

Draft  
Environmental Assessment  
for the  
Black-footed Ferret  
Wyoming Statewide 10(j) Rule

U.S. Fish and Wildlife Service  
Wyoming Ecological Services Field Office

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# Acronyms

APHIS	Animal and Plant Health Inspection Service
AUM	Animal Unit Month
BFF	Black-footed Ferret
BFFRIT	Black-footed Ferret Recovery Implementation Team
BFFRC	Black-footed Ferret Recovery Coordinator
BLM	Bureau of Land Management
BSS	Bureau Sensitive Species (BLM)
ESA	Endangered Species Act
FOIA	Freedom of Information Act
MLRA	Major Land Resource Area
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NRCS	Natural Resources Conservation Service
RFSS	Regional Forester's Sensitive Species (USFS)
SGCN	Species of Greatest Conservation Need (WGFD)
SPV	Sylvatic Plague Vaccine
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WDA	Wyoming Department of Agriculture
WGFD	Wyoming Game and Fish Department

# Glossary

**10(a)(1)(A) Enhancement of Survival Permit (Permit)** – This Permit also may be referred to as an incidental take permit or a recovery permit. It authorizes incidental take of a threatened or endangered species that would otherwise be prohibited by section 9 of the Endangered Species Act (ESA) when such take is a result of activities for scientific research or to enhance the propagation or survival of a listed species. Section 10 of the ESA provides for exceptions to prohibited activities identified in section 9 of the ESA. Section 10(a)(1)(A) allows the Secretary of Interior to issue permits to authorize incidental take of threatened and endangered species for scientific research or to enhance the propagation or survival of such species. The Safe Harbor policy (64 FR 32717) provides for the extension of this authority to non-federal landowners who volunteer to enroll in a Safe Harbor Agreement that provides a net conservation benefit to covered species. This is a component of the recently implemented rangewide Programmatic Safe Harbor Agreement for the Black-footed Ferret.

**Anti-coagulant rodenticides** – the anticoagulant rodenticides are grain baits with an active ingredient of either chlorphacinone or diphacinone. Their mode of action consists of blocking coagulation pathways. With a sufficient dose, an animal dies by way of internal hemorrhaging. The anti-coagulant rodenticides are among the most pervasively used rodenticides, in addition to zinc phosphide (see below) used to control prairie dogs in the State of Wyoming.

**Assurances** – Regulatory certainty provided by the U.S. Fish and Wildlife Service (Service) pursuant to the Safe Harbor policy (64 FR 32717) that it will not impose additional conservation measures and restrictions on the use of land, water, or resources beyond those measures and restrictions agreed upon in the Safe Harbor Agreement as a result of voluntary conservation actions by participating landowners (Cooperators) that benefit covered threatened or endangered species. These assurances are conveyed to the Cooperator through certificates of inclusion issued under a 10(a)(1)(A) enhancement of survival permit. This is a component of the recently implemented rangewide Programmatic Safe Harbor Agreement for the Black-footed Ferret.

**Baseline** – Population estimates and distribution (if available or determinable) of the covered threatened or endangered species and/or habitat characteristics of enrolled property at the time of enrollment under a Safe Harbor Agreement as mutually agreed upon by the Black-footed Ferret Recovery Coordinator (Permittee) and a participating landowner (Cooperator). Baseline for the Programmatic Safe Harbor Agreement will be zero black-footed ferrets for both existing and new reintroduction sites, because none will occur on any property until reintroduction of the species, and none will likely occur in the long-term future on any property that may have ferrets now without purposeful management of prairie dogs to protect both ferrets and prairie dogs from sylvatic plague - a recurring non-native disease that will likely result in any extant ferret population being reduced to zero without active management. Consideration of baseline condition is a component of the recently implemented rangewide Programmatic Safe Harbor Agreement for the Black-footed Ferret.

**Biological Opinion** – A document stating the opinion of the Service on whether or not a Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. In this instance, the Federal action under consideration, and described within this Environmental Assessment, is the implementation of a new Federal 10(j) rule for the black-footed ferret in the State of Wyoming. The Service will produce a biological opinion as a component of the rule making process for the statewide 10(j) rule for the black-footed ferret in Wyoming.

**Certificate of Inclusion** – The document issued by the Permittee (the Ferret Recovery Coordinator) to a Cooperator (typically a participating landowner) that conveys incidental take coverage. This is a component of the recently implemented rangewide Programmatic Safe Harbor Agreement for the Black-footed Ferret. The proposed 10(j) rule would establish non-essential experimental status of the ferret throughout the state, thereby removing take prohibitions for the ferret throughout the State of Wyoming.

**Conservation Zone** – An area that can provide the necessary attributes to support at least 30 adult ferrets. Typically, it will be a minimum of 1,500 acres of black-tailed prairie dog occupied habitat or 3,000 acres of white-tailed prairie dog occupied habitat. It may be owned by one or more Cooperators. All otherwise legal activities may be conducted as appropriate, except those that are incompatible with ferret recovery. Inappropriate, prohibited activities will include any activity that reduces prairie dog numbers, including, but not limited to, poisoning, shooting, and major landscape alterations (e.g., tilling soil). The Conservation Zone will be identified on a map of lands participating in ferret recovery. All conservation activities within the Conservation Zone will be described in the Reintroduction Plan for the enrolled property. Prohibited activities will also be identified in the Reintroduction Plan. While this is identified as a component of the recently implemented rangewide Programmatic Safe Harbor Agreement for the Black-footed Ferret, it is reasonable to anticipate that similar considerations will be incorporated into plans where reintroductions may occur under a statewide 10(j) rule.

**Cooperator** – Any non-federal landowner - including private individuals, Tribes, States, and municipalities—eligible for enrollment in the Safe Harbor Agreement who voluntarily chooses to assist in the development and implementation of a Reintroduction Plan for black-footed ferrets on their lands (or some portion of their lands). Under the Safe Harbor Agreement, each Cooperator will receive a Certificate of Inclusion, which conveys incidental take coverage to enrolled landowners. The proposed 10(j) rule provides similar regulatory relief by establishing non-essential experimental status of the ferret throughout the state, thereby removing take prohibitions for the ferret throughout the State of Wyoming.

**Covered Species** – The species listed under the ESA for which the statewide 10(j) rule is intended to advance recovery. For this particular proposed rule, the covered species is the black-footed ferret.

**Delist** – The removal of a species from a listed status under the ESA. Usually delisting is a result of successful recovery actions that have increased a species' numbers and addressed threats to its viability. For the black-footed ferret, delisting is expected to require the establishment of at least 3,000 breeding adult ferrets in 30 or more populations in at least nine states within the historical range of the species, with no fewer than 30 breeding adults in any population. Management efforts will continue to address threats to the species, especially from disease.

**Downlist** – The reclassification of a species from endangered to threatened. Usually downlisting is a result of successful recovery actions that have increased a species' numbers and addressed some portion of the threats to the species. For the black-footed ferret, downlisting is expected to require the establishment of at least 1,500 breeding adult ferrets in 10 or more populations in at least six states within the historical range of the species, with no fewer than 30 breeding adults in any population. Management efforts will continue to address threats to the species, especially from disease.

**Endangered species** – An animal or plant species in danger of extinction throughout all or a significant portion of its range.

**Experimental population** – A population (including its offspring) of a listed species designated by rule published in the Federal Register that is wholly separate geographically from other populations of the same species. An experimental population may be subject to less stringent prohibitions than are applied to the remainder of the species to which it belongs.

**Federal nexus** – a Federal nexus can be thought of as a connection. A Federal nexus occurs when a project involves Federal funding, a federal permit or approval, the use of Federal lands, or a Federal program. A Federal nexus often triggers the need for approvals or analyses under certain statutes, including the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA).

**Incidental Take** – Incidental take is the accidental or inadvertent take of a species listed as threatened or endangered under the ESA pursuant to carrying out otherwise legal activities.

**Kit** – A kit is the young of a black-footed ferret.

**Landowner** – Any entity with a legally recognized interest in a parcel of land including, but not limited to, surface, mineral, mortgage, and/or lease rights.

**Management Zone** – A management zone is an element of the recently implemented Programmatic Safe Harbor Agreement for the Black-footed ferret. This would be an area adjacent to or near a Conservation Zone (reintroduction site). It may or may not have occupied prairie dog habitat. All otherwise legal activities may be conducted as appropriate, including lethal control of prairie dogs - except for the use of anticoagulant rodenticides such as Rozol. A Management Zone would be identified on a map of lands participating in ferret recovery. The precise characteristics and size of a Management Zone, including the associated conservation activities, may vary for each property, depending on the attributes of a particular property, the needs of the Cooperator or landowner, and the potential concerns of non-participating neighboring landowners. Consequently, site-specific details will be described in each individual reintroduction plan. While these considerations are standard elements of the rangewide Programmatic Safe Harbor Agreement, similar considerations would be addressed in the case where landowners participate in ferret recovery under a 10(j) rule for the black-footed ferret in Wyoming.

**Net conservation benefit** – All conservation actions taken that contribute to the recovery of the species, in this case the black-footed ferret, minus any incidental take of the species.

**Non-essential experimental population** – Section 10(j) of the ESA allows the Secretary of Interior to introduce nonessential experimental populations of threatened or endangered species into the wild as long as they are wholly separate from non-experimental populations of the same species. This designation is accomplished through a rulemaking process and allows for regulatory relief and management flexibility within the designated section 10(j) areas. The nonessential experimental designation removes the prohibition for incidental take of reintroduced species thereby easing regulatory burden associated with species listed under the ESA. An experimental population is one whose loss would not appreciably reduce the prospect of survival of the species in the wild. In the case of the black-footed ferret, the population considered to be essential for the survival and recovery of the species is the captive breeding population that serves as the source population for reintroductions.

**Non-federal lands** – Lands owned by entities other than the Federal government, including Tribes (see tribal lands below), States, counties, municipalities, private individuals, and non-governmental organizations.

**Non-participating landowner** – Any landowner within the vicinity of a black-footed ferret reintroduction site—including private individuals, Tribes, States, and municipalities—who chooses not to participate in ferret recovery under either a statewide 10(j) rule or the Programmatic Safe Harbor Agreement. Both the 10(j) and the Programmatic Safe Harbor Agreement provide non-participating neighboring landowners coverage for incidental take. Incidental take is covered under the 10(j) by the statewide designation of nonessential experimental status of the ferret; the Safe Harbor Agreement provides adjacent landowners coverage for incidental take via the associated Biological Opinion.

**Parties** – This refers specifically to the Permittee (Ferret Recovery Coordinator) and the Cooperator (participating landowner) as described in Part 10.3 of this Safe Harbor Agreement and identified in the Reintroduction Plan. Plans developed for reintroductions under the proposed 10(j) rule may adopt similar language.

**Permittee** – In this case, this term refers to the entity who holds the 10(a)(1)(A) Enhancement of Survival Permit issued under the Programmatic Safe Harbor Agreement. Under the Safe Harbor, the Permittee is the Service's Black-footed Ferret Recovery Coordinator. Landowners participating in ferret recovery via the Safe Harbor are issued a Certificate of Inclusion for the Permit that provides them coverage for incidental take under the Programmatic Safe Harbor.

**Programmatic Safe Harbor Agreement** – a rangewide conservation instrument typically implemented on an enrolled property. The Programmatic Safe Harbor Agreement describes the conservation strategy and activities that will be carried out to provide a net conservation benefit for the covered species, in this case the

black-footed ferret. It also describes the process and requirements for developing a site-specific Reintroduction Plan for lands to be voluntarily enrolled in the Agreement. The Programmatic Safe Harbor Agreement provides for the issuance of Section 10(a)(1)(A) incidental take permits to participating landowners. In addition, the Programmatic Safe Harbor Agreement identifies the baseline condition of enrollment as the absence of ferrets. That is, participating landowners are allowed to revert to the baseline should they no longer value their participation in ferret recovery. The two conservation instruments, the proposed statewide 10(j) and the Programmatic Safe Harbor Agreement are not mutually exclusive. That is, in the event that a statewide 10(j) rule for the ferret is implemented, landowners would still have the opportunity to participate in the Programmatic Safe Harbor Agreement.

**Reintroduction Plan** – The document that describes site-specific characteristics of lands participating in ferret recovery. In general, it will include: (1) a description of the ownership interest; (2) a map of the enrolled land, identifying boundaries of any nearby Conservation and Management Zones; (3) a description of the conservation activities to be carried out in any Conservation and Management Zones on the enrolled lands; and (4) a description of any activities that may be prohibited within the Conservation Zone. The Permittee and the Cooperator will develop a Reintroduction Plan prior to participation in ferret recovery. Upon completion, it will be signed by the Permittee and the Cooperator. Information provided in a Reintroduction Plan may be made public as a result of a Freedom of Information Act (FOIA) request. A template for the Reintroduction Plan is in Appendix B of the Safe Harbor Agreement (<http://www.fws.gov/mountain-prairie/species/mammals/blackfootedferret/BFF%20FO%20FnI%20SHA%20102313.pdf>).

**Routine Livestock Grazing and Ranching Activities** – Those activities required to manage a livestock operation. For the purposes of participation in ferret recovery actions, any livestock grazing or ranching practice that does not reduce prairie dog occupied habitat to a degree that reduces the probability of sustaining a ferret population occupying those same lands. Prohibited activities within any Conservation Zone would include lethal control of prairie dogs and/or major landscape alterations, except in unusual circumstances as agreed to by both the Permittee and Cooperator.

**Split Estate** – For purposes of the proposed statewide 10(j) rule and the Programmatic Safe Harbor Agreement, a split estate refers to any property where the management of wildlife habitat may be diminished by other ownership interests (e.g., mineral rights, mineral leases, hunting agreements, etc.).

**Take** – Defined by the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Take may include significant habitat modification or degradation if it kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering.

**Threatened species** – An animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**Tribal Lands** – Tribal lands refer to those lands within the boundaries of an Indian reservation or land outside of an Indian reservation that are held in trust by the United States for the benefit of an individual Indian or Indian Tribe, held by an individual Indian or Indian Tribe, or held by a dependent Indian community.

**Unforeseen Circumstances** – Circumstances affecting a species or geographic area covered by a conservation plan or agreement that could not reasonably have been anticipated by the Service and that result in a substantial and adverse change in the status of the covered species. A new or previously unknown disease that affects ferrets or their prey would be an example of an unforeseen circumstance.

**Zinc phosphide** – a grain-based pesticide containing 2% zinc phosphide. When ingested, the phosphide reacts with stomach acids to form phosphine gas which is acutely lethal to rodents, including the prairie dog. Application requires pre-baiting with oats; zinc phosphide baits are typically applied above ground in the vicinity of the burrow entrance of prairie dogs.



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**Figure 2.** Modeled distribution of the white-tailed prairie dog (*Cynomys leucurus*) in the State of Wyoming. Data from Keinath, D.A., M.D. Andersen and G.P. Beauvais. 2010. Range and modeled distribution of Wyoming's species of greatest conservation need. Report prepared by the Wyoming Natural Diversity Database, Laramie Wyoming for the Wyoming Game and Fish Department, Cheyenne, Wyoming and the U.S. Geological Survey, Fort Collins, Colorado. August 20, 2010.

## 1.0 PURPOSE AND NEED FOR ACTION

### 1.1 INTRODUCTION

The historic range of the black-footed ferret (ferret) once encompassed intermountain and prairie grasslands that extended from Canada to Mexico. Widely considered the rarest mammal in North America, ferrets now have been reintroduced, as of October 1, 2014, to 24 sites within eight states, Canada, and Mexico (Table 1). The black-footed ferret is the only ferret native to North America.

Nearly exclusively, the ferret preys upon prairie dogs. Two species of prairie dog occur in the State of Wyoming: the black-tailed prairie dog (*Cynomys ludovicianus*) and the white-tailed prairie dog (*C. leucurus*). Reviews of their ecology, status, and historical distribution in the State are provided by Buseck *et al.* (2005) and Keinath (2004), respectively. A rangewide conservation assessment for the white-tailed prairie dog was developed by Pauli *et al.* (2006); a multi-state conservation plan for the black-tailed prairie dog has been produced by an interagency Black-tailed Prairie Dog Conservation Team (Luce, 2003). Much of this information has been synthesized within the Services 12-month findings for the white-tailed prairie dog (USFWS 2010a) and the black-tailed prairie dog (USFWS 2009).

Not only do ferrets primarily consume prairie dogs, they utilize prairie dog burrows as den sites, as shelter, or as means to escape predation by species such as owls. Historically, when prairie dogs occupied much of the western prairies, this very narrow dependence upon a single prey species was largely without ecological risk. However, with western colonization and cultivation, and the arrival of epizootic diseases, the range of prairie dogs has been drastically reduced. Consequently, recovery of the ferret now depends upon identifying those lands where the management of prairie dogs, and subsequent reintroduction of ferrets, is compatible with public and private land management goals.

Recent estimates of prairie dog occupied habitat in Wyoming include 2,893,487 ac (1,171,862 ha) in the white-tailed prairie dog range and 229,607 ac (92,991 ha) in the black-tailed prairie dog range (Van Pelt 2013, pp. 8 and 14). Luce (2008, pp. 28–31) identified several sites in Wyoming with potential for ferret reintroduction including one site with potential for reintroduction within less than 3 years, 24 sites with potential for reintroduction within 3–10 years, and two sites with long-term potential for reintroduction.

