreted to support a minimal prairie dog acreage inadequate to meet threatened and endangered species requirements, let alone needs of the recreational public and of the ecosystem.

Refer to page 7, Biological: prairie dogs populate 12,768 acres out of 1,799,918 or .7% of the total grasslands. "Some form of vegetative disturbance; such as overgrazing ... is necessary for establishment of prairie dogs."

It would seem if prairie dogs are increasing at a rate of 30% annually that a large scale vegetative disturbance factor is the problem, not prairie dogs, who are merely the symptom and indicator of the real problem. It is also apparent that livestock use is the problem. It is termed a sellout to disguise the real problem by artificially removing the indicators of the problem.

The cost-benefits of such action IIC appear to cost much more than grazing benefits realized (page 26) and moneys lost to suspended or cancelled grazing privileges. The document leads one to believe that poison programs are occurring on private lands presently, yet prairie dog expansion rates are only slightly less than on public lands. This sheds some doubt on the effectiveness of poison campaigns and also leads one to believe range vegetation problems are of considerably greater magnitude than is apparent.

In no alternative is it apparent that adequate numbers of AUMs are released by the livestock interests to effectively stop the rate of range deterioration that has been and is allowing prairie dog expansion. Example on page 10, IIIC: Release of 1,500 AUMs (\$5,010.00 benefit to USFS) and 1% of total 143,000 AUMs now used is insignificant when management goals are improvement from degrading trends and condition classes to high fair or better condition classes.

Alternative IIA notes an acreage of 6.6% of federal lands for prairie dogs. No criteria for a 10% upper limit for tolerable prairie dog acreage is noted (page 15).

Alternative IIC does not adequately provide habitat for threatened and endangered species, nor does it suggest the methods of identifying current black footed ferret habitation and mitigation for this species if found.

Alternative I is the only alternative we can support. It is only too apparent by this document that commodity interests; in this case livestock grazing, are dominating choice of an alternative that is basically ecologically and biologically unsound and will surely prove ineffective and insignificant in improving conditions for livestock or prairie dogs.

Based on this document, livestock reductions and the subsequential turn around from declining to increasing range conditions would provide the natural check on prairie dog expansion and distribution. Alternative I offers the best potential of meeting threatened and endangered species habitat mandates, maintaining the native grassland ecosystem, and offers equitable resource emphasis for multiple use management. Alternative I is a format for long term management, not short term mismanagement benefitting temporary commodity interest gains.

Thank you for your consideration of our comments.

Sincerely yours,

Mr. & Mrs. Jeffrey W. Denton

Response to Public Comments

1. During the environmental assessment (E.A.) process information is gathered from the "Public" concerning the issues important to each segment of the "Public". These issues are then summarized and put into the E.A. for consideration. Because various segments of the "Public" have differing views on prairie dogs there will be contradictory statements in the Public Issues section of any E.A. In this document the Public Issues have their source listed in parentheses after each issue.
2. Range is a type of land or ecosystem that includes many facets, and is not merely forage for livestock. Public land must be managed for all legitimate multiple-uses, not just for livestock production.
3. The relationship between the establishment of prairie dogs and some form of vegetation disturbance (including livestock grazing) is well documented. Shortgrass areas such as Thunder Basin National Grassland are probably more susceptible to prairie dog establishment because of normally sparse vegetation. Also prairie dog towns are not totally devoid of forage for livestock and indeed may provide higher quality forage than adjacent range during some seasons.
4. According to our information the last positive sighting of a black-footed ferret on the Grassland was in 1976. As long as there is a possibility of ferrets occurring, the Forest Service must maintain habitat for them. Prairie dog towns are not kept at the expense of antelope and deer.
5. Bald eagles do roost in the timbered and rough areas, but hunt over prairie dog towns and similar areas. There is considerable evidence that raptors take many prairie dogs over the long term.
6. The relationship between overgrazing by large herbivores and the presence of prairie dogs is well documented and has been considered in the E.A. Grazing management is out of the scope of this document. However, allotment management plans are being written for each of the 203 allotments on the Grassland. These plans are scheduled to be completed by 1989 and will address, among other

things, livestock stocking rates and proper range management for multiple-uses. This is a long term project and immediate results concerning any overgrazing of federal land cannot be expected. The interspersed of land ownerships within the Grassland also complicates management of federal lands. Alternative IV addresses livestock grazing management as a tool to control prairie dog expansion.