The black-footed ferret was originally designated as an endangered species in 1967 and grandfathered into the current Endangered Species Act (Act) in 1973 (U.S. Fish and Wildlife Service 2008a). The ferret has frequently been characterized as the single most endangered mammal in North America. It was twice considered extinct, or nearly extinct, before all known wild ferrets were captured for captive breeding by 1987. This founder population of captive ferrets consisted of individuals from the last known population of wild ferrets that inhabited a site near Meeteetse, Wyoming. Secure in captivity, efforts to reintroduce the species within its former range have been underway since 1991. As of October 1, 2014, reintroductions now include 24 sites within 8 of the 12 states where the ferret historically occurred, as well as sites in

Mexico, and Canada. Progress to date is due to substantive efforts of a diverse interagency team of conservation partners known as the Black-footed Ferret Recovery Implementation Team (BFFRIT). The BFFRIT is guided by a charter originally developed in 1996 and revised in 2012. The purpose of the BFFRIT is to recover the ferret through the collaborative effort of partners that include State, Federal, Tribal agencies, and private landowners.

Recently, the U.S Fish and Wildlife Service (Service) issued a ‘block clearance’ letter for the ferret in the State of Wyoming. Block clearance provides an acknowledgement that the likelihood of identifying ferrets in Wyoming, outside of those resulting from reintroductions, is distinctly minimal. As noted within the March 6, 2013 letter,

*Despite improvements in knowledge, technology, survey techniques, and use of reward programs, there have been no verified reports of any extant black-footed ferret individuals or populations in any prairie dog complex since the discovery of a wild black-footed ferret population in 1981. The Block Clearance Document references recent data on the demography of the black-footed ferret suggesting they can be extirpated quickly in the absence of recruitment in unproductive environments, yet they are capable of rapid population growth, suggesting that populations can recover quickly in productive environments.*

*The Block Clearance Document concludes that it is unlikely that black-footed ferret populations in Wyoming have persisted through drastic reductions of prairie dog complexes, and further points out that the black-footed ferret populations have not rebounded as prairie dog complexes have begun to expand again.*

A statewide designation of ferrets in the State of Wyoming as non-essential and experimental under a 10(j) rule is now being considered. On April 23, 2013, the Service released the revised Black-footed Ferret Draft Recovery Plan (<http://www.fws.gov/endangered/species/recovery-plans.html>). With respect to the use of the 10(j) provisions of the Endangered Species Act (ESA), the Recovery Plan notes:

*Section 10 of the ESA provides certain exceptions for otherwise prohibited actions. Most reintroduced black-footed ferrets have been released into nonessential experimental population areas as set forth in section 10(j). Under section 10(j), a listed species reintroduced outside of its current range, but within its historical range, may be designated as “experimental.” This designation increases the Service’s flexibility and discretion in managing reintroduced endangered species and allows promulgation of regulation deemed appropriate for conservation of the reintroduced species. Additional management flexibility is possible if the experimental population is also designated “nonessential”. This tool has been successfully used to address concerns of other Parties for reintroductions of California condors, gray wolves, whooping cranes, and many other species in addition to ferrets. Section 10(j) populations located in National Parks or National Wildlife Refuges are treated as threatened for the purposes of ESA section 7 consultations. Other section 10(j) populations are treated as a “proposed” species for the purposes of ESA section 7 consultations. Reintroduced ferrets in section 10(j) areas are protected by the specific regulations promulgated for the experimental population and section 9 of ESA.*

The National Environmental Policy Act (NEPA) requires Federal agencies to identify and disclose the anticipated effects of Federal actions to the human environment. The Federal action considered here consists of the issuance of a new Federal Rule under section 10(j) of the Endangered Species Act. Because the issuance of a Federal Rule is a Federal action, the Service must ensure that the action complies with the requirements of NEPA. Therefore, the Service is preparing this Environmental Assessment (EA) to analyze potential effects to the human environment of the Proposed Action, and alternatives to the Proposed Action, and to determine whether such effects may be significant.

## 1.2 THE PURPOSE OF THE ACTION

The black-footed ferret has been characterized as one of the most imperiled mammals in North America. European settlement across the North American prairie dramatically altered the landscape with the conversion of native prairie to rowcrop agriculture and the pervasive use of rodenticides to achieve prairie dog eradication. With the failure of an attempt to breed ferrets in captivity in 1979, the black-footed ferret was considered extinct.

However, black-footed ferrets were rediscovered in 1981 near Meeteetse, Wyoming. By 1985, this population began to decline due to epizootics of canine distemper and sylvatic plague. Between 1985 and 1987, 24 black-footed ferrets were captured in a second effort to establish a captive breeding population. The Wyoming Game and Fish Department (WGFD) and the Service began the captive breeding program with 18 surviving ferrets from the Meeteetse population.

The rationale supporting this action is two-fold: Historically, the ferret once occurred throughout Wyoming within suitable prairie dog habitat (USFWS 2013a); and, both the WGFD and the Service have acknowledged that any ferrets now occurring within the State of Wyoming are those resulting from prior reintroductions (USFWS 2013b). That is, there is broad consensus regarding the conclusion that wild, free-ranging ferrets were extirpated within the state following the establishment of captive breeding populations in the early 1980s. The purpose of this action is to advance the recovery of the black-footed ferret in a state that once supported both the ferret and its primary prey species.

## 1.3 NEED FOR TAKING ACTION

Black-footed ferret recovery efforts have relied upon a successful captive-breeding program that has provided ferrets, as of October 1, 2014, for reintroductions at 24 North American locations. To ensure recovery of this species, the revised Black-footed Ferret Recovery Plan (USFWS 2013a) calls for the establishment of multiple ferret populations throughout the species' historical range. Several populations throughout the range of the species are necessary to prevent losses from demographic and environmental effects associated with local stochastic events such as plague and climate change. Reintroduction efforts to date have involved substantial coordination and cooperation by State, Tribal, Federal, non-governmental partners, and private landowners. All past reintroduction actions have been carried out as either section 10(j) nonessential experimental populations or as section 10(a)(1)(A) recovery permits under the ESA.

**Table 1.** Comprehensive list of ferret reintroductions in North America as of October 1, 2014.

Site Name	State / Province / Country	Year
Shirley Basin	Wyoming	1991
Badlands NP	South Dakota	1994
UL Bend NWR	Montana	1994
Conata Basin	South Dakota	1996
Aubrey Valley	Arizona	1996
Ft. Belknap	Montana	1997
Coyote Basin	Utah	1999
Cheyenne River	South Dakota	2000
Wolf Creek	Colorado	2001
BLM 40 Complex	Montana	2001
Janos	Mexico	2001
Rosebud	South Dakota	2003
Lower Brule	South Dakota	2006
Wind Cave NP	South Dakota	2007
Espee Ranch	Arizona	2007
Logan County	Kansas	2007
Northern Cheyenne	Montana	2008
Vermejo Ranch - BTPD	New Mexico	2008
Grasslands NP	Saskatchewan	2009
Vermejo Ranch - GPD,	New Mexico	2012
Walker Ranch	Colorado	2013
City of Fort Collins	Colorado	2014
Prowers County	Colorado	2014
Baca County	Colorado	2014

The proposed Federal Rule is intended to enable landowners to voluntarily participate in recovery of the black-footed ferret by implementing conservation activities, including reintroduction of ferrets. The Draft Black-footed Ferret Recovery Plan (FWS 2013a) communicates the recovery goal of establishment of new ferret populations on approximately 500,000 acres within approximately 3 million acres of ferret habitat currently present within the historical range of the ferret (U.S. Fish and Wildlife Service 2009a, Memorandum of Understanding 2012). The 10(j) rule effectively relieves private landowners of regulatory burden associated with the prohibited take of listed species under section 9 of the ESA. For regulatory purposes, reintroduced populations designated as non-essential and experimental are considered as species proposed for listing under the ESA. Prohibitions for take no longer apply to these reintroduced populations, relieving landowners of concern related to potential violations of the ESA. The need for taking this action is related to the recognized necessity of facilitating voluntary participation in recovery actions while ensuring that the concerns of private landowners, related to ESA regulatory burden, are addressed effectively.

#### 1.4 ACTION AREA

Black-footed ferrets prey primarily on prairie dogs (*Cynomys* spp.) and use their burrows for shelter and denning (Henderson *et al.* 1969; Hillman and Linder 1973; Forrest *et al.* 1985). Since ferrets depend almost exclusively on prairie dogs for food and shelter, the Service believes that ferrets were historically endemic to the contiguous range of three prairie dog species (black-tailed, Gunnison's (*Cynomys gunnisoni*), and white-tailed). Both the black-tailed and white-tailed prairie dog occur in Wyoming (Figures 1, 2). The historical range of the ferret encompasses the range of these two prairie dog species in Wyoming. This would include all or portions of the following counties: Albany, Big Horn, Campbell, Carbon, Converse, Crook, Fremont, Goshen, Hot Springs, Johnson, Laramie, Lincoln, Natrona, Niobrara, Park, Platte, Sheridan, Sublette, Sweetwater, Uinta, Washakie, and Weston. That is, it is likely that ferrets and their prey once occurred within portions of every county in Wyoming with the exception of Teton County, a county dominated by landforms less suitable for prairie dogs.

The Service anticipates that future reintroductions of the ferret will be implemented in a fraction of this area. While only lands that have suitable prairie dog habitat adequate to support a minimum of 30 adult breeding black-footed ferrets would be eligible for any future reintroduction, the Service is proposing to define the entire State of Wyoming as a 10(j) area. We are doing so because we do not have precise information on locations of all suitable habitat, nor have any prospective reintroduction sites been approved yet for allocation of captive-bred ferrets. By extending the action area to encompass all potential and future reintroduction sites, the regulatory flexibility of the 10(j) also may be extended to adjacent landowners so as to alleviate concerns related to dispersal of ferrets outside of a reintroduction area. Therefore, to account for both potential reintroduction and dispersal of ferrets, the action area for this environmental assessment includes the entire State of Wyoming.

## 2.0 SCOPING

Informal scoping was carried out through correspondence with potentially affected parties, conference calls, and meetings to discuss concepts and concerns of the State of Wyoming, local County governments, and affected Stakeholder, State, and Federal agencies. An interagency

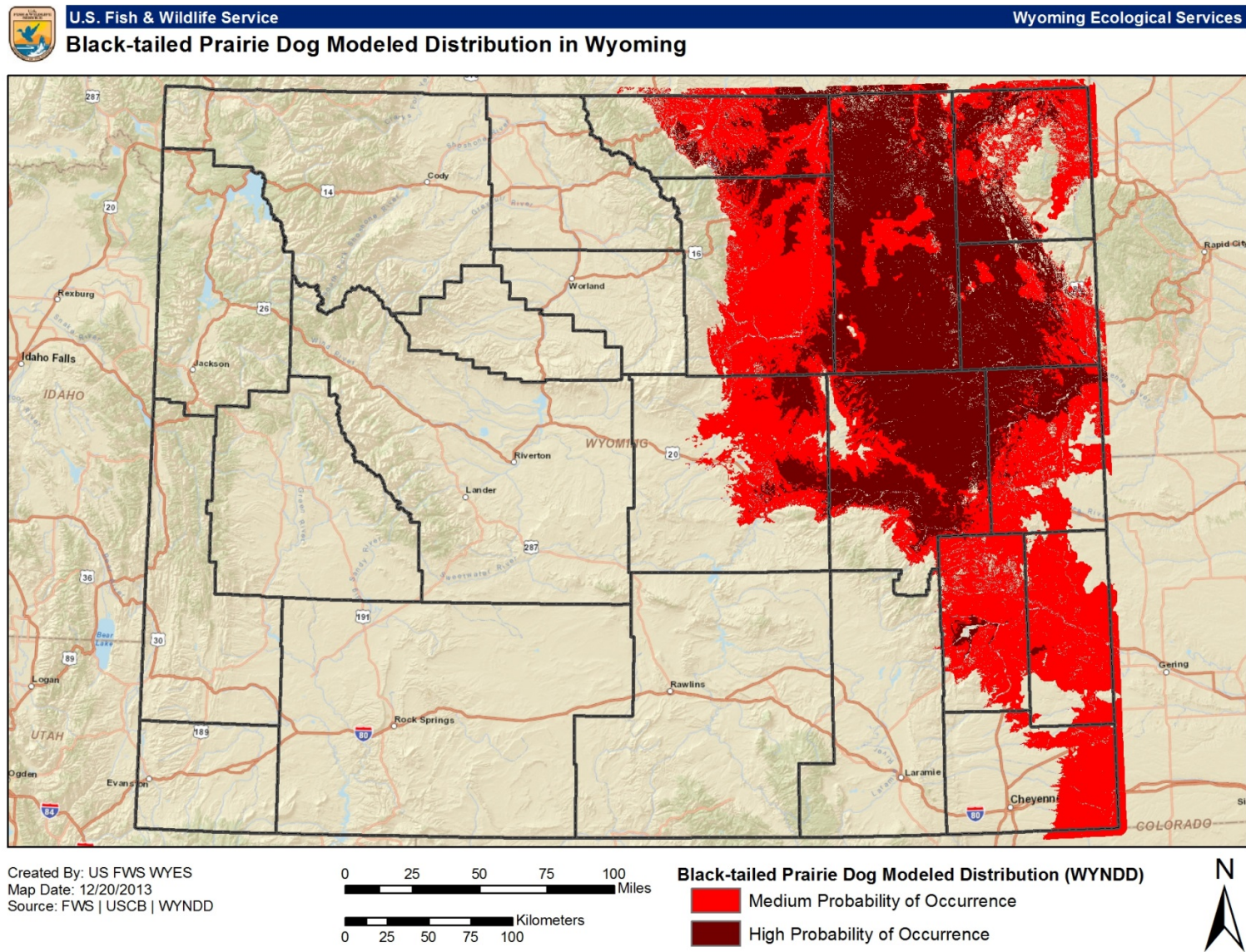
memorandum of understanding (MOU) was implemented in November of 2013 with the purpose of facilitating interagency cooperation and communication. The intent of this MOU was to facilitate communication consistent with the intent of the NEPA scoping process. A communications team, led by public affairs staff of the Service and the WGFD, was formed in September of 2014. Implementation of the communications effort began with letters sent to all Wyoming County Commissioners on September 8, 2014. Development of a formal communications plan began September 18, 2014. The following table summarizes scoping efforts for this action (Table 2).

**Table 2.** Summary of scoping effort for issuance of a statewide 10(j) rule for the black-footed ferret in Wyoming.

<b>Date</b>	<b>Party Contacted</b>	<b>Contact</b>	<b>General Comments</b>
<b>11/15/2013</b>	Affected agencies: WGFD, APHIS, BLM, FS, NRCS, Wyoming Dept. of AG	Memorandum of Understanding	Established subsequent interagency communications to inform affected stakeholder agencies.
<b>1/29/2014</b>	BFFRIT Conservation subcommittee meeting, Fort Collins, CO.	Meeting	General support for development and issuance of a statewide 10(j) rule for the Black-footed Ferret in Wyoming.
<b>8/1/2014</b>	Interagency Stakeholders (WGFD, BLM, FS, APHIS, NRCS, WDA)	Conference Call	Relate to the stakeholder agencies the process and timeline for the development of the proposed 10(j) rule for the ferret in Wyoming.
<b>9/4/2014</b>	Northern Arapaho and Shoshone Tribes	Letter	Initiation of tribal, government to government consultation
<b>9/8/2014</b>	Wyoming County Commissioners	Letter	Initial letter to all county commissioners in the State of Wyoming
<b>9/17/2014</b>	BFF Interagency Communications Team	Conference Call	Formation of Team, Identification of communication audiences. Preparation draft communications outline.
<b>9/18/2014</b>	FWS Regional leadership	Draft outline forwarded via email	Draft communications outline forwarded for regional review, surname; initiation of communications plan development
<b>9/25/2014</b>	BFF 10(j) Rule Development Team	Conference Call	Update concerning timeline, drafting of documents: Rule, NOA, NEPA, BO; discussion of prep of communications plan
<b>9/30/2014</b>	WGFD Leadership	In-person Briefing	Update concerning timeline, drafting of documents: Rule, NOA, NEPA, BO; discussion of prep of communications plan
<b>10/2/2014</b>	Interagency Stakeholders (WGFD, BLM, FS, APHIS, NRCS, WDA)	Conference Call	Update concerning timeline, drafting of documents: Rule, NOA, NEPA, BO; discussion of prep of communications plan
<b>10/23/2014</b>	Stakeholder meeting: Wyoming Stockgrowers, Wyoming Association Conservation Districts, Wyoming Dept. of Ag	In-person Briefing	Update concerning timeline, drafting of documents: Rule, NOA, NEPA, BO; discussion of prep of communications plan
<b>11/5/2014</b>	Stakeholder Meeting: Wyoming Weed and Pest Conference	Presentation, Q&A.	Update concerning development of the proposed rule.
<b>11/13/2014</b>	Wyoming Farm Bureau Annual Meeting	Presentation, Q&A.	Update concerning development of the proposed rule.

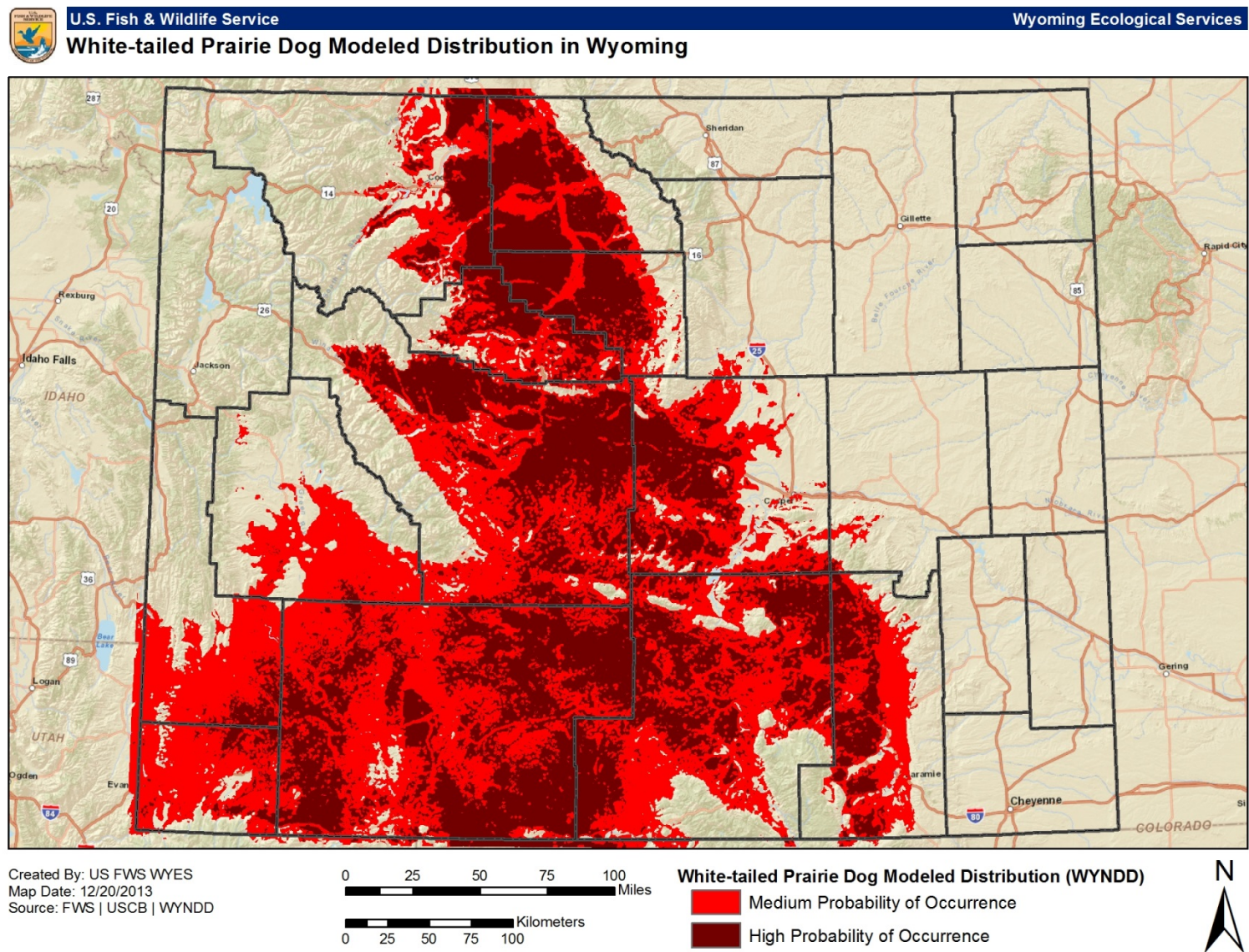


**Figure 2.** Modeled distribution of the black-tailed prairie dog (*Cynomys ludovicianus*) in the State of Wyoming. Data from Keinath, D.A., M.D. Andersen and G.P. Beauvais. 2010. Range and modeled distribution of Wyoming's species of greatest conservation need. Report prepared by the Wyoming Natural Diversity Database, Laramie Wyoming for the Wyoming Game and Fish Department, Cheyenne, Wyoming and the U.S. Geological Survey, Fort Collins, Colorado. August 20, 2010.





**Figure 2.** Modeled distribution of the white-tailed prairie dog (*Cynomys leucurus*) in the State of Wyoming. Data from Keinath, D.A., M.D. Andersen and G.P. Beauvais. 2010. Range and modeled distribution of Wyoming's species of greatest conservation need. Report prepared by the Wyoming Natural Diversity Database, Laramie Wyoming for the Wyoming Game and Fish Department, Cheyenne, Wyoming and the U.S. Geological Survey, Fort Collins, Colorado. August 20, 2010.



We initiated government-to-government consultation with potentially affected Tribes in the action area, pursuant to Executive Order 13175, Secretarial Order 3206, and the Department of the Interior Policy on Consultation with Indian Tribes. We sent letters, describing our Proposed Action and requesting input, to the Northern Arapaho and Eastern Shoshone Tribes of the Wind River Reservation on September 4, 2014 (Appendix C).

### **3.0 ALTERNATIVES**

#### **3.1 ALTERNATIVE A – NO ACTION**

Under Alternative A, conservation mechanisms to advance recovery of the black-footed ferret would consist of those instruments currently in place. For the foreseeable future, the Service would not consider the issuance of a statewide 10(j) rule for the black-footed ferret. Conservation instruments currently in place would consist of the existing black-footed ferret 10(j) rule for the Shirley Basin (56 FR 41473-41489) and, the existing black-footed ferret 10(j) for northwestern Colorado and northeastern Utah (63 FR 52824-52841), a portion of which enters Sweetwater County in Wyoming. Under the No Action Alternative, the Service would not implement a new 10(j) rule throughout the State of Wyoming that would establish statewide non-essential and experimental status for the ferret. Rather, the Service would rely on existing, in-place, 10(j) rules to further recovery of the black-footed ferret in Wyoming.

#### **3.2 ALTERNATIVE B – WYOMING STATEWIDE BLACK-FOOTED FERRET 10(J) RULE**

The Federal action under consideration is the issuance of a new Federal Rule under section 10(j) of the ESA that would establish non-essential experimental status for the black-footed ferret throughout the State of Wyoming. This is the Service's Proposed Action.

In addition to those currently available conservation mechanisms, described within the No Action Alternative, the Service proposes to issue a 10(j) rule that would establish statewide non-essential and experimental status for the black-footed ferret in Wyoming. The Action Area would encompass the entirety of the State of Wyoming. The historic range of the two species of prairie dogs in Wyoming, the black- and white-tailed prairie dogs, includes all or portions of the following counties: Albany, Big Horn, Campbell, Carbon, Converse, Crook, Fremont, Goshen, Hot Springs, Johnson, Laramie, Lincoln, Natrona, Niobrara, Park, Platte, Sheridan, Sublette, Sweetwater, Uinta, Washakie, and Weston (Figures 1, 2). However, neither the range of the black-tailed prairie dog or the white-tailed prairie dog encompasses portions of Teton County, Wyoming. Nonetheless, should the black-footed ferret be introduced in adjacent counties, it is conceivable that the ferret could disperse and occur in this county. Extending the 10(j) area to incorporate Teton County ensures that the concerns of landowners that may adjoin future reintroduction areas are uniformly addressed across the State of Wyoming.

Section 10(j) of the ESA allows for the designation of experimental populations for purposes of reintroduction. For purposes of section 7 of the ESA, these populations are treated as if they are a species listed as threatened on Service lands and National Park Service lands, and only as proposed for listing on all other lands. On private lands, and outside of national wildlife refuges or national parks, all ferrets occurring within Wyoming, under a new statewide 10(j) rule, would be designated as proposed for listing under the Endangered Species Act. Section 9 of the ESA,

which prohibits the take of listed species, does not apply to those species that are designated as proposed for listing. Therefore, the non-essential designation under section 10(j) allows greater management flexibility which includes allowance for incidental take of reintroduced ferrets that might occur as a result of on-going land management activities.

This designation requires that the Service determine whether an experimental population is “essential” or “nonessential” to the continued existence of the species. A “nonessential” designation for a 10(j) experimental population means that, on the basis of the best available science, that the experimental population is not essential for the continued existence of the species. Regulatory restrictions under the ESA are considerably reduced under a nonessential and experimental population (NEP) designation. All previous 10(j) rules for the black-footed ferret have provided for designation of their respective reintroduced populations as non-essential and experimental (USFWS 2013b). The proposed action would establish statewide nonessential and experimental status for the black-footed ferret in Wyoming in order to facilitate voluntary participation in the recovery effort for the black-footed ferret.

### 3.3 ALTERNATIVE C – SITE-SPECIFIC 10(J) RULES

Under Alternative C, the Service would consider working with willing and interested parties to develop site-specific 10(j) rules to advance black-footed ferret recovery in the State of Wyoming. Under this alternative, the Service would not issue a statewide 10(j) rule, but would consider implementing additional site-specific rules on a case-by-case basis such as the Shirley Basin 10(j) rule.

Section 10(j) of the ESA allows for the designation of experimental populations for purposes of reintroduction efforts. An experimental population is designated through a rulemaking process, which also determines whether the population is essential or non-essential. All current 10(j) black-footed ferret populations are designated as non-essential experimental populations. For purposes of section 7 of the ESA, these populations are treated as if they are a species listed as threatened on Service lands and National Park Service lands, and only as proposed for listing on all other lands. On private lands, and outside of national wildlife refuges or national parks, all ferrets occurring within Wyoming would be designated as proposed for listing for the purposes of the Endangered Species Act. Section 9 of the ESA, which prohibits the take of listed species, does not apply to those species that are designated as proposed for listing. Therefore, the non-essential experimental designation under section 10(j) allows greater management flexibility which includes allowance for incidental take of reintroduced ferrets that might occur as a result of on-going land management activities.

Under this alternative, individual site-specific 10(j) rules would require that the Service provide a public review period, develop the associated NEPA analyses, prepare section 7 documents, and associated administrative records for each new Federal rule in all cases.

### 3.4 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

A number of tools are available to the Service to facilitate species recovery by easing regulatory prohibitions so as to enable reintroductions of listed species. In addition to the 10(j) process, this includes the use of programmatic or individual Safe Harbor Agreements, Section 10 permits, and Incidental Take Statements (ITS) associated with a Biological Opinion as part of a Section 7 consultation. Several factors were considered in evaluating the appropriateness of these various tools to address issues and circumstances unique to the State of Wyoming. Considerations in assessment of the appropriate tools in the development of alternatives included patterns of land ownership in Wyoming, and issues related to existing 10(j) areas, and use of a black-footed ferret conditioning facility on the F.E. Warren Air Force Base, Cheyenne, Wyoming.

Patterns of land ownership, particularly within the range of both the white-tailed and black-tailed prairie dogs, are characterized by marked interspersions of private, state, and Federal lands. This is most notable in the ‘checkerboard’ area of the state where ownership alternates in each section between private and Federal surface. The Federal mineral estate, under-laying the majority of all surface lands, further confounds management of surface ownership. These issues are not confined to the checkerboard, as state ownership of the surface occurs within virtually every township outside of National Forest System lands. In addition, two existing 10(j) areas (Shirley Basin; NW CO Experimental Population Sub-area, Sweetwater County, Wyoming), and a ferret conditioning facility on the F.E. Warren Air Force Base, Cheyenne, Wyoming, were developed without consideration for the consequence to adjacent landowners should a ferret occur outside these existing sites.

Consequently, the Service has determined that a statewide 10(j) rule is the most appropriate tool to comprehensively and efficiently address these circumstances while facilitating multiple reintroductions of ferrets in the State of Wyoming. Communications with stakeholder agencies have confirmed this assessment. Furthermore, use of other tools in the absence of a comprehensive 10(j) rule, such as Safe Harbor Agreements or Section 10 permits, for the considerations noted above, were viewed as less effective means to provide regulatory relief in order to advance ferret recovery. Stakeholders viewed the implementation of a statewide 10(j) rule as a pre-requisite to participation in any ferret recovery actions in the State of Wyoming. Consequently, an alternative wherein tools such as Safe Harbor Agreements or Section 10 recovery permits would serve as the primary conservation instrument to advance ferret recovery in Wyoming was not carried forward in the analysis.

## 4.0 AFFECTED ENVIRONMENT

A tiered screening process was used to determine which elements of the affected environment would be carried forward in the analyses of the alternatives. Appendix A, Components of the Affected Environment, provides the rationale, or first tier of this analysis, for the determinations for each component. Those components determined unlikely to be affected are excluded from further consideration in these analyses. Components that may be affected by the Proposed Action are described in this chapter and the potential environmental impacts to them are analyzed in Chapter 5. We have determined the potential impacts would likely be limited to the following elements of the affected environment:

- Endangered, Threatened, Proposed, and Candidate Species
- Wildlife – Sensitive Species
- Farm and Ranch Lands
- Environmental Justice
- Socioeconomics

No other resources are expected to be impacted by the Proposed Action (Appendix A).

#### 4.1 ENDANGERED, THREATENED, PROPOSED, AND CANDIDATE SPECIES

We reviewed all federally threatened, endangered, proposed, and candidate species known to occur within the action area (Appendix B) to determine which species may be impacted by the alternatives. Only those species that may be impacted are discussed here and analyzed in Chapter 5 Environmental Consequences. The heading ‘Status’ refers to the status of the species with respect to the Endangered Species Act of 1973, as amended (Table 3).

**Table 3.** Endangered, threatened, proposed, and candidate species that may be impacted by the alternatives.

Species	Status <sup>1</sup>	Impact
<b>Black-footed ferret</b>	Non-essential, Experimental	May Impact
<b>Greater sage-grouse</b>	Candidate	May Impact

##### 4.1.1 Black-footed Ferret (Non-essential Experimental Population)

The black-footed ferret is an endangered carnivore and is the only ferret species native to North America. Ferrets prey primarily on prairie dogs (*Cynomys* spp.) and use their burrows for shelter and denning (Henderson et al. 1969, Hillman and Linder 1973, Forrest *et al.* 1985). Because ferrets depend almost exclusively on prairie dogs for food and their burrows for shelter, and the ferret’s current range directly overlaps that of certain prairie dog species (black-tailed, white-tailed, and Gunnison’s) (Anderson *et al.* 1986), and ferrets were historically endemic to the range of these three prairie dog species.

Today, largely due to a number of anthropogenic factors including land conversion, poisoning, and introduced disease, most of the prairie dogs species occur in highly fragmented subpopulations (Luce 2003). The same factors that have impacted prairie dogs have also impacted black-footed ferrets. While poisoning of prairie dogs is regarded as a major factor in the historical decline of prairie dogs and ferrets (Forrest et al. 1985, Cully 1993, Forest and Luchsinger 2006), most poisoning is currently more limited in nature and undertaken by landowners at very localized locations (U.S. Fish and

<sup>1</sup> Status under the endangered Species Act of 1973, as amended.

Wildlife Service 2009b). Sylvatic plague, caused by a non-native bacterium, can be devastating to both prairie dogs and ferrets. Since 2005, plague has been detected in prairie dogs in all 12 states throughout the historical range of the ferret (Abbott and Rocke 2012).

These factors collectively led to declines in black-footed ferret populations. By 1987, the last remaining wild ferrets were taken into captivity for captive breeding purposes (Hutchins *et al.* 1996, Garelle *et al.* 2006). Approximately 280 animals currently make up the captive population at six facilities, which provide surplus animals for release. In addition to ferrets maintained in the six captive breeding facilities, approximately 274-448 ferrets exist at more than 20 reintroduction sites across their historical range (U.S. Fish and Wildlife Service 2013). Captive breeding and the release of surplus ferrets continue in efforts to establish more ferret populations throughout their range.

On March 6, 2013, the Service issued a block clearance letter for the ferret in the State of Wyoming. A block clearance provides an acknowledgement that the likelihood of identifying ferrets in Wyoming, outside of those resulting from reintroductions, is distinctly minimal. Therefore, the Service has acknowledged, based on the best scientific and commercial data available, that wild ferrets have been extirpated from the State of Wyoming.

Fortunately, the success of captive breeding efforts provided for the first reintroduction of ferrets back into the wild at Shirley Basin, Wyoming, in 1991. Boulerice and Grenier (2014) summarize the history and current status of the Shirley Basin non-essential and experimental population of the black-footed ferret:

In 1991, Shirley Basin, Wyoming was selected as the first reintroduction site for black-footed ferrets (*Mustela nigripes*; ferret). Shirley Basin was selected for reintroduction due to its extensive complex of white-tailed prairie dogs (*Cynomys leucurus*; prairie dog) and the high level of support from private landowners in the area. Between 1991 and 1994, 228 ferrets were released in Shirley Basin. Releases were terminated in 1994 as a result of sylvatic plague and canine distemper epizootics, which decreased abundance of prairie dogs within Primary Management Zone 1. During this period, the reintroduced ferret population was characterized by slow population growth. Few (i.e.,  $\leq 20$ ) ferrets were located annually prior to 2000. However, spotlight surveys were conducted between 2003 and 2006. During this period, we estimated an annual growth rate of 35% (Grenier *et al.* 2007). Survey results documented an increasing population of ferrets within the Shirley Basin/Medicine Bow prairie dog complex (Grenier *et al.* 2006a). Because prairie dog distribution had increased in other portions of Shirley Basin where ferrets were believed to be absent, an additional 250 ferrets were released into areas north and south of Shirley Basin during the fall and winter of 2005, 2006, and 2007 (Grenier *et al.* 2006b, Schell and Grenier 2007).