7. Appendix D has information concerning the potential productivity of four soil types where prairie dogs occur most commonly. The potential productivity of these soil types is quite high. Additional information concerning the potential productivity of soils containing prairie dogs is included in the final E.A., Appendix D.
8. The introduction of swift foxes as natural limiting factors on the spread of prairie dogs will be considered by the Forest Service. We were unaware of the possibility of obtaining swift foxes for transplanting when the draft E.A. was written. While swift foxes and other predators may slow the expansion of small prairie dog towns, we doubt that they are capable of controlling rapidly expanding populations, especially in the large towns. The introduction of swift foxes is discussed in Alternative IV.
9. Based on the knowledge of habitat requirements of prairie dogs we estimate that one-half to two-thirds of federal land is potential habitat for prairie dogs. Under current climatic conditions and land management they could conceivably expand to fill all suitable habitat. Land management practices have not changed appreciably from 1975 to 1980 on any lands within the Grassland, nor have general climatic conditions. Therefore, it is apparent that the 30% acreage annual rate of expansion of prairie dog town acreage results from the lack of effective control and the availability of suitable habitat. Both toxicant use and proper land management will be needed to maintain the selected level of prairie dog acreage.
10. An opinion has been obtained from the USDI Fish and Wildlife Service about formal consultation under Section 7 of the Endangered Species Act (see letter in Appendix J).

11. The Rosecrans Black-footed Ferret Potential Habitat Area (BFFPHA) covers 53 sections (33,920 acres) of federal land on which at least 2,200 acres of prairie dog towns will be maintained. The literature on black-footed ferrets doesn't define the habitat needs of a viable ferret population, only the minimum recommendations of certain ferret researchers. The Rosecrans area meets and exceeds those minimum recommendations. While the Endangered Species Act and the Black-footed Ferret Recovery Plan prohibit any action which would affect threatened or endangered species and obligate the Forest Service to assist in the Goal of the Recovery Plan, neither specifies the amount of habitat that is required to maintain a viable population. No critical habitat for black-footed ferrets has been designated on the Grassland by the Fish and Wildlife Service. The reported positive sightings of black-footed ferrets within the Grassland boundaries have not been from the Rosecrans BFFPHA. The black-footed Ferret Recovery Plan assigned the responsibility of obtaining cooperative agreements with private landowners to the Fish and Wildlife Service. The Prairie Dog Management Plan includes a black-footed ferret contingency plan which directs certain procedures to take if a ferret is discovered after control work has started. Also an intensive survey for ferrets will be done before any federal prairie dog town is controlled.
12. The assumption of the relative safety of zinc phosphide to non-target wildlife is based on information from the USDI Fish and Wildlife Service (see Appendix G) and from other Forest Service personnel presently using it for prairie dog control on Buffalo Gap National Grassland.
13. According to information we had available, sylvatic plague had not been documented in prairie dogs in northeastern Wyoming. After the draft E.A. was written the Wyoming Game and Fish informed us of plague on the Powder River in the late 1940's. Whether plague is as devastating to prairie dog populations here as on the southern plains we have no information to judge.
14. The E.A. recognized that prairie dog towns are not totally unsuitable for livestock grazing and some textual changes have been made to emphasize this. The assumption of total unsuitability was used to

simplify the economic analysis. Because the Forest Service has not yet reduced livestock stocking on allotments with prairie dog towns there would be no increase in permitted livestock if prairie dogs are controlled. We also recognized that the cost of control will far exceed the direct returns to the Forest Service and the general tax-paying public. However, we did not analyze the value of livestock grazing to producers and the local, regional, or national economies.