Boulerice and Grenier (2014), based on surveys conducted in 2013, estimated a minimum number of live ferrets in the Shirley Basin to consist of 39 individuals in contrast to an estimated minimum number alive in 2010 of 91 individuals.



#### 4.1.2 Greater Sage-grouse (Candidate)

Greater sage-grouse (*Centrocercus urophasianus*) are the largest grouse in North America. Males may weigh in excess of 4–7 pounds and hens weigh approximately 2–4 pounds (U.S. Fish and Wildlife Service 2011). Greater sage-grouse require large, unfragmented expanses of sagebrush with healthy, native herbaceous understories (Connelly *et al.* 2004, 2011; Knick *et al.* 2003; Patterson 1952; Pyke 2011; Schroeder *et al.* 1999, 2004; Wisdom *et al.* 2011). A detailed description of seasonal habitats, sage-grouse natural history and population trend analyses can be found in the Service’s March 2010 status review (U.S. Fish and Wildlife 2010b).

Due to differences in the ecology of sagebrush across the range of the greater sage-grouse, the Western Association of Fish and Wildlife Agencies delineated seven Management Zones (MZs I-VII) based primarily on floristic provinces (Stiver *et al.* 2006). The boundaries of these management zones were delineated based on their ecological and biological attributes rather than on arbitrary political boundaries (Stiver *et al.* 2006). Therefore, vegetation found within a management zone is similar and sage-grouse and their habitats within these areas are likely to respond similarly to environmental factors and management actions. The action area for the proposed 10(j) rule encompasses portions of MZ I and MZ II. Comparing the distribution of the two species of prairie dog that occur within the action area, MZ II roughly coincides with the distribution of the white-tailed prairie dog in Wyoming; MZ I roughly coincides with the distribution of the black-tailed prairie dog in Wyoming.

Threats to the sage-grouse include land conversion to agriculture, urban, or industrial uses; fire; invasive plants, particularly nonnative annual grasses; pinyon-juniper encroachment; nonrenewable energy and mineral exploration and development; renewable energy sources such as wind and geothermal; and drought.

The State of Wyoming has implemented a Core Area Strategy, communicated by a Governor’s Executive Order (WY-2011-5) that endeavors to address the threats to the Greater sage-grouse of fragmentation and habitat loss. Concurrently, the Bureau of Land Management and the Forest Service have undertaken revision of their Land and Resource Management Plans, across the range of the sage-grouse, in order to incorporate conservation measures consistent with the Core Area Strategy as well as the recommendations of interagency peer-groups such as the Conservation Objectives Team report (USFWS 2013) and the National Technical Team Report (BLM 2011).

The most frequently used metric to assess sage-grouse populations is that of lek attendance. Christiansen (2013) summarizes the history and current status of the greater sage-grouse within the State of Wyoming:

While lek counts and surveys have been conducted in Wyoming since 1948, the most consistent data were not collected until the mid-1990s. The number of leks checked in Wyoming has increased markedly since 1949. However, data from the 1950s through the 1970s is unfortunately sparse and by most accounts this is the period when the most dramatic declines of grouse numbers occurred. Some lek survey/count data were collected during this period as the historical reports contain summary tables but the observation data for most individual leks are missing making



comparisons to current information difficult. Concurrent with increased monitoring effort over time, the number of grouse (males) also increased (Figure 5). The increased number of grouse counted was not necessarily a reflection of a population increase; rather it was resultant of increased monitoring efforts.

The average number of males counted/lek decreased through the 1980s and early 90s to an all time low in 1995, but then recovered to a level similar to the late 1970s in 2006 (Figure 6). Again, fluctuations in the number of grouse observed on leks are largely due to survey effort not to changes in grouse numbers exclusively, but certainly the number of male grouse counted on leks exhibited recovery between 1995 and 2006 as the average size of leks increased and is generally interpreted to reflect an increasing population. The same cannot be said for the most recent three- to seven-year period (Figures 7 and 8) during which the average number of cocks observed on leks declined, though not to levels documented in the mid-1990s. Thus, there has been a long-term decline, a mid-term increase and short-term decline in the statewide sage-grouse population. The mid- and short-term trends in statewide populations are believed to be largely weather related. In the late 1990s, and again in 2004-05, timely precipitation resulted in improved habitat conditions allowing greater numbers of sage-grouse to hatch and survive. Drought conditions from 2000-2003 and again later in that decade are believed to have caused lower grouse survival leading to population declines. These trends are valid at the statewide scale. Trends are more varied at the local scale. Sub-populations more heavily influenced by anthropogenic impacts (sub-divisions, intensive energy development, large-scale conversion of habitat from sagebrush to grassland or agriculture, Interstate highways, etc.) have experienced declining populations or extirpation. Figures 9 and 10 illustrate sage-grouse density changes between 2005-07 and 2011-13 based on peak male lek counts and surveys.

Greater detail regarding status of the sage-grouse, and status by geographic area within the state is provided by Christiansen (2013). Comprehensive summaries of the history and status of the greater sage-grouse, threats to the species by geographic area, and conservation recommendations are provided by Christiansen (2013), USFWS (2010a), and USFWS (2013).

#### 4.2 WILDLIFE – SENSITIVE SPECIES

A number of wildlife species, designated as at-risk, that occur within the action area, on Federal or non-federal lands, could occur on habitat occupied by prairie dogs and/or the black-footed ferret (Table 4). Wildlife presence on any property will vary greatly depending on location, proximity to urban development, vegetation community, annual precipitation, and proximity to wildlife dispersal corridors. We identify here and analyze in Chapter 5 (Environmental Consequences) those species designated as sensitive in the State of Wyoming by the Bureau of Land Management, by the Forest Service (Regional Forester's Sensitive Species, RFSS), and those species identified by the State of Wyoming as Species of Greatest Conservation Need (SGCN). For this analysis we have considered only those species associated with either prairie or sage-steppe ecosystems as these species are those most likely to occur sympatrically with prairie dogs and the black-footed ferret.

##### Bureau of Land Management – Sensitive Species

Special Status Species (Sensitive) are those species listed or proposed for listing under the Endangered Species Act of 1973, as amended, and species designated by the BLM as sensitive. BLM Sensitive Species must meet the following criteria to be considered as sensitive:

- They must be native species occupying BLM-administrated lands; BLM must have some ability to effectively manage the species.
- Population trends for the species indicate that the viability of the species, or a distinct population segment, is at risk across all or a significant portion of the species range.
- The species depends on habitats on BLM-administrated lands, and these habitats are threatened such that the continued viability of the species in that area would be at risk.
- All federally designated candidate species, proposed species, and delisted species, in the 5 years following their delisting, shall be conserved as Bureau Sensitive Species.

#### Forest Service – Regional Forester’s Sensitive Species

Concerning at-risk species, Forest Service Manual 2670 identifies sensitive species as those species for which there may be:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Units of the National Forest System are directed to:

1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions.
2. Maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands.
3. Develop and implement management objectives for populations and/or habitat of sensitive species.

#### State of Wyoming – Species of Greatest Conservation Need

All of the 50 States have developed a Strategic Wildlife Action Plan (SWAP). These are comprehensive plans intended to, among other goals, to facilitate collaborative conservation of at-risk species in the State of Wyoming. At-risk species are identified as Species of Greatest Conservation Need (SGCN). The Wyoming State Wildlife Action Plan identifies over 800 wildlife species across the state with more than 188 identified as Species of Greatest Conservation Need (SGCN) including 54 mammals, 60 birds, 40 fish, 12 amphibians and 26 reptiles, and 88 invertebrates. Some of these species include the swift fox, burrowing owl, and mountain plover (WFGD 2010).

### 4.3 ENVIRONMENTAL JUSTICE

Executive Order 12898, February 11, 1994 (59 FR 7629), requires each Federal agency to make environmental justice a part of its mission. Environmental justice means that, to the greatest extent practicable and permitted by law, all communities or populations are provided the opportunity to comment before decisions are rendered on proposed Federal actions.

Furthermore, the principles of environmental justice require that certain populations or communities are allowed to share in the benefits of, are not excluded from, and are not affected

in a disproportionately high and adverse manner by government programs and activities affecting human health or the environment.

Agencies are to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations, low-income populations, and Indian Tribes. Environmental justice must be applied throughout the United States, its territories and possessions, the District of Columbia, the Commonwealths of Puerto Rico and the Mariana Islands. Environmental justice issues encompass a broad range of impacts covered by NEPA, including impacts on the natural or physical environment and related social, cultural, and economic impacts. The primary means by which Federal agencies attain compliance related to environmental justice is through the inclusion of low-income, minority, and tribal populations in the planning process and by translating documents into other languages when members of the affected area are not English-speaking.

There are two Tribes that are located within the action area (Appendix C). However, it is unlikely that these two Tribes are likely to have adequate occupied prairie dog habitat that would be suitable for a future reintroduction of the black-footed ferret. However, other Tribes have voluntarily participated in black-footed ferret recovery efforts through designation of section 10(j) experimental populations, and by way of section 10(a)(1)(A) research and recovery permits under the Endangered Species Act: Fort Belknap and Northern Cheyenne Indian Reservations in MT; and, Cheyenne River, Rosebud, and Lower Brule Indian Reservations in SD. The Navaho Nation in Arizona has also participated in ferret recovery on deeded lands not on the Reservation. These Tribes have voluntarily participated in ferret recovery while maintaining tribal use and management authority for their lands.

**Table 4.** Species that may occur in the action area and in shortgrass or sage steppe habitats that are designated as sensitive (Bureau of Land Management, Forest Service) or as Species of Greatest Conservation Need (SGCN) by the Wyoming Game and Fish Department (WGFD).

Agency	Species	BLM Sensitive	FS Sensitive	WGFD SGCN	ESA Status
<b>Mammals</b>					
Black-footed ferret	<i>Mustela nigripes</i>	X		X	Non-essential - Experimental
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	X	X		Not Warranted - 2009
Idaho pocket gopher	<i>Thomomys idahoensis</i>	X			
Piñon mouse	<i>Peromyscus truei</i>			X	
Pygmy rabbit	<i>Brachylagus idahoensis</i>	X		X	Not Warranted - 2010
Silky pocket mouse	<i>Perognathus flavus</i>			X	
Swift fox	<i>Vulpes velox</i>	X	X	X	Not Warranted - 2001
White-tailed prairie dog	<i>Cynomys leucurus</i>	X	X		Not Warranted - 2010
Wyoming pocket gopher	<i>Thomomys clusius</i>	X	X	X	Not Warranted - 2010
<b>Birds</b>					
Baird's sparrow	<i>Ammodramus bairdii</i>	X			
Bobolink	<i>Dolichonyx oryzivorus</i>			X	
Brewer's sparrow	<i>Spizella breweri</i>	X	X	X	
Burrowing owl	<i>Athene cunicularia</i>	X	X	X	
Chestnut-collared longspur	<i>Calcarius ornatus</i>		X	X	
Ferruginous hawk	<i>Buteo regalis</i>	X	X	X	
Grasshopper sparrow	<i>Ammodramus savannarum</i>		X	X	

Agency	Species	BLM Sensitive	FS Sensitive	WGFD SGCN	ESA Status
Greater sage-grouse	<i>Centrocercus urophasianus</i>	X	X	X	Candidate Species
Loggerhead shrike	<i>Lanius ludovicianus</i>	X	X		
McCown's longspur	<i>Calcarius mccownii</i>		X	X	
Mountain plover	<i>Charadrius montanus</i>	X	X	X	Listing withdrawn 2011
Northern harrier	<i>Circus cyaneus</i>		X		
Peregrine falcon	<i>Falco peregrinus</i>	X	X	X	Species Delisted - 1999
Sage sparrow	<i>Amphispiza belli</i>	X	X	X	
Sage thrasher	<i>Oreoscoptes montanus</i>	X		X	
Short-eared owl	<i>Asio flammeus</i>		X	X	
Upland sandpiper	<i>Bartramia longicauda</i>			X	
Merlin	<i>Falco columbarius</i>			X	
<b>Reptiles</b>					
Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	X			
Great Basin gophersnake	<i>Pituophis catenifer deserticola</i>			X	
Northern rubber boa	<i>Charina bottae</i>			X	
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>			X	
Great Basin skink	<i>Plestiodon skiltonianus utahensis</i>			X	
<b>Insects</b>					
Ottoe skipper	<i>Hesperia ottoe</i>		X		

Agency	Species	BLM Sensitive	FS Sensitive	WGFD SGCN	ESA Status
<b>Plants</b>					
Barr's milkvetch	<i>Astragalus barrii</i>		X		
Colorado tansyaster	<i>Machaeranthera coloradoensis</i> <i>var. coloradoensis</i>		X		
Common twinpod	<i>Physaria didymocarpa var. lanata</i>		X		
Dropleaf buckwheat	<i>Erigonium exilifolium</i>		X		
Gibbens' beardtongue	<i>Penstemon gibbensii</i>	X			
Hall's fescue	<i>Festuca hallii</i>		X		
Harrington's beardtongue	<i>Penstemon harringtonii</i>		X		
Iowa moonwort	<i>Botrychium campestre</i>		X		
Largeflower triteleia	<i>Triteleia grandiflora</i>		X		
Ownbey's thistle	<i>Cirsium ownbeyi</i>	X			
Prairie dodder	<i>Cuscuta plattensis</i>		X		
Porter's sagebrush	<i>Artemisia porteri</i>	X			
Scarlet gilia	<i>Ipomopsis aggregate ssp. weberi</i>				
Visher's buckwheat	<i>Erigonium visherii</i>				

#### 4.4 FARM AND RANCH LANDS

The Farmland Protection Act (7 USC § 4201 *et seq.*) requires that Federal agencies minimize the extent to which their programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure that their programs are administered in a manner that, to the extent practical, will be compatible with State and local governments and private programs and policies to protect farmland.

The State of Wyoming is the 10<sup>th</sup> largest state in the United States with a surface area of approximately 62.6 million acres, of which 48% is Federal surface, 43% is privately owned, 6% is held by the State of Wyoming, and 3% of the State’s surface lands are encompassed by the Wind River Reservation (Hamerlinck *et al.* 2013). Surface use of lands in Wyoming is predominated by ‘Grassland pasture and range (72%; 45.1 million acres), ‘Forest-use land’ (12%), ‘Urban and special use areas’ (12%), and ‘Cropland’ (4%) (Hamerlinck *et al.* 2013). Though these classes of land use are general in nature, predominant surface use of Wyoming lands is related to agriculture.

Land areas in the U.S. are further characterized by the Natural Resources Conservation Service (NRCS) into what have been termed Major Land Resource Areas (MLRAs). The MLRAs are identified on the basis of common physiography, geology, climate, water, soils, biological resources, and land use ([http://soils.usda.gov/survey/geography/mlra/mlra\\_definitions.html](http://soils.usda.gov/survey/geography/mlra/mlra_definitions.html)). Two primary MLRAs, uniquely encompassing substantial portions of the distributions of Wyoming’s two species of prairie dog, predominate the landscape of the action area. Major Land Resource Areas 32 (Northern Intermountain Desertic Basins, NRCS 2006, p. 90) and 34 A (Cool Central Desertic Basins and Plateaus, NRCS 2006, p. 92) encompass much of the historic and current distribution of the white-tailed prairie dog. Major Land Resource Area 58B (Northern Rolling High Plains, Southern Part, NRCS 2006, p. 159) encompasses much of the current distribution of the black-tailed prairie dog in Wyoming. The vast majority of land use in these MRLAs is predominated by grazing (Table 3).

**Table 5.** Land use in the primary Major Land Resource Areas (MLRAs) within the action area.

Land Use%	Major Land Resource Areas		
	Northern Intermountain Desertic Basins	Cool Central Desertic Basins and Plateaus	Northern Rolling High Plains, Southern Part
Cropland	6	2	4
Grassland: Private	42	27	76
Grassland: Federal	47	67	16
Forest		1	1
Urban	2	1	1
Water	1		
Other: Private	1	1	2
Other: Federal	1	1	

## 4.5 SOCIOECONOMICS

The social and economic conditions within the action area are predominated by agricultural livestock production. Though both energy extraction and natural resource based recreation exceed the economic output of agriculture in the state, the comparative use of surface lands is far exceeded by agriculture. Therefore, we discuss the social and economic aspects of only this component of the Wyoming economy as it predominates surface land use within prairie dog habitat on both Federal and non-federal lands. The economic value of livestock-related agriculture in the State of Wyoming has been summarized by Brandt *et al.* (2013):

The value of the agricultural sector output in Wyoming annually approaches or exceeds \$1.0 billion. Cash receipts have exceeded that threshold in all of the last 7 years. In 2012, 10,800 farms and ranches were operating in Wyoming with a total land area of 30,200 million acres [sic; 30.2 million acres]. Wyoming ranks 11th nationally in total land in farms and ranches and 1st in average size of farms and ranches. The cattle industry is by far the largest component of Wyoming agriculture accounting for 53 percent of all cash receipts in 2012. Cattle also led the way in 2012 in terms of value of production at \$637.1million. All livestock production was valued at \$831.3 million, up 3 percent from 2011. Sheep and hogs were far behind cattle with value of production at \$44.1million and \$116.1million, respectively.

Among all operators of farms and ranches in Wyoming, farming or ranching was the primary occupation of less than one-half of all operators (8,963 of 19,165; 47%). Of all farm and ranch operators, 13,458 had been present on the same operation for ten or more years. The average age of farm and ranch operators surveyed for the 2012 Census of Agriculture in Wyoming was 56.1 years (USDA NASS 2014). Significantly, the average size of Wyoming farms and ranches is the largest in the nation.