15. While not delineating the impact coal and uranium mines will have on prairie dog towns we have recognized the potential of impact and provided for mitigation measures in the E.A. and the management plan. At present only eight prairie dog towns on federal land will potentially be mined. So far no towns have been destroyed by mining, to our knowledge. The E.A. also recognizes the potential increased demand for recreation from prairie dogs.
16. The Forest Service does not provide funds for prairie dog control on private or state lands.
17. If prairie dog towns are relocated to other federal land the new site(s) will be selected according to these criteria: 1. on federal land tracts larger than 640 acres, 2. at least $\frac{1}{4}$ mile from private land. It is possible that relocated towns will be on the same allotment from which towns had been eliminated.
18. See the management plan guidelines for prairie dog control.
19. Page 43, (1) "or state" has been added to the sentence. The suggestion for changing (2) was not followed because it would eliminate too many acres of prairie dog towns on federal land.
Page 44, suggestions cannot be followed for above reason.
20. Page 94, Words "or state" inserted as suggested except for the last sentence in guidelines (1). Guideline (2) not changed.
21. Although the Forest Service wishes to be a "good neighbor", we also have multiple-use mandates and responsibilities which require prairie dog towns on federal land. It is incumbent on private landowners to control prairie dogs on their land

even if prairie dogs are migrating from federal land. Because of the interspersed land ownership pattern prairie dogs cannot be prevented from migrating to private land from federal land or otherwise.

22. This has been corrected.
23. This information had not been supplied to the Forest Service before the draft E.A. was written.
24. The reference to violation of Wyoming law has been included in the E.A. However, the Federal Land Policy and Management Act does not apply to the management of the National Grasslands.
25. The 10% figure is arbitrary and has no documentation.
26. Appendix B shows the data available as to the occurrence of black-footed ferrets on the Grassland within the past ten years, including one sighting reported by a Wyoming Game and Fish Biologist in 1971.
27. The USDI Fish and Wildlife Service has developed procedures for black-footed ferret surveys, they may be able to supply cost information for such searches.
28. Not having an economist on the Inter-disciplinary Team, and not obtaining any response from Dr. Kearl when we requested economic values of grazing from him during the development of the E.A., we did the economic analysis with values of direct importance to the Forest Service, i.e. grazing fees and cost of management. The comment about the value of recreation is worthwhile and we have eliminated these values from the final E.A.
29. The majority of studies relating wildlife habitat to livestock grazing impacts do not deal with prairie dogs. However, their conclusions regarding the impacts of livestock grazing on a large number of wildlife species is very relevant to the situation on Thunder Basin National Grassland. Quantification of the benefits to other wildlife species provided by prairie dogs is generally not available in the literature. Regardless of this lack of quantification we consider the evidence of prairie dog benefits to other wildlife as being irrefutable. Appendix C is not intentionally biased against livestock grazing. The intention of Appendix C is to present a balanced multiple-use view of the relationship of prairie dogs to the range resource.

30. There is no separate Black-footed Ferret Recovery Plan for Thunder Basin National Grassland. The Recovery Plan we are using was developed by the Black-footed Ferret Recovery Team and published by the USDI Fish and Wildlife Service.
31. Grazing management, including stocking levels is being addressed in allotment management plans for each allotment on the Grassland. Some methods to limit the spread of prairie dogs by using "natural" agents has been considered and will be tried on an experimental basis. Fertilization of the range around prairie dog towns may just concentrate livestock use there unless the area is fenced. Introduction of swift foxes hadn't been considered because we were not aware of the possibility. However, several comments from reviewers of the draft E.A. have brought it to our attention, and the introduction of swift foxes is considered in Alternative IV.
32. We have re-evaluated the ratings listed in Table 2 and believe that they now more accurately reflect the evaluation of alternatives.
33. Alternative IV was developed with recognition that costs must be considered fully in any control program. Maintenance control to retain a colony at a prescribed size is recognized as a major cost.