While livestock production may predominate the use of agricultural lands in Wyoming, ranches in Wyoming provide substantial open-space that provide significant wildlife habitats across the state (Taylor 2003). That is, the economic necessity of maintaining large operations has the result of benefiting numerous wildlife species as well (Taylor 2003, Coupal *et al.* 2004). Like other states in the Rocky Mountain west, however, agricultural lands in Wyoming are at the greatest risk for low-density residential development consisting of homes on tracts of 1 to 40 acres (Hulme *et al.* 2009). Lands considered ‘prime ranchlands’, because of their multiple amenities such as wildlife habitats, availability of water, and proximity to public lands, are generally at greater risk of development (Hulme *et al.* 2009, Taylor 2003).

## 5.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes the likely environmental consequences of each alternative. The environmental consequences of each alternative will be discussed by the resource components identified in Chapter 4.0.

### 5.1 ALTERNATIVE A – NO ACTION ALTERNATIVE

Under Alternative A, a Wyoming Statewide 10(j) rule for the Black-footed Ferret would not be implemented. In the absence of a statewide 10(j), the current conditions as related to all of the environmental components identified in Chapter 4.0 would likely remain unchanged.



### 5.1.1 Endangered, Threatened, Proposed, and Candidate Species

#### 5.1.1.1 Black-footed ferret – Shirley Basin Non-essential Experimental Population

The Service has previously issued a block clearance letter (March 6, 2013), acknowledging that the likelihood of identifying wild ferrets in Wyoming, other than those resulting from reintroductions, is minimal. The Service has acknowledged, based on the best scientific and commercial data available, that wild ferrets have been extirpated from the State of Wyoming. Consequently, the Shirley Basin Non-essential Experimental population, at present, represents the only ferrets known to occur in the State of Wyoming.

With respect to recovery of the black-footed ferret, while the Shirley Basin population is likely to persist, and thus continue to contribute to recovery of the ferret, additional reintroductions outside the existing Shirley Basin 10(j) area would not occur in the absence of a statewide 10(j) rule for the black-footed ferret. Reintroductions within the existing Shirley Basin 10(j) could occur for the purpose of sustaining this population. Given that no additional reintroductions outside the existing Shirley Basin 10(j) would occur under this alternative, it is unlikely that this would advance recovery of the black-footed ferret in the State of Wyoming.

Consequently, under the no action alternative, no additional adverse or beneficial effects to the black-footed ferret would be anticipated to occur.

#### 5.1.1.2 Greater sage-grouse

In advance of court-ordered deadline for the Service to complete a listing determination for the greater sage-grouse, land and resource management agencies have undertaken multiple efforts to ensure conservation of the sage-grouse. The no-action alternative would not result in either adverse or beneficial effects to the sage-grouse, nor would it alter these efforts to conserve the greater sage-grouse. The purpose and need to conserve the greater sage-grouse would not be affected in any way by a decision to implement the no action alternative. That is, effort to conserve the greater sage-grouse would remain unchanged in the event of no action to implement a statewide 10(j) rule for the black-footed ferret.

Consequently, under the no action alternative, no additional adverse or beneficial effects to the greater sage-grouse would be anticipated to occur.

### 5.1.2 Wildlife – Sensitive Species

#### 5.1.2.1 Bureau of Land Management Sensitive Species

BLM Manual 6840 provides the agency with direction regarding the conservation of sensitive species. Specifically, it requires the agency to implement conservation of “species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s).”

We have identified BLM sensitive species that are likely to occur in prairie or sage-steppe habitats; habitats that we would anticipate may support prairie dogs and so provide habitat for the black-footed ferret (Table 4).

Taking no action to implement a statewide 10(j) rule for the black-footed ferret in Wyoming would result in no change in management or availability of habitat for these species. That is, implementing the no action alternative would have no effect on these species.

#### 5.1.2.2 Forest Service – Regional Forester’s Sensitive Species

Forest Service Manual 2670 provides direction to the agency regarding the conservation of sensitive plants and animals. Regional Forester’s Sensitive Species are those “plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.”

We have identified Regional Forester’s Sensitive Species that are likely to occur in prairie or sage-steppe habitats; habitats that we would anticipate may support prairie dogs and so provide habitat for the black-footed ferret (Table 4).

Taking no action to implement a statewide 10(j) rule for the black-footed ferret in Wyoming would result in no change in management or availability of habitat for these species. That is, implementing the no action alternative would have no effect on these species.

#### 5.1.2.3 Wyoming Game and Fish Department – Species of Greatest Conservation Need

The State of Wyoming State Wildlife Action Plan (SWAP) is a comprehensive plan to maintain the health and diversity of Wyoming’s wildlife, including reducing the need to list species under the Endangered Species Act. Identified within the plan, are Wyoming’s Species of Greatest Conservation Need (SGCN). These are species, based on their conservation status within the state, that merit greater conservation effort or consideration in land use planning and management.

We have identified Wyoming’s Species of Greatest Conservation Need that are likely to occur in prairie or sage-steppe habitats; habitats that we would anticipate may support prairie dogs and so provide habitat for the black-footed ferret (Table 4).

Taking no action to implement a statewide 10(j) rule for the black-footed ferret in Wyoming would result in no change in management or availability of habitat for these species. That is, implementing the no action alternative would have no effect on Wyoming’s Species of Greatest Conservation Need.

### 5.1.3 Farm and Ranchland

No changes to the use of agricultural lands in Wyoming lands are anticipated as a consequence of a decision to implement the no action alternative. That is, the decision not to develop a statewide 10(j) rule for the black-footed ferret in Wyoming would not affect agricultural land use in Wyoming.

However, under the no action alternative, in the event that black-footed ferrets inhabiting the existing Shirley Basin 10(j) area dispersed to habitats outside of the current 10(j) area, those ferrets would gain status as species listed as endangered under the Endangered Species Act of 1973, as amended. Consequently, these ferrets would gain the protections of section 9 of the ESA which prohibits take of listed species. Subsequent proposed actions, with a Federal nexus such as Federal funding, that may affect listed species, also are required to undergo section 7 consultation with the Service. Instances where ferrets disperse outside of existing 10(j) areas are likely to be exceptionally rare and subsequently localized. The Shirley Basin 10(j) area is the oldest of the reintroduction sites in North America, and, to date, we have no record of dispersal of ferrets outside the existing 10(j) area. Though this circumstance is largely speculative, there remains a possibility that this could occur.

### 5.1.4 Environmental Justice

Under the no-action alternative, environmental justice issues would not be affected. It is unlikely that the current presence of ferrets in the Shirley Basin Non-essential Experimental population, or any future reintroductions within the existing Shirley Basin 10(j) area, would compromise the principles of environmental justice that require that certain populations or communities are allowed to share in the benefits of, are not excluded from, and are not affected in a disproportionately high and adverse manner by, government programs and activities affecting human health or the environment.

### 5.1.5 Socioeconomic

Under the no-action alternative, the economic output of agricultural lands in Wyoming would be unaffected. A decision not to develop a statewide 10(j) rule for the black-footed ferret would not affect the gross economic output of Wyoming farm and ranchlands. Black-footed ferrets in the wild currently exist only where special regulatory provisions are in place, such as the Shirley Basin Non-essential Experimental 10(j) area. The current presence of ferrets in the Shirley Basin Non-essential Experimental population does not require modification of existing land use, nor would future reintroductions within the existing Shirley Basin 10(j) area.

As noted above, under the no action alternative, in the event that black-footed ferrets inhabiting the existing Shirley Basin 10(j) area dispersed to habitats outside of the current 10(j) area, those ferrets would gain status as species listed as endangered under the Endangered Species Act of 1973, as amended. Consequently, these ferrets would gain the protections of section 9 of the ESA which prohibits take of listed species. Subsequent proposed actions that may affect listed species, with a Federal nexus (such as Federal funding) also must undergo section 7 consultation with the Service. Instances where ferrets disperse outside of existing 10(j) areas are likely to be exceptionally rare and subsequently localized. The Shirley Basin 10(j) area is the oldest of the reintroduction

sites in North America, and, to date, we have no record of dispersal of ferrets outside the existing 10(j) area. Though this circumstance is largely speculative, there remains a distinct possibility that this could occur. Should this occur, any socioeconomic effects are likely to be highly localized (individual adjacent ranches) and not likely to significantly affect the economic output of the agricultural industry in Wyoming.

## 5.2 ALTERNATIVE – B WYOMING STATEWIDE BLACK-FOOTED FERRET 10(J) RULE

Under the Proposed Action, the Service would issue a new Federal Rule under section 10(j) of the ESA that would establish non-essential experimental status for the black-footed ferret throughout the State of Wyoming. The Action Area would encompass the entire State of Wyoming. The historic range of the two species of prairie dogs in Wyoming, the black- and white-tailed prairie dog, includes all or portions of the following counties: Albany, Big Horn, Campbell, Carbon, Converse, Crook, Fremont, Goshen, Hot Springs, Johnson, Laramie, Lincoln, Natrona, Niobrara, Park, Platte, Sheridan, Sublette, Sweetwater, Uinta, Washakie, and Weston (Figures 1, 2). Implementation of the proposed action is expected to result in beneficial effects to the ferret, prairie dogs, and other associated wildlife species. However, some short-term adverse impacts to some environmental factors may occur. The environmental consequences for each environmental component identified in Chapter 4.0 are discussed below.

In order to provide some scale of effect to these analyses, we have assumed that implementation of a statewide 10(j) rule for the black-footed ferret would result in recovery efforts sufficient to meet the guidelines for delisting in Wyoming as communicated in the Service's Black Footed-ferret Recovery Plan (USFWS 2013a). These criteria include (pp. 61-62):

- Establish free-ranging black-footed ferrets totaling at least 3,000 breeding adults, in 30 or more populations, with at least one population in each of at least 9 of 12 States within the historical range of the species, with no fewer than 30 breeding adults in any population, and at least 10 populations with 100 or more breeding adults, and at least 5 populations within colonies of Gunnison's and white-tailed prairie dogs.
- Maintain these population objectives for at least three years prior to delisting.
- Maintain a total of approximately 494,000 ac (200,000 ha) of prairie dog occupied habitat at reintroduction sites by planning and implementing actions to manage plague and conserve prairie dogs.

Guidelines for the contribution of each State within the historic range of the black-footed ferret are noted in the Recovery Plan as well (Table 8). For the purposes of these analyses, we have assumed that implementation of a statewide 10(j) rule for the black-footed ferret would result in an eventual contribution to recovery of the black-footed ferret equivalent to 70,000 acres of recovery actions (reintroduction areas totaling approximately 70,000 acres of black- or white-tailed prairie dog habitat). This is consistent with the guidelines for State contributions to ferret recovery that would result in the delisting of the black-footed ferret (Table 5). Assuming a minimal occupied acreage within the existing Shirley Basin 10(j) area equivalent to the area monitored in 2013 (Boulerice and Grenier 2014), that is, an area of approximately 20,000 acres (approximately 8,000 hectares), the remaining contribution of the State of Wyoming would

comprise approximately 50,000 acres of occupied black- or white-tailed prairie dog colonies that may serve as future reintroduction sites for the black-footed ferret.

### 5.2.1 Endangered, Threatened, Proposed, and Candidate Species

Appendix B indicates the potential impact to each threatened, endangered, proposed, or candidate species with respect to each of the alternatives considered herein. Impacts to listed, proposed, or candidate species may be characterized as positive, negative, both, or neutral. Positive impacts to ESA listed, proposed, or candidate species may include the voluntary protection and management of lands; negative impacts may include the temporary or permanent loss of habitat. Reintroductions of listed species may be both beneficial (additional populations returned to former portions of the species range), or negative where a portion of a reintroduced populations fail to survive the reintroduction process. And, some impacts may be neutral, or benign.

#### 5.2.1.1. Black-footed ferret.

Under the Proposed Action, a statewide 10(j) rule would be implemented for the purpose of advancing recovery of the black-footed ferret. It is anticipated that future reintroductions would be carried out in cooperation with the WGFD as a consequence of implementation of a statewide 10(j) rule for the black-footed ferret.

During ferret reintroductions and monitoring, some mortality may result from transportation and handling of ferrets. The Service anticipates that trapping, mark, and recapture of ferrets may occur at release sites to assess subsequent population status. These activities would be, and have been, led by staff of the WGFD. While occasional ferret deaths due to handling have occurred at some ferret release sites, the use of the handling protocol outlined in Roelle *et al.* (2006) would minimize loss of ferrets. To date, less than 0.5 percent of the more than 2,700 ferrets reintroduced have perished from transportation and handling (Gober 2012, pers. comm.).

Black-footed ferret survival rates, 30 days after release, range from 10.1%, for early reintroduction efforts, to 45.5% for more recent reintroduction efforts that used pre-conditioning of ferrets prior to their release (Biggins *et al.* 2004). These low survival rates among reintroduced ferrets are mainly due to predation and other natural causes. Captive-raised ferrets have not been exposed to the same environmental factors and therefore have not developed the same degree of disease resistance as wild ferrets. Furthermore, captive-raised ferrets have not had experience in hunting for prey or avoiding predators. According to studies at Meeteetse, Wyoming, in the 1980s, natural mortality of ferrets in the wild is high. Data presented by Forrest *et al.* (1988) was used for computer simulation modeling that indicated that the juvenile mortality rate of a stable wild population of ferrets may be up to approximately 78.5%. Juvenile mortality of captive-raised ferrets is likely to be higher for the reasons stated above. However, despite the low survival rates for reintroduced ferrets, it only takes a few ferrets to establish a wild population as documented in the successful ferret reintroduction sites.

Incidental take of reintroduced black-footed ferrets could also occur through vehicle or equipment collisions. While such rare incidents have been documented, the likelihood of vehicle collisions is low due to the nocturnal habits of the ferrets.

#### 5.2.1.2. Greater sage-grouse

The greater sage-grouse is a candidate for listing under the ESA (75 FR 13910, March 23, 2010). Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation related primarily to anthropogenic infrastructure, as well as loss of population connectivity, have been identified as important factors contributing to the decline of greater sage-grouse populations rangewide (Connelly *et al.* 2004; Connelly *et al.* 2011).

In the event that the Service would implement the proposed action, and future recovery actions take place in Wyoming where habitats for the white- or black-tailed prairie dog occur in close proximity to sage habitats, some minimal loss of sage steppe habitats, primarily consisting of the understory herbaceous component, may occur as a consequence of the normal cycles of growth and decline of prairie dog colonies. However, it should be noted that these species, prairie dogs and sage-grouse, occur sympatrically throughout their respective ranges in Wyoming. That is, some overlap of habitats occurs naturally for these species. Currently, all land management agencies (Bureau of Land Management and the USDA Forest Service) are revising their Land and Resource Management Plans to incorporate conservation measures for the greater sage-grouse. Consequently, conflicts between management of sage-grouse and prairie dogs (*e.g.*, regarding the use of prescribed fire in sage steppe habitats) should be resolved so as to minimize potential loss of sage habitats as a consequence of efforts to maintain the viability of sensitive species such as the white- or black-tailed prairie dog.

Should the State of Wyoming achieve the full compliment of recommended acreage for recovery actions, consisting of 50,000 acres, this would amount to approximately 0.08% of Wyoming's land base voluntarily committed to ferret recovery. Considering those lands characterized as grassland pasture and range (45.1 million acres; Hamerlinck *et al.* 2013), approximately 0.11% of Wyoming rangeland would be voluntarily committed to ferret recovery in the event that the State of Wyoming achieved the Recovery Team's recommended delisting acreage (Table 5). The overlap of sage steppe and rangeland habitats occupied by either the white- or black-tailed dog is unequivocally less than either of these figures that describe the potential land base that may be occupied by ferrets in the event that recovery goals are achieved. Consequently, though highly localized effects may occur at future ferret reintroduction sites, considering the scale of the action area, these effects, should they occur, are not likely to rise to the level of significance. Therefore, the Service anticipates that any impact to sage steppe habitats, and consequent impacts to the Greater sage-grouse, is likely to be minimal and highly localized.

In the event of future identification of reintroduction sites, it is likely that some management to address the potential for sylvatic plague may occur in collaboration with stakeholder agencies and landowners. The most common treatments may consist of the use of insecticides (*e.g.*, deltamethrin) or a sylvatic plague vaccine delivered by baits.

The use of deltamethrin to kill fleas that may carry sylvatic plague in prairie dog burrows is not expected to affect the greater sage-grouse. Deltamethrin, the active ingredient of DeltaDust®, is an insecticide that provides broad spectrum and residual control of arthropods. DeltaDust® is an unrestricted-use pesticide and considered safe for many applications including use in and around homes. The use of deltamethrin has been shown to be effective at controlling fleas for six to ten months (Biggins *et al.* 2010).

Deltamethrin toxicity to birds is exceptionally low:

Deltamethrin is practically non-toxic to birds when ingested with a reported acute oral LD50 for mallard ducks (*Anas platyrhynchos*) of greater than 4640 mg/kg. The 8-day dietary LC50 is greater than 8039 mg/kg for mallard ducks and greater than 5620 mg/kg for quail.

Deltamethrin did not affect the reproduction of female Japanese quail (*Coturnix japonica*) when fed daily doses of 0, 0.2, or 1.0 mg for 34 days.<sup>1</sup> In other studies, the NOEL established for mallard ducks and bobwhite quail (*Colinus* sp.) were greater than 70 mg/kg and greater than 55 mg/kg, respectively, for reproduction.

(Deltamethrin Technical Fact Sheet; Johnson *et al.* 2010)

Because application of deltamethrin is specifically directed at controlling flea populations in prairie dog burrows, the typical application rate is approximately 150 times lower than recommended rates for customary home and agricultural use. Deltamethrin is not known to bioaccumulate in animal tissues and has been determined to be noncarcinogenic.

Should a Sylvatic Plague Vaccine (SPV) be approved by the U.S. Department of Agriculture, its application under the Proposed Action is unlikely to affect the greater sage-grouse. SPV is a genetically modified viral vaccine, using attenuated raccoon pox virus as a vector for orally delivering critical plague antigens to target animals through the use of baits (U.S. Geological Survey 2012). Raccoon pox virus has been shown to be highly safe in numerous animals including black-footed ferrets, prairie dogs, dogs, cats, sheep, and mice (Mencher *et al.* 2004, Rocke *et al.* 2004, 2006, 2008a, 2008b). While there is no published information on the impacts of the vaccine on birds, it has been successfully used throughout the southeast with no reported effects to birds.

The Service anticipates that landowners, voluntarily participating in ferret recovery, may continue to need to lethally control prairie dogs for the purposes of ensuring human health and safety, the protection of infrastructure, or to control encroachment of colonies that may affect other resources. The recently implemented Black-footed Ferret Programmatic Safe Harbor (USFWS 2013) makes allowance for the use of lethal control of prairie dogs, including the use of zinc phosphide-based pesticides. The Service anticipates similar use of these products, and other methods of lethal control, where landowners voluntarily participate in ferret recovery under a statewide 10(j) rule. Use of anticoagulant pesticides such as Rozol® or Kaput®, however, would not occur on these properties due both to label restrictions and the Service's recognition of the risks of secondary poisoning to other non-target wildlife species that consume prairie dogs, including black-footed ferrets.

While zinc phosphide-based pesticides may pose fewer risks to mammalian predators than do the anti-coagulants, they may present risk to other rodents, passerines, and gallinaceous birds (USEPA 1998, Gervais *et al.* 2010). Among species groups,

gallinaceous birds (*e.g.*, quails, pheasants, grouse, and turkeys) appear to exhibit the greatest sensitivity to zinc phosphide. Consequently, in the event that this pesticide is used where expanding prairie dog populations encroach upon sage steppe habitats, it is reasonable to suggest that there may be some impact to non-target species including the greater sage-grouse (USFWS 2013b).

The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from July 1 to February in the following year. During the time of juvenile sage-grouse movement across the larger landscape between nesting habitats and brood habitats, there is some potential for particularly juvenile grouse (broods) to be exposed to these pesticides. We would anticipate that ingestion of baits may be incidental to foraging for primarily insects by grouse. This source of risk to grouse should be very low, although not entirely discountable. Therefore, the Service anticipates that some impact to the greater sage-grouse may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.

#### 5.2.2 Wildlife – Sensitive Species

The effects to those species of wildlife associated with habitats occupied by either white- or black-tailed prairie dogs, and at-risk, sensitive species (Table 4), should be largely beneficial in the event that the Service chooses to implement the proposed action. Should voluntary participation in recovery actions occur as a consequence of implementation of the proposed action, the most likely outcome for sensitive species dependent on these habitats is to secure substantial blocks, albeit localized, of suitable habitat to maintain populations of these sensitive species.

While zinc phosphide-based pesticides may pose fewer risks to mammalian predators than do the anti-coagulants, they may present distinct risks to passerines, gallinaceous birds (USEPA 1998, Gervais *et al.* 2010), and microtine rodents. Among species groups, gallinaceous birds (*e.g.*, quails, pheasants, grouse, and turkeys) appear to exhibit the greatest sensitivity to zinc phosphide. Consequently, in the event that these pesticides are used where expanding prairie dog populations encroach upon sage steppe habitats, it is reasonable to suggest that there may be some impact to sensitive species.

The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from July 1 to February in the following year. There remains some potential for particularly juvenile grouse (broods), passerines (*e.g.*, sage sparrow, Brewer's sparrow), and microtine rodents to be exposed to these pesticides. Therefore, the Service acknowledges that some impact to these species may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.



#### 5.2.2.1 Bureau of Land Management Sensitive Species

We have identified BLM sensitive species that are likely to occur in prairie or sage-steppe habitats; habitats that may be anticipated to support prairie dogs and so provide habitat for the black-footed ferret in the event of future reintroductions (Table 4).

In the event that a statewide 10(j) rule for the black-footed ferret in Wyoming would be implemented, the net effect to Bureau of Land Management sensitive status species would be to provide some measure of landscape-level habitat security for these species. Therefore, future ferret reintroductions, should they occur, should be largely beneficial to sensitive status species, with the exception of the white- and black-tailed prairie dogs.

In Wyoming, Bureau of Land Management lands that support prairie dogs occur within both the range of the white-tailed prairie dog and the black-tailed prairie dog. Should a future reintroduction occur on Bureau of Land Management lands, some impact to either the white- or black-tailed prairie dog would occur as a result of ferret predation. Conversely, should a future reintroduction occur, it is highly likely that colonies of the affected species would benefit from landscape-level treatments intended to minimize the impact of plague (Mencher *et al.* 2004; Rocke *et al.* 2004, 2006, 2008a, 2008b; Shoemaker *et al.* 2014). These treatments would consist of dusting with the insecticide Delta Dust<sup>®</sup> for flea control, or the future use of a sylvatic plague vaccine now undergoing field trials (Abbott *et al.* 2012). That is, the intent of a future reintroduction, would be to sustain populations of prairie dogs that would support a population of the black-footed ferret.

While zinc phosphide-based pesticides may pose fewer risks to mammalian predators than do the anti-coagulants, they may present distinct risks to passerines and gallinaceous birds (USEPA 1998, Gervais *et al.* 2010). Among species groups, gallinaceous birds (*e.g.*, quails, pheasants, grouse, and turkeys) appear to exhibit the greatest sensitivity to zinc phosphide. Consequently, in the event that these pesticides are used where expanding prairie dog populations encroach upon sage steppe habitats, it is reasonable to suggest that there may be some impact to at-risk sensitive species (*e.g.*, gallinaceous birds, granivorous passerines, and microtine rodents).

The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from July 1 to February in the following year. Therefore, there remains some potential for sage-grouse, passerines (*e.g.*, sage sparrow, Brewer's sparrow), and microtine rodents to be exposed to these pesticides. Though likely rare, the Service acknowledges that some impact to these species may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.

#### 5.2.2.2 Forest Service – Regional Forester's Sensitive Species

Forest Service Manual 2670 provides direction to the agency regarding the conservation of sensitive plants and animals. Regional Forester's Sensitive Species are those "plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.”

We have identified Regional Forester’s Sensitive Species that are likely to occur in prairie or sage-steppe habitats; habitats that we would anticipate may support prairie dogs and so provide habitat for the black-footed ferret (Table 4). These sensitive species are largely confined to Thunder Basin National Grassland as other National Forest System units in the State of Wyoming (*e.g.*, Bighorn National Forest, Bridger-Teton National Forest, Shoshone National Forest) provide little suitable habitat for prairie dogs that would be subsequently considered as potential reintroduction areas for the black-footed ferret.

In the event that a statewide 10(j) rule for the black-footed ferret in Wyoming would be implemented, the net effect to Regional Forester’s sensitive species would be to provide some measure of landscape-level habitat security for these species.

In Wyoming, National Forest System lands that support prairie dogs occur on the Thunder Basin National Grassland. The Thunder Basin National Grassland currently supports colonies of the black-tailed prairie dog. Should a future reintroduction occur on the grassland, some impact to the black-tailed prairie dog would occur as a result of ferret predation. Conversely, should a future reintroduction occur, it is highly likely that colonies of the black-tailed prairie dog would benefit from landscape-level treatments intended to minimize the impact of plague. These treatments would consist of dusting with the insecticide Delta Dust<sup>®</sup> for flea control (Seery *et al.* 2003; Tripp *et al.* 2009), or the future use of a sylvatic plague vaccine now under-going field trials (Abbott *et al.* 2012). The intent of a future reintroduction would be to sustain populations of prairie dogs that would support a population of the black-footed ferret.

While zinc phosphide-based pesticides may pose fewer risks to mammalian predators than do the anti-coagulants, they may present distinct risks to passerines and gallinaceous birds (USEPA 1998, Gervais *et al.* 2010). Among species groups, gallinaceous birds (*e.g.*, quails, pheasants, grouse, and turkeys) appear to exhibit the greatest sensitivity to zinc phosphide. Consequently, in the event that these pesticides are used where expanding prairie dog populations encroach upon sage steppe habitats, it is reasonable to suggest that there may be some impact to at-risk sensitive species.

The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from July 1 to February in the following year. Therefore, there remains some potential for particularly juvenile grouse (broods), passerines (*e.g.*, sage sparrow, Brewer’s sparrow), and microtine rodents to be exposed to these pesticides. Therefore, the Service acknowledges that some impact to the these species may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.

#### 5.2.2.3 Wyoming Game and Fish Department – Species of Greatest Conservation Need

The State of Wyoming State Wildlife Action Plan (SWAP) is a comprehensive plan to maintain the health and diversity of Wyoming's wildlife, including reducing the need to list at-risk species under the Endangered Species Act (WGFD 2010). Identified within the plan, are Wyoming's Species of Greatest Conservation Need (SGCN). These are species, based on their conservation status within the state, that merit greater conservation effort or consideration in land use planning and management.

We have identified Wyoming's Species of Greatest Conservation Need that are likely to occur in prairie or sage-steppe habitats; habitats that we would anticipate may support prairie dogs and so provide habitat for the black-footed ferret (Table 4).

While zinc phosphide-based pesticides may pose fewer risks to mammalian predators than do the anti-coagulants, they may present distinct risks to passerines and gallinaceous birds (USEPA 1998, Gervais *et al.* 2010). Gallinaceous birds (*e.g.*, quails, pheasants, grouse, and turkeys) appear to exhibit the greatest sensitivity to zinc phosphide. Consequently, in the event that these pesticides are used where expanding prairie dog populations encroach upon sage steppe habitats, it is reasonable to suggest that there may be some impact to non-target species including the greater sage-grouse (USFWS 2013b).

The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from June 1 to the end of February in the following year. Though the use of these pesticides within the interface of prairie dog habitats and sage steppe habitats is likely relatively rare, there remains a distinct potential for particularly juvenile grouse (broods), passerines (*e.g.*, sage sparrow, Brewer's sparrow), and microtine rodents to be exposed to these pesticides. Therefore, the Service acknowledges that some nominal impact to Species of Greatest Conservation Need may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.

White- and black-tailed prairie dogs are not currently designated as Species of Greatest Conservation Need in the State of Wyoming (WGFD 2010). In the event that a statewide 10(j) rule for the black-footed ferret in Wyoming would be implemented, the net effect to designated by the State of Wyoming as Species of Greatest Conservation Need would be to provide some measure of landscape-level habitat security for these species. Therefore, implementation of a Statewide 10(j) rule would provide a net benefit to these species by providing secure habitat, albeit in localized areas.

### 5.2.3 Farm and Ranch Land

The Farmland Protection Act requires that Federal agencies minimize the extent to which their programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure that their programs are administered in a manner that, to the extent practical, will be compatible with State and local governments and private programs and policies to protect farmland. Most, if not all of the non-federal lands that contain adequate occupied prairie dog habitat to support black-footed ferret populations are predominantly used for livestock grazing. Consequently, we consider livestock grazing, and associated ranch management practices (*e.g.*, fencing, weed treatments, etc.) to be entirely compatible with ferret recovery.

**Table 6.** Guidelines for black-footed ferret recovery, by State, that include contribution to both downlisting and delisting of the ferret (USFWS 2013, p.77).

State/Country	Approximate # of breeding adults established to date	# of sites per State/Country to date	Potential contribution of adults/acres to downlist	Potential contribution of adults/acres to delist
Arizona	100	2	74 adults/17,000 ac	148 adults/34,000 ac
Colorado	1	1	149 adults/29,000 ac	288 adults/58,000 ac
Kansas	10	1	123 adults/18,500 ac	246 adults/37,000 ac
Montana	10	4	147 adults/22,000 ac	294 adults/44,000 ac
Nebraska	0	0	134 adults/20,000 ac	268 adults/44,000 ac
New Mexico	10	2	220 adults/39,000 ac	440 adults/78,000 ac
North Dakota	1	0	38 adults/6,000 ac	76 adults/12,000 ac
Oklahoma	0	0	70 adults/10,500 ac	140 adults/21,000 ac
South Dakota	100	6	102 adults/15,000 ac	204 adults/30,000 ac
Texas	0	0	254 adults/38,000 ac	508 adults/76,000 ac
Utah	10	1	25adults/6,000 ac	50 adults/12,000 ac
Wyoming	100	1	171 adults/35,000 ac	341 adults/70,000 ac
Canada	10	1	NA	NA
Mexico	1	1	NA	NA
<b>Total</b>	<b>352</b>	<b>20</b>	<b>1,507 adults/256,000 ac</b>	<b>3,004 adults/512,000 ac</b>

Thus, the release of ferrets and associated management activities are not expected to change or disrupt current land uses or contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Implementation of the Proposed Action may facilitate the maintenance of agricultural lands for their intended and continued use for sustainable agriculture. Furthermore, the ferret and its principal prey species, prairie dogs, historically co-existed in an environment with large grazing ungulates (e.g., bison).

Therefore, the Service does not anticipate any conflict between grazing practices and participation in ferret recovery.

There are several sites in Wyoming suitable for reintroduction of black-footed ferrets in addition to the existing Shirley Basin 10(j) area. The main requirements for ferret reintroduction are: (1) An area of occupied prairie dog habitat that is purposefully managed and of sufficient size to support a viable population of ferrets (a minimum of 1,500 ac (608 ha) of black-tailed prairie dog occupied habitat or 3,000 ac (1,215 ha) of white-tailed prairie dog occupied habitat); (2) a willing landowner; and (3) a management plan for sylvatic plague. Because participation in ferret recovery actions is entirely voluntary on the part of a landowner, the Service anticipates that there may be a necessity to recognize, on any participating property, where there may be a need to control the encroachment of prairie dogs to protect residences, resources, or infrastructure on farm and ranch lands. These considerations would be documented in any application or agreement to voluntarily participate in ferret recovery actions. Therefore, implementation of the Proposed Action is not expected to result in changes to Farm and Ranch Lands beyond what might be voluntarily agreed to by a participating landowner or land manager. The Service does not anticipate any loss of the primary use of Farm and Ranch Lands as a consequence of the implementation of the Proposed Action.

#### 5.2.4 Environmental Justice

Under the Proposed Action, participation in ferret recovery actions would be voluntary for any landowner who meets the eligibility requirements related to habitat suitability. Because participation is voluntary, disproportionate adverse human health or environmental impacts of implementing a statewide 10(j) rule for the black-footed ferret are not expected to impact minority populations, low-income populations, or Indian Tribes. Across the range of the ferret, however, several Tribes have indicated a desire to participate in recovery efforts for ferrets (*e.g.*, Table 4; Rosebud). In the future, should habitat suitable for the reintroduction of the black-footed ferret occur on Tribal lands in Wyoming, it is not anticipated that any prospective reintroduction on Tribal lands would result in adverse impacts to Tribal lands or result in regulatory burden to the Tribes that would raise considerations related to the Service's obligation to ensure the equity of its actions to disadvantaged populations, minorities, or the Tribes. Participation by the Tribes, should it occur, may be perceived as advancing issues of environmental justice.

#### 5.2.5 Socioeconomics

Under the Proposed Action, future voluntary participation in ferret recovery actions by private landowners would not occasion any substantive change in land use by participants. The use of Wyoming ranch lands for grazing is not expected to change in the event that a statewide 10(j) rule for the black-footed ferret is implemented.

Voluntary participation by landowners in ferret recovery actions may result in eligibility for future technical or financial assistance provided by the USDA Animal Plant Health and Inspection Service (APHIS) or the Natural Resources Conservation Service (NRCS). While eligibility for existing programs under the Farm Bill is likely to be enhanced,

future programs intended to advance the recovery of listed species may also provide landowner assistance.

Given that the voluntary participation in ferret recovery actions would require no change in grazing practices that would impact Wyoming farm and ranch lands, implementation of the proposed action would be compliant with the Farmland Protection Act (7 USC § 4201 *et seq.*). Implementation of a statewide 10(j) rule for the black-footed ferret in Wyoming would not contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and would be entirely compatible with State and local governments, private programs, and policies to protect farmland. Should the proposed action of a statewide 10(j) rule be implemented, it is anticipated that socioeconomic impacts would be largely neutral (no impact).

### 5.3 ALTERNATIVE C – SITE-SPECIFIC 10(J) RULES IN WYOMING

Under Alternative C, the Service would not implement a statewide 10(j) rule, but would consider development of site-specific 10(j) rules, on a case-by-case basis, such as the Shirley Basin 10(j) rule. Consequently, the type and extent of anticipated impacts, at the individual site-specific level, would be similar to those described for the proposed action. Impacts would be identical to for components of the affected environment that include endangered, threatened, proposed, and candidate species; wildlife – sensitive species; and, environmental justice. Because of the administrative burden associated with the development of multiple site-specific rules, beneficial impact would accrue over an extended period of time as compared to the Proposed Action. Impacts related to the farm and ranch lands and socioeconomics are discussed below.

#### 5.3.1 Endangered, Threatened, Proposed, and Candidate Species

##### 5.2.1.1. Black-footed ferret.

Under Alternative C, individual site-specific 10(j) rules would be implemented for the purpose of advancing recovery of the black-footed ferret. It is anticipated that future reintroductions would be carried out in cooperation with the WGFD as a consequence of implementation of a statewide 10(j) rule for the black-footed ferret.

During ferret reintroductions and monitoring, some mortality may result from transportation and handling of ferrets. While occasional ferret deaths due to handling have occurred at some ferret release sites, the use of the handling protocol outlined in Roelle *et al.* (2006) would minimize loss of ferrets. To date, less than 0.5% of the more than 2,700 ferrets reintroduced have perished from transportation and handling (Gober 2012, pers. comm.).

Black-footed ferret survival rates, 30 days after release, range from 10.1%, for early reintroduction efforts, to 45.5% for more recent reintroduction efforts that used pre-conditioning of ferrets prior to their release (Biggins *et al.* 2004). These low survival rates among reintroduced ferrets are mainly due to predation and other natural causes. Captive-raised ferrets have not been exposed to the same environmental factors and therefore have not developed the same degree of disease resistance as wild ferrets. Furthermore, captive-raised ferrets have not had experience in hunting for prey or

avoiding predators. According to studies at Meeteetse, Wyoming, in the 1980s, natural mortality of ferrets in the wild is high. Data presented by Forrest *et al.* (1988) was used for computer simulation modeling that indicated that the juvenile mortality rate of a stable wild population of ferrets may be up to approximately 78.5%. Juvenile mortality of captive-raised ferrets is likely to be higher for the reasons stated above. However, despite the low survival rates for reintroduced ferrets, it only takes a few ferrets to establish a wild population as documented in the successful ferret reintroduction sites.

Incidental take of reintroduced black-footed ferrets could also occur through vehicle or equipment collisions. While such rare incidents have been documented, the likelihood of vehicle collisions is low due to the nocturnal habits of the ferrets. Consequently, impacts to the black-footed ferret under Alternative C are similar to those for the proposed action, albeit they would occur over a greater period of time due to the administrative burden associated with the development of multiple rules necessary to achieve recovery.

#### 5.2.1.2. Greater sage-grouse

The Greater sage-grouse is a candidate for listing under the ESA (75 FR 13910, March 23, 2010). Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation related primarily to anthropogenic infrastructure, as well as loss of population connectivity, have been identified as important factors contributing to the decline of Greater sage-grouse populations rangewide.

In the event that the Service would implement the proposed action, and future recovery actions take place in Wyoming where habitats for the white- or black-tailed prairie dog occur in close proximity to sage habitats, some minimal loss of sage steppe habitats may occur as a consequence of the normal cycles of growth and decline of prairie dog colonies. However, it should be noted that these species, prairie dogs and sage-grouse, occur sympatrically throughout their respective ranges in Wyoming. Some overlap of habitats occurs naturally for these species. Currently, all land management agencies (Bureau of Land Management and the USDA Forest Service) are revising their Land and Resource Management Plans to incorporate conservation measures for the greater sage-grouse. Consequently, conflicts between management of sage-grouse and prairie dogs (*e.g.*, regarding the use of fire in sage steppe habitats), should be resolved so as to minimize potential loss of sage habitats as a consequence of efforts to maintain the viability of sensitive species such as the white- or black-tailed prairie dog.

Should the State of Wyoming achieve the full compliment of recommended acreage for recovery actions, consisting of 50,000 acres, this would amount to approximately 0.08% of Wyoming's land base voluntarily committed to ferret recovery. Considering those lands characterized as grassland pasture and range (45.1 million acres; Hamerlinck *et al.* 2013), approximately 0.11% of Wyoming rangeland would be voluntarily committed to ferret recovery in the event that the State of Wyoming achieved the Recovery Team's recommended delisting acreage (Table 5). The overlap of sage steppe and rangeland habitats occupied by either the white- or black-tailed dog is unequivocally less than either of these figures that describe the potential land base that may be occupied by ferrets in the event that recovery goals are achieved. Consequently, though highly localized effects

may occur at future ferret reintroduction sites, considering the scale of the action area, these effects, should they occur, are not likely to rise to the level of significance. The Service anticipates that any impact to sage steppe habitats, and consequent impacts to the greater sage-grouse, is likely to be minimal and highly localized.

Any impact to the greater sage-grouse under Alternative C would be similar to that of the proposed action, albeit impacts would accrue over a greater period of time due to the administrative burden associated with the development of multiple rules necessary to achieve recovery of the black-footed ferret.

### 5.3.2 Wildlife – Sensitive Species

The effects to those species of wildlife associated with habitats occupied by either white- or black-tailed prairie dogs, and recognized to be at-risk, sensitive species (Table 4), should be largely beneficial in the event that the Service chooses to implement the Alternative C, albeit beneficial impact would accrue over a greater period of time as compared to the Proposed Action. Should voluntary participation in recovery actions occur as a consequence of implementation of Alternative C, the most likely outcome for sensitive species dependent on these habitats is to secure substantial blocks, albeit localized, of suitable habitat to maintain populations of these sensitive species.

#### 5.3.2.1 Bureau of Land Management Sensitive Species

We have identified BLM sensitive species that are likely to occur in prairie or sage-steppe habitats; habitats that may be anticipated to support prairie dogs and so provide habitat for the black-footed ferret in the event of future reintroductions (Table 4).

In the event that the Service chose to implement additional site-specific 10(j) rules for the ferret in Wyoming, the net effect to Bureau of Land Management sensitive status species would be to provide some measure of landscape-level habitat security for these species. That is, future ferret reintroductions, should they occur, should be largely beneficial to sensitive status species, with the exception of the white- and black-tailed prairie dogs, albeit beneficial impact would accrue over a greater period of time as compared to the Proposed Action.

In Wyoming, Bureau of Land Management lands that support prairie dogs occur within both the range of the white-tailed prairie dog and the black-tailed prairie dog. Should a future reintroduction occur on Bureau of Land Management lands, some impact to either the white- or black-tailed prairie dog would occur as a result of ferret predation. Conversely, should a future reintroduction occur, it is highly likely that colonies of the affected species would benefit from landscape-level treatments intended to minimize the impact of plague (Shoemaker *et al.* 2014). These treatments would consist of dusting with the insecticide Delta Dust<sup>®</sup> for flea control, or the future use of a sylvatic plague vaccine now under-going field trials (Abbott *et al.* 2012). That is, the intent of a future reintroduction, would be to sustain populations of prairie dogs that would support a population of the black-footed ferret.

#### 5.3.2.2 Forest Service – Regional Forester’s Sensitive Species

In the event that the Service chose to implement site-specific 10(j) rules, the net effect to Regional Forester’s sensitive species would be to provide some measure of landscape-



level habitat security for these species, albeit beneficial impact would accrue over a greater period of time as compared to the Proposed Action.

In Wyoming, National Forest System lands that support prairie dogs occur on the Thunder Basin National Grassland. The Thunder Basin National Grassland currently supports colonies of the black-tailed prairie dog. Should a future reintroduction occur on the grassland, some impact to the black-tailed prairie dog would occur as a result of ferret predation. Conversely, should a future reintroduction occur, it is highly likely that colonies of the black-tailed prairie dog would benefit from landscape-level treatments intended to minimize the impact of plague. These treatments would consist of dusting with the insecticide Delta Dust<sup>®</sup> for flea control (Biggins *et al.* 2010), or the future use of a sylvatic plague vaccine now under-going field trials (Abbott *et al.* 2012). The intent of a future reintroduction, would be to sustain populations of prairie dogs that would support a population of the black-footed ferret.

5.3.2.3 Wyoming Game and Fish Department – Species of Greatest Conservation Need White- and black-tailed prairie dogs are not currently designated as Species of Greatest Conservation Need in the State of Wyoming (WGFD 2010). In the event that the Service chose to implement individual site-specific 10(j) rules for the black-footed ferret in Wyoming, the net effect to designated by the State of Wyoming as Species of Greatest Conservation Need would be to provide some measure of landscape-level habitat security for these species. Implementation of a Statewide 10(j) rule would benefit these species by providing secure habitat, albeit in localized areas and over a greater period of time as compared to the Proposed Action.

#### 5.3.3 Farm and Ranch Land

The Farmland Protection Act requires that Federal agencies minimize the extent to which their programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure that their programs are administered in a manner that, to the extent practical, will be compatible with State and local governments and private programs and policies to protect farmland. Most, if not all of the non-federal lands that contain adequate occupied prairie dog habitat to support black-footed ferret populations are predominantly used for livestock grazing. Consequently, we consider livestock grazing, and associated ranch management practices (*e.g.*, fencing, weed treatments, etc.) to be entirely compatible with ferret recovery. Thus, the release of ferrets and associated management activities are not expected to change or disrupt current land use. Implementation of the Proposed Action may facilitate the maintenance of agricultural lands for their intended use, that is, continued use for sustainable agriculture.

#### 5.3.4 Environmental Justice

Under the Alternative C, participation in ferret recovery actions would be voluntary for any landowner who meets the eligibility requirements related to habitat suitability. Because participation is voluntary, disproportionate adverse human health or environmental impacts of implementing site-specific 10(j) rules for the black-footed ferret are not expected to impact minority populations, low-income populations, or Indian Tribes. Across the range of the ferret, however, several Tribes have indicated a desire to participate in recovery efforts for ferrets (*e.g.*, Table 4; Rosebud). In the future, should

habitat suitable for the reintroduction of the black-footed ferret occur on Tribal lands in Wyoming, it is not anticipated that any prospective reintroduction on Tribal lands would result in adverse impacts to Tribal lands or result in regulatory burden to the Tribes that would raise considerations related to the Service's obligation to ensure the equity of its actions to disadvantaged populations, minorities, or the Tribes. Participation by the Tribes, should it occur, may be perceived as advancing issues of environmental justice.

#### 5.3.5 Socioeconomics

Under Alternative C, future voluntary participation in ferret recovery actions by private landowners would not occasion any substantive change in land use by participants. That is, the use of Wyoming ranch lands for grazing is not expected to change in the event that the Service chooses to implement site-specific 10(j) rules for the black-footed ferret in Wyoming.

Voluntary participation by landowners in ferret recovery actions may result in eligibility for future technical or financial assistance provided by the USDA Animal Plant Health and Inspection Service (APHIS) or the Natural Resources Conservation Service (NRCS). While eligibility for existing programs under the Farm Bill is likely to be enhanced, future programs intended to advance the recovery of listed species may also provide landowner assistance.

Given that the voluntary participation in ferret recovery actions would require no change in grazing practices that would impact Wyoming farm and ranch lands, implementation of the proposed action would be compliant with the Farmland Protection Act (7 USC § 4201 *et seq.*). Implementation of a Statewide 10(j) rule for the black-footed ferret in Wyoming would not contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and would be entirely compatible with State and local governments, private programs, and policies to protect farmland.

However, the implementation of site-specific 10(j) rules for the black-footed ferret may be an inadequate mechanism to address State and local concern regarding the potential for ferrets to disperse from within 10(j) areas to adjacent Federal and non-federal lands. Should ferrets disperse to lands outside an existing 10(j) area, they would be regarded as species listed as 'endangered' under the Endangered Species Act. These dispersing animals would no longer be regarded as non-essential experimental and take of these animals would be prohibited under section 9 of the ESA. Consequently, Federal agencies, those that use Federal lands, or landowners that participate in Federal programs may be subject to consultation with the Service under section 7 of the ESA for actions that may affect these dispersing animals. Albeit this may be highly localized, socioeconomic impact may be related to delays in processing applications or permits in order to comply with consultation requirements, or disruption of local farm and ranch operations so as to avoid take of protected species.

## 6.0 CUMULATIVE EFFECTS

With respect to the NEPA process, the Council on Environmental Quality defines cumulative impacts as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-federal) or person undertakes such other actions (40 CFR 1508.7).

Specific identification or quantification of past, present, and reasonably foreseeable future actions outside of the Service's purview is not feasible due to the extensive geographic scope and time frame defined for the Proposed Action. However, in general, many past and present human activities, in addition to those of the Service, have occurred within the action area. Collectively, these activities have had substantial impacts upon the landscape; ranging from agricultural production to urban development, energy development to transportation and infrastructure improvements. Possibly, many additional activities, similar in nature, are reasonably foreseeable within the action area based on population growth and associated urbanization, economic development and infrastructure improvements, including transportation and utilities, as well as increased energy development. Examples of such actions that may have adverse impacts on the human environment are included in Table 8.

No substantive impact to the human environment is anticipated in the event that the Service should implement the Proposed Action. It is not anticipated that implementation of the Proposed Action, given the minimal scale of future foreseeable recovery actions within the Action Area, would result in any substantive impact to Endangered, Threatened, Proposed, or Candidate Species; Wildlife – Sensitive Species; Farm and Ranch Lands; populations affected by issues related to Environmental Justice; or, Socioeconomic condition. Implementation of the Proposed Action would not contribute any cumulative impact to resources of concern in the human environment within the Action Area.

Conversely, implementation of the No Action Alternative, or Alternative C, wherein the Service would develop and implement site-specific 10(j) rules, may adversely impact socioeconomic condition within the Action Area. This impact would be related to the inadequacy of mechanisms to provide relief from regulatory burden associated with the Endangered Species Act. Consequently, these alternatives are unlikely to receive interagency support so as to advance ferret recovery.

## 6.1 COMPARISON OF ALTERNATIVES

**Table 7.** Comparison of the three alternatives under consideration with respect to the five environmental components carried forward for analysis.

	<b>Alternative A No Action</b>	<b>Alternative B Statewide 10(j)</b>	<b>Alternative C Site-Specific 10(j)</b>
<b>Endangered, Threatened, Proposed, and Candidate Species</b>	<p>Under the No Action Alternative, a statewide 10(j) rule for the black-footed ferret would not be implemented. Black-footed ferret recovery efforts in Wyoming would consist of the existing Shirley Basin 10(j) area established in 1991.</p> <p>Ferret reintroductions could occur within the existing 10(j) area; some take of reintroduced ferrets may occur associated with the process of reintroduction. That is, implementation of the No Action Alternative may impact the black-footed ferret.</p> <p>No other additional impacts to endangered, threatened, proposed, and candidate species are anticipated in the event of implementation of the no action alternative.</p>	<p>Under the Proposed Alternative, The Service would implement a statewide 10(j) rule for the black-footed ferret in Wyoming.</p> <p>This alternative would encompass the existing Shirley Basin 10(j) area. Consequently, ferret reintroductions, with voluntary landowner participation and Wyoming Game and Fish Department collaboration, could occur throughout the State in suitable habitat.</p> <p>In addition to reintroductions within the existing Shirley Basin 10(j) area, reintroductions would be substantially facilitated, effectively streamlined, throughout the State.</p> <p>Some take of reintroduced ferrets may occur associated with the process of reintroduction. That is, implementation of the Proposed Action may impact the black-footed ferret.</p> <p>There is a minimal possibility that growth of a prairie dog colony managed to advance ferret recovery could result in diminished habitat quality for the Greater sage-grouse. If this were to occur, it most likely would be highly localized and restricted in extent. Consequently, while ferret recovery actions may impact sage-grouse on very local, restricted scales, they should in no way contribute to a need to list the Greater sage-grouse under the Endangered Species Act. Moreover, the net effect of voluntary participation in ferret recovery may be largely beneficial by way of securing, and managing for wildlife benefit, blocks of suitable habitat.</p> <p>The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to</p>	<p>Under Alternative C, the Service would consider implementing separate 10(j) rules for each prospective ferret reintroduction site, as these became available, within the State of Wyoming.</p> <p>Effectively, this would multiply the administrative burden required to implement recovery actions. That is, each rule, for each specific site, would require the full complement of analyses (NEPA, ESA) and outreach, greatly multiplying the time required to facilitate recovery actions. This would substantially impede ferret recovery actions in the State of Wyoming. Given the uncertainties of future Federal staffing and funding, it is uncertain as to whether the Service could produce individual 10(j) rules within a reasonable timeframe that would be compatible with the goals of collaborating agencies and landowners.</p> <p>Additionally, ferret reintroductions could still occur within the existing 10(j) area; some take of reintroduced ferrets may occur associated with the process of reintroduction. That is, implementation of this alternative may impact the black-footed ferret.</p> <p>In the event that staffing and funding allowed the Service to develop site-specific 10(j) rules, additional impacts to endangered, threatened, proposed, and candidate species would be similar to those described for the Proposed Action. However, these impacts are likely to accrue over a substantially greater period of time as compared to the Proposed Action.</p>

		<p>burrows. The period of application extends from July 1 to the end of February in the following year. That is, during the time of juvenile sage-grouse movement across the larger landscape between nesting habitats and brood habitats most frequently associated with irrigated hay meadows and riparian areas. Therefore, though the use of these pesticides within the interface of prairie dog habitats and sage steppe habitats is likely relatively rare, there remains potential for particularly juvenile grouse (broods) to be exposed to this pesticide. Therefore, some impact to the Greater sage-grouse may occur as a result of the need to lethally control the encroachment of prairie dogs. Given the minimal land area that may be involved in ferret recovery, this should in no way contribute to a need to list the Greater sage-grouse under the Endangered Species Act.</p> <p>In terms of advancing ferret recovery by way of reintroduction, the Proposed Action is more likely to facilitate reintroduction of ferrets to new areas than either the No Action alternative or an alternative wherein 10(j) rules are developed for each reintroduction site.</p> <p>No other impacts to endangered, threatened, proposed, and candidate species are anticipated.</p>	
<p><b>Wildlife – Sensitive Species</b></p>	<p>Under the no action alternative, the Service would not develop and implement additional 10(j) rules for the black-footed ferret in Wyoming.</p> <p>In the event that the Service would choose not to pursue an additional 10(j) rule for the black-footed ferret in Wyoming, no additional impacts to sensitive species (BLM Sensitive, USDA Forest Service Regional Forester’s Sensitive Species, or Wyoming Game and Fish Department – Species of Greatest Conservation Need) are anticipated.</p>	<p>The implementation of a statewide 10(j) rule for the black-footed ferret, in and of itself, would cause no impact to sensitive species. However, it is foreseeable that implementation of a statewide 10(j) rule for the black-footed ferret would likely result in future reintroductions of the ferret in Wyoming.</p> <p>In the event of future reintroductions, the impact to sensitive species will be largely beneficial by way of securing, and managing for wildlife benefit, blocks of suitable habitat.</p> <p>Management for plague, should this occur on future reintroduction sites, is likely to benefit both species of prairie dog. Conversely, prairie dogs (BLM and Forest Service</p>	<p>The implementation of a site-specific 10(j) rules for the black-footed ferret would cause no impact to sensitive species. However, it is reasonably foreseeable that implementation of site-specific 10(j) rules for the black-footed ferret would result in future reintroductions of the ferret in Wyoming.</p> <p>In the event of future reintroductions, the impact to sensitive species will be largely beneficial by way of securing, and managing for wildlife benefit, blocks of suitable habitat. Management for plague, should this occur on future reintroduction sites, is likely to benefit both species of prairie dog. Conversely, prairie dogs (BLM and Forest Service sensitive species) will be predated by ferrets. However,</p>

		<p>sensitive species) will be predated by ferrets. However, management for prairie dog populations in order to sustain ferrets, will result in long-term maintenance of prairie dog populations.</p> <p>The label direction for application of zinc phosphide grain baits requires application of the bait above ground, on the ground surface, in proximity to burrows. The period of application extends from June 1 to the end of February in the following year. Therefore, though the use of these pesticides within the interface of prairie dog habitats and sage steppe habitats is likely relatively rare, there remains potential for particularly juvenile grouse (broods) and at-risk passerines to be exposed to these pesticides. Therefore, the Service anticipates that some impact to sensitive species may occur as a result of the need to lethally control the encroachment of prairie dogs as a consequence of implementation of the Proposed Action.</p>	<p>management for prairie dog populations in order to sustain ferrets, will result in long-term maintenance of prairie dog populations.</p> <p>That is, impacts to sensitive wildlife species are expected to be similar to those of the Proposed Action, but would occur at a much slower rate as a result of the increased time to develop and approve each individual site-specific 10(j) rule.</p>
<p><b>Farm and Ranch Lands</b></p>	<p>In the absence of additional 10(j) rules, consisting of either a single statewide rule or individual site-specific rules, no changes to the use of agricultural lands in Wyoming are anticipated as a consequence of a decision to implement the No Action Alternative.</p>	<p>In the event of implementation of a statewide 10(j) rule for the black-footed ferret, it may be reasonable to anticipate voluntary landowner participation in subsequent ferret recovery actions. Participation may result in continued use of these lands for agricultural use and may serve to minimize the probability of conversion of these lands to non-agricultural uses.</p> <p>No changes to the use of agricultural lands in Wyoming are anticipated as a consequence of a decision to implement the Proposed Action.</p>	<p>In the event that the Service chose to develop site-specific 10(j) rules in preference to either a statewide rule or the No Action Alternative, lands volunteered for ferret recovery actions may similarly retain their agricultural use, but this may be limited in extent by the time required to develop and approve individual site-specific rules.</p> <p>No changes to the use of agricultural lands in Wyoming are anticipated as a consequence of a decision to implement an alternative wherein the Service would choose to develop site-specific 10(j) rules.</p>
<p><b>Environmental Justice</b></p>	<p>In the event that the Service chose not to pursue an additional 10(j) rule for the black-footed ferret in Wyoming, there would be no subsequent adverse impact to minority and low-income populations, or the tribes.</p>	<p>As participation in ferret recovery actions is entirely voluntary, disproportionately high and adverse human health or environmental effects related to implementation of a Statewide 10(j) rule are not expected to impact minority populations, low-income populations, or Indian Tribes.</p>	<p>As participation in ferret recovery actions is entirely voluntary, disproportionately high and adverse human health or environmental effects related to implementation of site-specific 10(j) rules are not expected to impact minority populations, low-income populations, or Indian Tribes.</p>
<p><b>Socioeconomics</b></p>	<p>Under the no action alternative,</p>	<p>The foreseeable reintroduction of</p>	<p>The foreseeable reintroduction</p>

ferret recovery in Wyoming would consist of the existing Shirley Basin 10(j) area. Persistence of the ferret in the Shirley Basin, or supplemental reintroductions of the ferret in the existing Shirley Basin 10(j) area are not expected to change or disrupt current land uses.

ferrets, and the management activities associated with the release of black-footed ferrets, are not expected to change or disrupt current land uses under the proposed implementation of a statewide 10(j) rule for the black-footed ferret.

of ferrets, though this would occur over an extended period of time as compared to the proposed action, and the management activities associated with the release of black-footed ferrets, are not expected to change or disrupt current land uses.

**Table 8.** Summary of Cumulative Effects within the Action Area. These consist primarily of those past, present and reasonably foreseeable future activities likely to influence the distribution and abundance of prairie dogs within in the action area and, subsequently, the suitability and availability of future ferret reintroduction sites.

<b>Types of Actions</b>	<b>Associated Activities/Facilities</b>
<b>Renewable energy development</b>	Vegetation clearing, construction, access roads, hydropower generating stations, powerlines, operations and maintenance, repowering or decommissioning.
<b>Natural gas exploration development and production</b>	Exploratory drilling, construction of well pads, well installation, associated pipelines and utility corridors, access, compressor stations, potential spills/releases, site reclamation.
<b>Coal and other mineral exploration, development and production</b>	Exploratory drilling and trenching along with access development, production within surface or underground mines along with associated access roads, processing plants, transportation, solid waste, tailings, site reclamation.
<b>Transmission and distribution systems</b>	Development and improvements to utility corridors, including carrier pipelines, oil and gas pipelines, transmission lines, along with associated infrastructure (substations, access roads, fuel transfer stations), and potential for spills/releases.
<b>Transportation/Infrastructure improvements</b>	Construction and improvements to highways, roads, parkways, and railroad construction or improvements.
<b>Changes in land use, urbanization</b>	Changes to forest land, grasslands, crop lands and other special uses to more urbanized use; changes to commercial, industrial or residential development; conversion to croplands.
<b>Pest Management</b>	Management of prairie dogs as agricultural pests on both public and private lands.



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## Appendix A

Determinations for which environmental components may be affected by the proposed action, or alternatives to the proposed action, and further analyzed in this environmental assessment

<b>Component</b>	<b>Determination</b>	<b>Rationale for Determination</b>
<b>Endangered, Threatened, Proposed, and Candidate Species</b>	May Impact	Refer to Appendix B for a list of species reviewed. See Chapters 4 and 5 for further information. The black-footed ferret may be affected by way of reintroduction. Local Greater sage-grouse habitat, in the event of future recovery actions, may be affected, albeit this will be wholly insignificant at the scale of the action area.
<b>Fish and Wildlife – Sensitive Species</b>	May Impact	Species considered include those species associated with prairie or sage-steppe habitats and designated by the Bureau of Land Management as sensitive (BLM Manual 684), by the Forest Service as Regional Forester’s sensitive species (FS Manual 2670), and by Wyoming Game and Fish Department as Species of Greatest Conservation Need. See Chapters 4 and 5 for further information.
<b>Surface Water</b>	No Impact	Black-footed ferrets are terrestrial animals that depend on the burrows of prairie dogs. Should future recovery actions take place, conservation activities such as treatments for plague (e.g., dusting of burrows or use of plague vaccines), may occur at reintroduction sites. Any conservation actions, implemented by either a participating landowner, or in collaboration with the Service, collaborating agencies such as the NRCS, or the Wyoming Game and Fish Department, will not occur in the vicinity of surface water. Therefore, the Proposed Action will not alter or reduce water quality or quantity.

<b>Ground Water</b>	No Impact	Black-footed ferrets are terrestrial animals that depend on the burrows of prairie dogs. Typically, prairie dogs avoid areas where groundwater can impact their burrow systems. Should future recovery actions take place, it is not anticipated that implementation of the proposed action would result in withdrawal of any groundwater or alter discharge to any source of groundwater.
<b>Wetlands / Riparian Zones</b>	No Impact	Any future recovery actions facilitated by implementation of the proposed action will not disturb or alter wetlands, riparian flora, or riparian ecosystems, as future recovery actions, should they occur, will take place in upland habitats.
<b>Air</b>	No Impact	Implementation of the proposed action will not result in any emissions that lower ambient air quality by elevating levels of ozone, particulates, or other pollutants.
<b>Cultural Resources</b>	No Impact	Implementation of the proposed action will not have adverse impacts to National Historic Landmarks or other historic properties as the Proposed Action (the issuance of a Federal Rule) does not involve ground disturbance. Should future ferret recovery actions take place, National Historic Preservation Act compliance would be considered and documented for these site-specific actions.
<b>Farm and Ranch Lands Livestock Grazing</b>	May Impact	Future foreseeable voluntary participation in recovery actions may preclude the unnecessary and irreversible conversion of farm and ranch lands to non-agricultural uses. No significant change in land use of Wyoming Farm and Ranch lands is anticipated. That is, future foreseeable participation in recovery actions for the black-footed ferret will not require changes in livestock grazing. See Chapters 4 and 5 for more information.

<b>Soils</b>	No Impact	Implementation of the proposed action will not have adverse impacts to soil resources as the Proposed Action (the issuance of a Federal Rule) does not involve ground disturbance. Should future recovery actions occur, they are not expected to increase rates of soil erosion as they will be conducted on habitat already occupied by prairie dogs.
<b>Hazardous Materials or Waste</b>	No Impact	Implementation of the proposed action is not anticipated to generate hazardous materials or waste. In the event that future recovery actions are facilitated by implementation of the proposed action, depending on funding and participation by collaborating agencies, recovery actions may include the use of the insecticide DeltaDust, a registered pesticide used for controlling fleas and possibly the use of an oral plague vaccine. It is not anticipated that implementation of the proposed action would result in any increase beyond current use of the use of rodenticides used to control encroachment of prairie dogs on lands where they may impact existing infrastructure on lands participating in recovery actions.
<b>Wild and Scenic Rivers</b>	No Impact	Activities will not alter wild and scenic rivers because they will occur in uplands. That is, wild and scenic rivers are habitats that do not overlap the habitats for either the white- or black-tailed prairie dog and would therefore fall outside any area considered for future recovery actions in the State of Wyoming.
<b>Environmental Justice</b>	No Impact	As participation in ferret recovery actions is entirely voluntary, disproportionately high and adverse human health or environmental effects related to implementation of a Statewide 10(j) rule are not expected to impact minority populations, low-income populations, or Indian Tribes.



<b>Human Health</b>	No Impact	The Center for Disease Control does not consider plague to be a serious human health risk ( <a href="http://www.cdc.gov/plague/">http://www.cdc.gov/plague/</a> ). Although future voluntary participation in recovery actions may result in expanded distribution of the black-footed ferret, this is unlikely to alter the distribution of plague within the action area. Should plague management be incorporated in subsequent recovery actions, this may avert any increased risk of disease transmission to humans.
<b>Socioeconomics</b>	May Impact	In the event that the Service would not implement a statewide 10(j) rule for the black-footed ferret, localized socioeconomic impact may occur in the absence of a means to provide regulatory relief to landowners that adjoin the existing Shirley Basin 10(j) area. See Chapters 4 and 5 for more information.
<b>Wilderness</b>	No Impact	Activities will not occur in wilderness areas.
<b>Mining Operations</b>	No Impact	Activities will not affect existing mining operations.
<b>Climate</b>	No Impact	The IPCC (2007) predicts that changes in the global climate system during the 21st century are very likely to be larger than those observed during the 20 <sup>th</sup> century. For the next two decades, a warming of about 0.2°C per decade is projected (IPCC 2007). Afterwards, temperature projections increasingly depend on specific emission scenarios (IPCC 2007). None of the alternatives, however, are likely to alter the effects of climate change within the action area.

## Appendix B

Threatened (T), endangered (E), Non-essential / Experimental (NEP), proposed (P), and candidate (C) species that occur within the action area and determinations of impact to the species relative to implementation of the proposed action.

Common Name	Status	Determination	Rationale for Determination
<b>Amphibians</b>			
<b>Wyoming Toad</b> <i>(Bufo baxteria)</i>	E	No Impact	Habitats do not overlap
<b>Birds</b>			
<b>Greater sage-grouse</b> <i>(Centrocercus urophasianus)</i>	C	Potential Impact	Potential Impacts, see EA for more information
<b>Least Tern</b> <i>(Sternula antillarum)</i>	E	No Impact	Habitats do not overlap
<b>Piping Plover</b> <i>(Charadrius melodus)</i>	T	No Impact	Habitats do not overlap
<b>Whooping crane</b> <i>(Grus americana)</i>	E	No Impact	Habitats do not overlap
<b>Yellow-billed Cuckoo</b> <i>(Coccyzus americanus)</i>	C	No Impact	Habitats do not overlap
<b>Fish</b>			
<b>Bonytail chub</b> <i>(Gila elegans)</i>	E	No Impact	Habitats do not overlap
<b>Colorado pikeminnow</b> <i>(Ptychocheilus lecius)</i>	E	No Impact	Habitats do not overlap
<b>Humpback chub</b> <i>(Gila cypha)</i>	E	No Impact	Habitats do not overlap
<b>Kendall warm springs dace</b> <i>(Rhinichthys osculus thermalis)</i>	E	No Impact	Habitats do not overlap
<b>Pallid sturgeon</b> <i>(Scaphirhynchus albus)</i>	E	No Impact	Habitats do not overlap
<b>Razorback sucker</b> <i>(Xyranchen texanus)</i>	E	No Impact	Habitats do not overlap
<b>Flowering Plants</b>			
<b>Blowout penstemon</b> <i>(Penstemon haydenii)</i>	E	No Impact	Habitats do not overlap

<b>Colorado Butterfly Plant</b> ( <i>Gaura neomexicana coloradensis</i> )	T	No Impact	Habitats do not overlap
<b>Desert yellowhead</b> ( <i>Yermo xanthocephalus</i> )	T	No Impact	Limited habitat overlap
<b>Fremont County rockcress</b> ( <i>Boechera pussill</i> )	C	No Impact	Habitats do not overlap
<b>Ute ladies'-tresses</b> ( <i>Spiranthes diluvialis</i> )	T	No Impact	Habitats do not overlap
<b>Western prairie fringed orchid</b> ( <i>Plantanthera praeclara</i> )	T	No Impact	Habitats do not overlap
<b>Whitebark pine</b> ( <i>Pinus albicaulis</i> )	C	No Impact	Habitats do not overlap
<b>Mammals</b>			
<b>Black-footed ferret</b> ( <i>Mustela nigripes</i> )	NEP	May Impact	See EA for more information
<b>Canada Lynx</b> ( <i>Lynx canadensis</i> )	T	No Impact	Habitats do not overlap
<b>Grey Wolf</b> ( <i>Canis lupus</i> )	E	No Impact	Habitats do not overlap
<b>Grizzly bear</b> ( <i>Ursus arctos horribilis</i> )	T	No Impact	Limited habitat overlap
<b>Northern long-eared bat</b> ( <i>Myotis septentrionalis</i> )	P	No Impact	Habitats do not overlap
<b>Preble's meadow jumping mouse</b> ( <i>Zapus hudsonius preblei</i> )	T	No Impact	Limited habitat overlap
<b>Critical Habitat (CH)</b>			
<b>Canada lynx CH</b>	NA	No Impact	Habitats do not overlap
<b>Colorado Butterfly Plant CH</b>	NA	No Impact	Limited habitat overlap
<b>Colorado River fish CH</b>	NA	No Impact	Habitats do not overlap
<b>Desert yellowhead CH</b>	NA	No Impact	Limited habitat overlap
<b>Platte River species CH</b>	NA	No Impact	Habitats do not overlap

## Appendix C

### Tribal Consultation

Eastern Shoshone	Chairman Eastern Shoshone Tribe of the Wind River Reservation P.O. Box 538 Fort Washakie, WY 82514	Tribal Historic Preservation Officer Eastern Shoshone Tribe of the Wind River Reservation P.O. Box 538 Fort Washakie, WY 82514
Northern Arapaho	Chairman Northern Arapaho Tribe P.O. Box 396 Fort Washakie, WY 82514	Tribal Historic Preservation Officer Northern Arapaho Tribe P.O. Box 396 Fort Washakie, WY 82514